

S4.55(2) Modification Report

Karuah Pit Consolidation Project
Modification 2 (MOD 2)

Development Consent DA 265-10-2004

Lot 21 DP 1024341, Lot 11 DP 1024564
& Lot 12 DP 1024564

Andersite Road, Karuah

Prepared on behalf of Hunter Quarries Pty Limited

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Ref: 11683-Section 4.55(2) Modification Application

Limitations Statement

This report has been prepared in accordance with and for the purposes outlined in the scope of services agreed between ADW Johnson Pty Ltd and the Client. It has been prepared based on the information supplied by the Client, as well as investigation undertaken by ADW Johnson and the sub-consultants engaged by the Client for the project.

Unless otherwise specified in this report, information and advice received from external parties during the course of this project was not independently verified. However, any such information was, in our opinion, deemed to be current and relevant prior to its use. Whilst all reasonable skill, diligence and care have been taken to provide accurate information and appropriate recommendations, it is not warranted or guaranteed and no responsibility or liability for any information, opinion or commentary contained herein or for any consequences of its use will be accepted by ADW Johnson or by any person involved in the preparation of this assessment and report.

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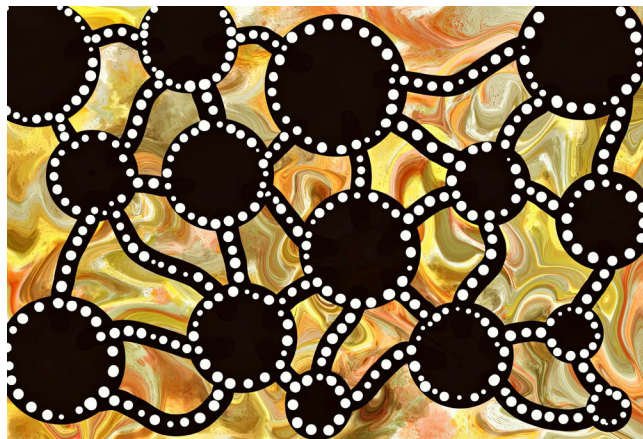
The Client should be aware that this report does not guarantee the approval of any application by any Council, Government agency or any other regulatory authority.

Acknowledgement of Country

We, ADW Johnson, acknowledge the Traditional Custodians of the land where we live and work, the country of Awabakal, Darkinjung and the Eora Nation.

We recognise their continuous connection to the land and waters of our beautiful regions. We pay our respects to Aboriginal and Torres Strait Islanders Elders past, present and emerging.

Artwork created by Joe Griffin, a proud Aboriginal man, descendant of the Awabakal people.



Executive Summary

Hunter Quarries Pty Ltd (the Applicant, HQPL) owns and operates the Karuah Hard Rock Quarry (KHRQ), located approximately 4 km northeast of the village of Karuah, in the MidCoast Local Government Area. KHRQ produces a high-quality andesite resource which is supplied to construction, infrastructure, and other development projects across Greater Newcastle, the Hunter Valley and Mid-North Coast regions.

HQPL propose to modify the State Significant Development (SSD) consent for the Karuah Hard Rock Quarry (DA 265-10-2004) under the provisions of Section 4.55(2) of the Environmental Planning and Assessment Act 1979 (EP&A Act). The Section 4.55(2) application will be known as MOD 2, Karuah Pit Consolidation Project.

The Applicant has recently acquired Lot 11 DP 1024564 (Lot 11), enabling HQPL (and affiliated companies) to control all landholdings within the Karuah Quarry Complex, which currently consists of two operational quarries, including the KHRQ which extracts resource from Lot 11 and the Karuah East Quarry (KEQ) which extracts resource from Lot 12 DP 1024564 (Lot 12) and Lot 13 DP 1024564 (Lot 13) under separate SSD Development Consents.

This acquisition now allows the Applicant to readily extract previously sterilised andesite resource from the remnant dividing highwall between the KHRQ (Lot 11) and KEQ (Lot 12) extraction pits forming a Consolidated Extraction Area (CEA).

The purpose of this modification is to enable the extraction of previously sterilised andesite resource from disturbed areas at KHRQ in a coordinated approach with the KEQ.

The Application (MOD 2) has been lodged concurrently with a reciprocal Section 4.55(2) modification to the separate KEQ Project Approval (MP09_0175) to facilitate the Karuah Pit Consolidation Project.

The overall Karuah Pit Consolidation Project (i.e. the modification of both of the KHRQ and KEQ consents) will secure the extraction of remaining in-situ resource of approximately 28.47 million tonnes (Mt) of material as measured from LiDAR contours captured in September 2024, inclusive of stockpiled overburden and currently approved resource that has not yet been extracted in accordance with the respective approvals, broken down as follows:

- KHRQ – 5.25 Mt; and
- KEQ – 23.22 Mt.

Incrementally, at the KHRQ site, this correlates to an estimated total extraction of 13.20 Mt (i.e. life of quarry extraction) inclusive of extraction already completed and in-situ remaining resource (calculated from surface contours captured in September 2024). This represents an increase of 2.0 Mt (or 18%) compared to the currently approved total resource of 11.2 Mt allowed under the Development Consent.

Background

Development Consent (DA 265-10-2004) was granted for the KHRQ as a State Significant Development under the provisions of Section 76A(7) of the EP&A Act on 3 June 2005.

Prior to this consent, KHRQ was located wholly within Lot 21 DP 1024341 (Lot 21) and operated under a Development Consent (DA 302/97) granted by Great Lakes Council (now MidCoast Council) in 1997, and continuing use rights for the former Karuah Red Quarry which began operations before the commencement of the EP&A Act 1979.

DA 265-10-2004 provided approval for the KHRQ to extract the remainder of the resource approved for extraction and expand into adjoining Lot 11.

The key features of the approval include:

- Implementing the remainder of the approved Stage 1 quarry operation and the Stage 2 extension of the quarry pit onto adjoining land of Lot 11;

- Upgrading and using the existing infrastructure at KHRQ to accommodate the extension;
- The extraction of up to 500,000 tonnes of material per year;
- Quarrying operation permitted for 22 years after the commencement of the consent (current cease date 3 June 2027);
- A total extraction limit of 11.2 million tonnes of andesite material over the period of the consent;
- The progressive rehabilitation of the quarry;
- The establishment of a Conservation Offset Area (COA) on the southern portion of Lot 12; and
- Surrender of any existing development consents and existing use rights associated with the site.

The KHRQ has been the subject of one previous modification application (MOD 1). The purpose of the modification was to address various administrative arrangements in relation to DA 265-10-2004. The NSW Department of Planning, Housing & Infrastructure (NSW Planning) produced draft conditions of consent for MOD 1; however, it was withdrawn by HQPL prior to determination because landowners consent from the former owner of Lot 11 was unable to be obtained.

Subsequent to MOD 1, on 29 September 2006, the NSW Land and Environment Court amended Schedule 2 Condition 13 of DA 265-10-2004, which relates to Section 7.11 (formerly Section 94) contributions.

The adjoining KEQ was approved to operate as a stand-alone quarry operation on Lots 12 and 13 DP 1024564 in June 2014 and is well established and operational. The KEQ is operated by Karuah East Quarry Pty Limited (KEQPL), a company affiliated with HQPL.

During assessment of the KEQ application, one of the items that was considered by the Environment Assessment (ADW Johnson, January 2013) and the Department's assessment was alternate ways to extract the known resource from Lot 12 and Lot 13 (which now contains the KEQ pit). At the time of preparation of the original KEQ application, one alternate option considered was extending the KHRQ from Lot 11 directly into Lot 12 and Lot 13; however, this was not possible because at that time HQPL only had rights conferred under specific licence terms with the landowner of Lot 11. The terms of the licence did not provide a legal right of way across Lot 11 for extraction of material within Lots 12 and Lot 13. Efforts were made by the Applicant to secure access across Lot 11 however an agreement was unable to be achieved. Therefore, the Applicant had no other option than to pursue a stand-alone quarry on Lots 12 and 13 (the KEQ site).

The approval of the KEQ resulted in the side-by-side operation of two independently operated quarries, being the KHRQ and the KEQ, with a remnant dividing highwall located in between the quarry pits consisting of sterilised material. This outcome was understood by HQPL that the removal of the remnant structure could readily occur, subject to appropriate approvals. Lot 11 was recently acquired by the Applicant and removal of the dividing highwall can now proceed.

Proposal

The proposal seeks to modify the Development Consent for KHRQ as follows:

- Concurrently modify both the KHRQ and KEQ consents to extract the known resource contained within already disturbed areas of Lot 11, Lot 12 and Lot 13 including the dividing highwall, within the currently approved extraction depths of RL65 at KHRQ and RL45 at KEQ.
- Minor extension and overlap of extraction boundary of both KHRQ (into Lot 12) and KEQ (into Lot 11) extraction areas to holistically encompass the highwall structure, inclusive of appropriate safety offsets.
- Material sourced from the overlapping area of the CEA will be transported by internal haul road to either the KHRQ or KEQ for processing, stockpiling, sale and transport to market within currently approved throughput rates.
- Environmental safeguards incorporated into Management Plans that are in place for the KHRQ operation will be reviewed and updated (where required) to accommodate the proposal.
- An extension of the life of quarrying operations from 3 June 2027 to 31 December 2034 to align with the approved operational timeframe of the KEQ.
- Increase in approved total resource volume from 11.20 Mt to 13.20 Mt (18% increase).
- Application of contemporary noise conditions and associated criteria.
- Extended operating hours to match the approved hours of operation of the adjoining KEQ.

- Changes to approved blasting activities as follows:
 - Change in blasting frequency from one (1) blast per week at KHRQ to a combined two (2) blasts per week in total between KHRQ and KEQ. This will result in a cumulative reduction of blasting activities between KHRQ (one blast per week currently approved) and KEQ (two (2) blasts per week currently approved) from a total of three (3) blasts per week to two (2) blasts per week.
 - Approved blasting hours are proposed to be extended by two (2) hours to occur between 9am and 5pm (Monday to Friday) to provide improved flexibility during blasting of the dividing highwall and align with proposed arrangements at KEQ.
- Revised final landform resulting in a free-draining landscape of the CEA, resulting in reduced geotechnical risks over the long-term and a landform with greater consistency with the existing surrounding environment.

No change is necessary to the Development Consent as it relates to annual extraction, processing and transport rates (capped at 500,000 tpa).

Key Environmental Investigations

Detailed investigations of the existing environment and potential impacts of the proposed modification have been undertaken consistent with those confirmed with NSW Planning during the proposed modification's scoping process and as confirmed within the Environmental Assessment Requirements issued on 1 October 2025. Specialist consultant reports were commissioned where necessary. The following is a summary of the key matters investigated:

- Air Quality;
- Blasting and Vibration;
- Noise;
- Traffic and transport;
- Water resources including Surface Water and Groundwater;
- Visual amenity; and
- Rehabilitation and final landform.

The findings of the environmental assessments undertaken confirm that the site is suitable to accommodate proposed modification.

Consultation

In establishing the environmental parameters and scope of the proposed modification, consultation has been undertaken with key public agencies, including:

- NSW Planning;
- NSW Environment Protection Authority;
- Water Group within the NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW);
- Transport for NSW; and
- MidCoast Council.

In addition to agency consultation, the Applicant has also consulted with the Joint Karuah Quarry Complex Community Consultative Committee (CCC) which acts for both the KHRQ and the KEQ regarding the proposed modification.

Further opportunity for involvement of both government authorities and the community will occur during the public exhibition phase of the assessment.

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Section 1

Introduction



1.0 Introduction

1.1 Introduction

ADW Johnson has been commissioned by Hunter Quarries Pty Ltd (HQPL) to prepare a Section 4.55(2) Application to modify the State Significant Development (SSD) consent (DA 265-10-2004) for the Karuah Hard Rock Quarry (KHRQ). The Section 4.55(2) application will be known as MOD 2, Karuah Pit Consolidation Project.

The purpose of this modification is to enable the extraction of previously sterilised andesite resource from the remnant dividing highwall and all disturbed areas at KHRQ in a coordinated approach with the adjoining Karuah East Quarry (KEQ).

This application seeks to modify the project approval under Section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.2 Application Details

Table 1: Application Details

REPORT PREPARED BY:	
Name:	ADW Johnson Pty Ltd Unit 7, 335 Hillsborough Road WARNERS BAY NSW 2282
Contact:	Mat Radnidge – Senior Town Planner Ph: (02) 4978 5100 Email: mathewr@adwjohnson.com.au Website: www.adwjohnson.com.au
PROJECT DETAILS:	
Description of Proposal:	Modification (MOD 2) under Section 4.55(2) of the Environmental Planning and Assessment Act 1979 to Development Consent DA 265-10-2004. Proposed Karuah Pit Consolidation Project.
Applicant Name:	Hunter Quarries Pty Ltd
Applicant Address:	Hunter Quarries Pty Ltd C/- ADW Johnson Pty Ltd Unit 7, 335 Hillsborough Road WARNERS BAY NSW 2282
Property Description – Lands Listed within DA 265-10-2004	Lot 21 DP 1024341 Lot 11 DP 1024564 Lot 12 DP 1024564

1.3 Summary of Approved Project

1.3.1 Site and Locality

The Karuah Hard Rock Quarry (KHRQ) is located off the Pacific Highway (accessed via The Branch Lane interchange and Andersite Road), approximately 4 km northeast of the village of Karuah on the following lands:

- Lot 21 DP 102434 and Lot 11 DP 1024564 (the KHRQ site); and
- Lot 12 DP 1024564 (Conservation Offset Area).

Figure 1 below shows the location of the site in its regional and local context.

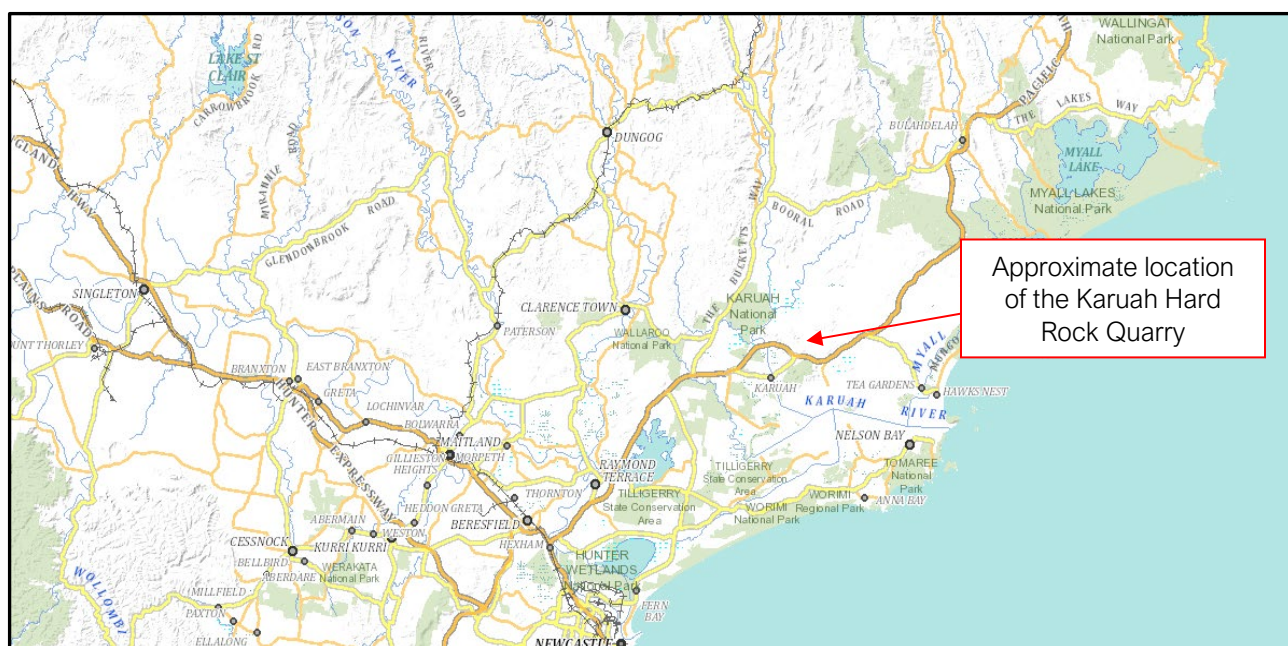


Figure 1: Location Plan Showing Site in a Broad Regional Context

Figure 2 below shows the location of the KHRQ and KEQ in their local context within the Karuah Quarry Complex. In particular the figure shows:

- The Karuah Hard Rock Quarry (DA 265-10-2004);
- The Karuah East Quarry (MP 09_0175);
- Proposed Karuah South Quarry (SSD 17_8795);
- The Eastern and Western Biodiversity Offset Areas established for the KEQ; and
- The Conservation Offset Area established for the KHRQ.

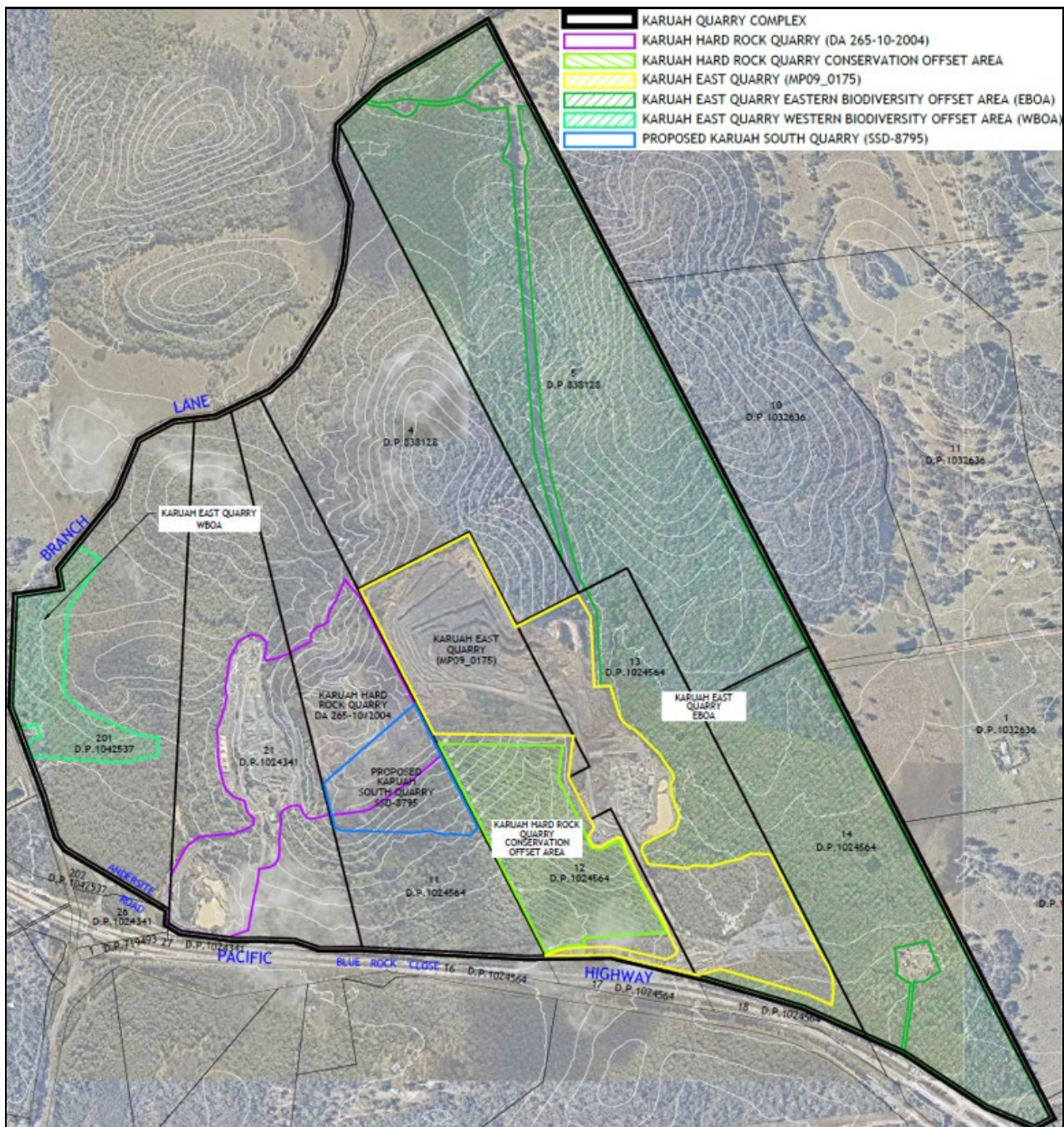


Figure 2: Location Plan in Context of Surrounding Lands, Existing Development & Other Proposed Development

1.3.2 Summary of Development Consent

Development Consent DA 265-10-2004 was granted for the KHRQ on 3 June 2005 under the provisions of 76A(7) of the EP&A Act 1979.

The key features of the Development Consent include:

- Implementing the remainder of the approved Stage 1 quarry operation and the Stage 2 extension of the quarry pit onto adjoining land of Lot 11;
- Upgrading and using the existing infrastructure at KHRQ to accommodate the extension;
- The extraction of up to 500,000 tonnes of material per year;
- Quarrying operation permitted for 22 years after the commencement of the consent (current cease date 3 June 2027);

- A total extraction limit of 11.2 million tonnes of andesite material over the period of the consent;
- The progressive rehabilitation of the quarry;
- The establishment of a Conservation Offset Area (COA) on the southern portion of Lot 12; and
- Surrender of any existing development consents and existing use rights associated with the site.

A number of management plans are in place at KHRQ to ensure satisfactory environmental performance and these include:

- Environmental Management Strategy and Monitoring Program;
- Bushfire Management Plan;
- Flora and Fauna Management Plan;
- Pollution Incident Response Management Plan;
- Rehabilitation and Closure Plan; and
- Site Water Management Plan.

The KHRQ has been the subject of one previous modification application (MOD 1). The purpose of the modification was to address various administrative arrangements in relation to DA 265-10-2004. The Department produced draft conditions of consent for MOD 1; however, it was withdrawn by HQPL prior to determination because landowners consent from the former owner of Lot 11 was not able to be obtained.

Subsequent to MOD 1, on 29 September 2006, the NSW Land and Environment Court amended Schedule 2 Condition 13 of DA 265-10-2004, which relates to Section 94 contributions.

The approved KHRQ development layout (Appendix 1 from DA 265-10-2004) is reproduced below.

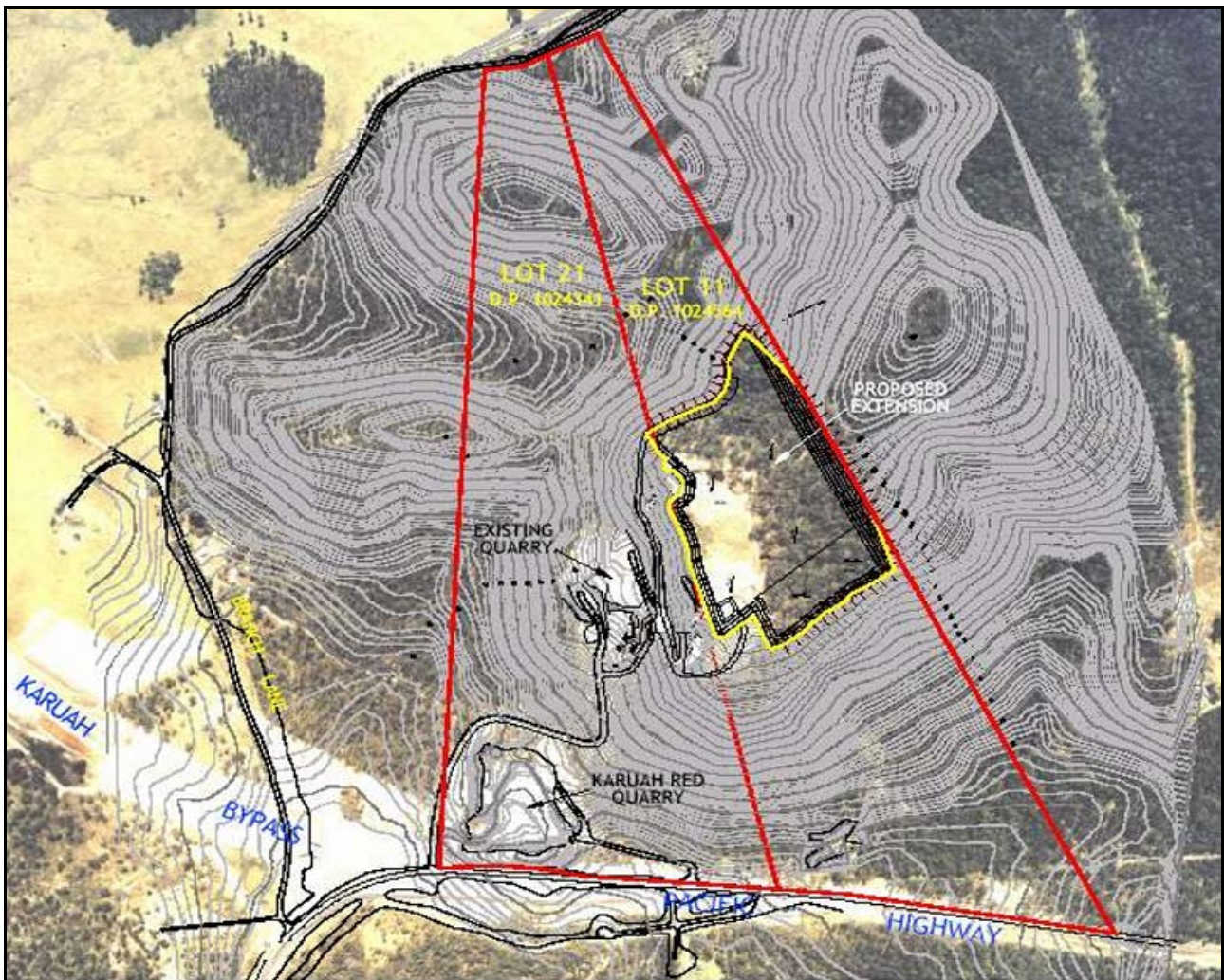


Figure 3: Approved Development Layout

1.4 Background to Proposed Modification & Why Modification Is Required

The KEQ was approved to operate as a stand-alone quarry operation on lands adjoining the KHRQ, Lot 12 and Lot 13 DP 1024564, on 17 June 2014 (refer MP09_0175 (as amended)). The KEQ is well established and operational in accordance with MP09_0175 (as amended). The KEQ is operated by Karuah East Quarry Pty Limited (KEQPL), a company affiliated with HQPL, who operate the KHRQ.

During assessment of the KEQ application, one of the items that was considered by the Environment Assessment (ADW Johnson, January 2013) and NSW Planning's assessment was alternate ways to extract the known resource from Lot 12 and Lot 13 (which now contains the KEQ pit). At the time of preparation of the original KEQ application, one alternate option considered was extending the KHRQ from Lot 11 directly into Lot 12 and Lot 13; however, this was not possible because at that time HQPL only had rights conferred under specific licence terms with the landowner of Lot 11. The terms of the licence did not provide a legal right of way across Lot 11 for extraction of material within Lot 12 and Lot 13. Efforts were made by the Applicant to secure access across Lot 11; however, an agreement was unable to be achieved. Therefore, the Applicant had no other option than to pursue a stand-alone quarry on Lot 12 and 13 (the KEQ site).

The approval of the KEQ resulted in the side-by-side operation of two independently operated quarries, being the KHRQ and the KEQ, with a remnant dividing highwall located in between the quarry pits (refer to **Figure 2** above) consisting of sterilised material. This outcome was understood by HQPL that the removal of the remnant structure could readily occur, subject to appropriate approvals. Lot 11 was recently acquired by the Applicant and removal of the dividing highwall can now proceed.

Separately, it is noted that the former owner of Lot 11 previously submitted a separate SSD Application for the proposed Karuah South Quarry (SSD-8795) (KSQ) over part-Lot 11 which has not yet been determined. The KSQ proposal seeks to establish a third standalone quarry operation entirely on Lot 11 extracting remaining resource south of the current KHRQ extraction area.

The KSQ is proposed to be a conventional drill and blast operation with rock collected and processed onsite situated on the current KHRQ pit floor. Processed product is proposed to be stockpiled onsite with a loader used to load trucks for transport off-site when required. The proposed hours of operation are 5:00 am to 6:00 pm Monday to Friday and 5:00 am to 1:00 pm Saturday with only product loading and transport activity to occur between 5:00 am and 7:00 am. The proposed annual production limit is 600,000 tonnes.

Following acquisition of Lot 11 DP 1024564, KEQPL (and affiliated companies) is also the proponent for the proposed KSQ. In relation to the consideration of cumulative impacts, the following is noted:

- If approved, KSQ will not commence operations until after operations at KHRQ have ceased;
- HQPL are currently reviewing the business case for the proposed KSQ; and
- Any future revision or amendment to the proposed KSQ project will be supported by updated documentation that accounts for the proposed Karuah Pit Consolidation Project.

Accordingly, there are no cumulative impacts generated by the currently proposed KSQ associated with the proposed Karuah Pit Consolidation Project.

1.5 Findings of Analysis of Alternatives Considered

The need for the proposed development is logical noting that it will facilitate the extraction of a known high quality andesite resource located between two (2) established quarry operations in an orderly and efficient manner and provide an improved final landform for which rehabilitation can proceed. Due to previous land ownership constraints (which have recently been resolved), this material has remained sterilised and application to remove the remnant dividing highwall has not been possible until now.

Various project alternatives were considered, with the findings summarised below (refer to **Section 7.2** for further detail).

Consolidated Pit Design and Process to Remove Remnant Dividing Highwall

The most appropriate way to extract the dividing highwall is to establish an 'overlapping consent' via an extraction area of KHRQ and KEQ that holistically encompasses the entirety of the remnant highwall as well as a suitable safety buffer, with materials processing able to be undertaken at either existing quarry plant to capitalise on operational efficiencies.

The most appropriate way to undertake the proposal (inclusive of highwall removal) in terms of practicality, efficiency and safety considerations is through a coordinated and incremental staged approach as follows:

- Stage 1: Extract the current top benches of the remnant highwall (RL135m) down to RL90m (currently lowest KEQ bench at the time of writing (April 2026)), forming a single extraction level/area on Lot 12. This approach is needed to safely remove the peak of the dividing highwall and make the extraction area level with the current KEQ extraction area.
- Stage 2: Extract Lot 12 from RL90m (currently lowest KEQ bench at the time of writing (April 2026)), down to RL65m in line with KHRQ pit floor and KEQ boot-bin levels, forming a single extraction level/area over the entire Consolidated Extraction Area.
- Stage 3: Extract final benches at KEQ (Lots 12 & 13) from RL65m down to RL45m. The KHRQ pit floor is to remain at RL65m.

It was also a logical outcome to rationalise the shape of the KHRQ extraction area (within already approved disturbed areas of the KHRQ) to maximise extraction of known resource within the disturbance footprint of the established quarry.

Operational Coordination & Consent Harmonisation

It was considered that non-aligned operational hours, blasting restrictions and life of quarry timeframes would result in operational inefficiencies. Accordingly, it is proposed to adjust the KHRQ operating hours and life of quarry timeframes to align with the currently consented KEQ limits and align blasting hours and frequencies between both sites (cumulative reduction to two blasts per week combined between both quarries between 9am-5pm weekdays).

To practically and efficiently complete highwall removal, the ability to process material extracted from the highwall at either the KHRQ or KEQ is considered essential.

Do Nothing Option

The 'do nothing' option will result in the remnant dividing highwall remaining in place long term and all of the identified benefits of the project will be lost. These include visual amenity, safety, long term rehabilitation improvements, as well as the loss of supply of a proven high-quality resource to the market that can be extracted in a highly efficient manner noting that two established quarry operations (operated by affiliated companies) are located either side of the remnant highwall. The opportunity to maintain local employment and contribute to the growth of the local and regional economies will be lost.

To secure the known amount of andesite resource as identified within the proposal, additional land disturbance would be required elsewhere (either within the Karuah Quarry Complex or elsewhere). The proposal can be delivered at KHRQ without any additional land disturbance. This opportunity would be lost if the 'do nothing' option was to occur.

The 'do nothing' option will result in a medium-term postponement to the completion of rehabilitation at the KHRQ in accordance with the current KHRQ Rehabilitation and Closure Plan (RCP) which has in part progressed including the side casting of topsoil material across the northern and eastern highwalls. In accordance with the RCP, rehabilitation would be completed between June 2027 to 2030 and this would include the establishment of a large flooded void within the former extraction area and revegetation activities. It is considered that postponing rehabilitation activities in the medium term at KHRQ to accommodate the removal of the highwall is outweighed by the significantly improved long term rehabilitation outcome that includes the establishment of a free draining landscape that is revegetated with native vegetation to achieve greater consistency with the surrounding woodland environment.

The 'do nothing' outcome is considered to be inconsistent with the objectives of the EP&A Act 1979, which seeks to facilitate orderly and efficient development of land.

1.6 Structure of Report

This S4.55(2) Assessment Report has been prepared in accordance with NSW Planning's *State Significant Development Guidelines – Preparing a Modification Report*. The format is as follows:

- **Section 1:** Introduction to the proposal;
- **Section 2:** Strategic Context;
- **Section 3:** Description of the proposed modification;
- **Section 4:** Statutory Context;
- **Section 5:** Engagement with the community and relevant government authorities;
- **Section 6:** Environmental assessment of the proposed modification;
- **Section 7:** Project justification; and
- **Section 8:** Conclusion.

Section 2

Strategic

Context



2.0 Strategic Context

The KHRQ site is strategically located with excellent access to major development centres across Greater Newcastle, the Hunter Valley and Mid-North Coast regions, with direct access available to the Pacific Highway (via The Branch Lane interchange). Additionally, the site is well separated from any areas of significant urban development resulting in minimal land use conflicts.

The KHRQ and KEQ sites are known to contain a high-quality andesite resource. Material produced by the quarries include armour and gabion rock; concrete, drainage, and asphalt aggregates; manufactured sands, road bases and other fill products to support construction, infrastructure, and other development projects across Greater Newcastle, the Hunter Valley and Mid-North Coast regions. Materials from the quarries are supplied to a range of government agencies/organisations including Transport for NSW, a number of local Councils, the Port of Newcastle, Ausgrid, Newcastle Airport, Tier 1 infrastructure providers as well as the general construction, land development and infrastructure industries within Greater Newcastle, the Hunter Valley and Mid-North Coast regions.

The quarries also supply and support downstream businesses, including the Tea Gardens Hunter Readymix Concrete Plant, which in turn contributes to the local construction industry in the MidCoast LGA.

In addition to the above, materials from KHRQ and KEQ are supplied to State Significant Infrastructure (SSI) projects including the Singleton Bypass, the Newcastle Inner City Bypass (SSI-6888), Pacific Highway widening at Hexham Straight, and the M1 Pacific Motorway Extension to Raymond Terrace (SSI-7319), which are critical to deliver improved connectivity of the Mid-North Coast (including the MidCoast LGA) to Sydney, Newcastle and the Hunter Valley.

2.1 Hunter Regional Plan 2041

The Hunter Regional Plan 2041 (HRP) sets out the NSW Government's strategic vision for the Hunter region. The plan aims to strengthen the region's economic resilience, maintain its well-established economic and employment bases, and build on its existing strengths to foster greater market and industry diversity.

The plan emphasises the need to manage different land uses in pursuit of complementary outcomes and attainment of its overriding goals. Sound management will encourage the Hunter to grow as a healthy, sustainable and thriving place for everyone.

The HRP acknowledges that NSW needs a reliable supply of construction materials to support continued growth including sand and gravel, crushed rock, recycled materials and secondary aggregates created from construction, demolition and excavation.

The proposal is consistent with the HRP, in particular noting the following:

- The proposal will result in the efficient long-term delivery of a known quality andesite resource to the market. This will support local and regionally significant construction and infrastructure projects and promote continued growth.
- HQPL employs 63 full time equivalent staff (FTE) (20 at KHRQ [16 staff and four (4) contractors] and 43 at KEQ [35 staff and eight (8) contractors]). The proposal will contribute to supporting ongoing local employment.
- MOD 2 can be undertaken satisfactorily with regard to key environmental considerations.
- The KHRQ benefits from excellent access to the State road network and quarry vehicles are not required to pass any sensitive receivers prior to entering the Pacific Highway via The Branch Lane interchange. This, along with ongoing compliance with the Development Consent and the site's EPL minimises any potential for land use conflict.

The proposal is consistent with the vision of the Hunter Regional Plan 2041.

2.2 MidCoast Local Strategic Planning Statement

The MidCoast Local Strategic Planning Statement (LSPS) sets out a vision for land use planning across the MidCoast Local Government Area (LGA). The LSPS is used to guide future planning, to achieve the community's vision and values.

The vision set out in the LSPS is:

We strive to be recognised as a place of unique environmental and cultural significance.

Our strong community connection, coupled with our innovative development and growing economy, builds the quality of life we value.

The LSPS identifies planning priorities to achieve the vision outlined in the plan, along with short, medium, long term, and ongoing actions to monitor and report on the progress of implementation.

Planning priority 9 seeks to improve infrastructure within the MidCoast LGA. The proposed modification will result in the efficient extraction and delivery of a known quality resource to the market that will contribute towards the delivery of key infrastructure projects within the LGA.

The proposed modification will contribute to the thriving and growing economy through contributing to providing ongoing jobs within the quarry and contribution to infrastructure projects.

The proposed modification is consistent with the relevant sections of the MidCoast LSPS.

Section 3

Description of Modifications



3.0 Description of Modifications

3.1 Proposed Modifications

The proposal seeks to modify the Development Consent for the KHRQ to achieve the following outcomes:

Karuah Hard Rock Quarry DA 265-10-2004 (MOD 2)

- Concurrently modify both the KEQ and KHRQ consents to extract the known resource contained within already disturbed areas of Lot 11, Lot 12 and Lot 13 including the dividing highwall, within the currently approved extraction depths of RL65 at KHRQ and RL45 at KEQ.
- Minor extension and overlap of extraction boundary of both KHRQ (into Lot 12) and KEQ (into Lot 11) extraction areas to holistically encompass the highwall structure, inclusive of appropriate safety offsets.
- Material sourced from the overlapping area of the CEA will be transported by internal haul road to either the KHRQ or KEQ for processing, stockpiling, sale and transport to market within currently approved throughput rates.
- Environmental safeguards incorporated into Management Plans that are in place for the KHRQ operation will be reviewed and updated to accommodate the proposal.
- An extension of the life of quarrying operations from 3 June 2027 to 31 December 2034 to align with the approved operational timeframe of the KEQ.
- Increase in approved total resource volume from 11.20 Mt to 13.20 Mt (18% increase).
- Application of contemporary noise and air quality conditions and associated criteria.
- Application of contemporary community engagement arrangements via the now established Joint Karuah Quarry Complex CCC.
- Extended operating hours to match the approved hours of operation of the adjoining KEQ.
- Changes to approved blasting activities as follows:
 - Change in blasting frequency from one (1) blast per week at KHRQ to a combined two (2) blasts per week in total between KHRQ and KEQ.
 - Approved blasting hours are proposed to be extended by two (2) hours to occur between 9am and 5pm (Monday to Friday) to provide improved flexibility during blasting of the dividing highwall and align with proposed arrangements at KEQ.
- Revised final landform resulting in a free-draining landscape of the current extraction area, resulting in reduced geotechnical risks over the long-term and a landform with greater consistency with the existing surrounding environment.

No change is necessary to the Development Consent as it relates to annual extraction, processing and transport rates (capped at 500,000 tpa).

The total disturbance footprint of the KHRQ will not change as a result of the modification.

Plans of the proposed development are enclosed within **Appendix E**.

The proposed modification is described in detail below.

For completeness, provided below is a summary of the proposal details of the separate and concurrent MOD 11 application to the KEQ:

Karuah East Quarry MP09_0175 (MOD 11)

- Concurrently modify both the KEQ and KHRQ consents to extract the known resource contained within already disturbed areas of Lot 12, Lot 13 and Lot 11 including the dividing highwall, within the currently approved extraction depths of RL45 at KEQ and RL65 at KHRQ.

- Minor extension and overlap of extraction boundary of both KEQ (into Lot 11) and KHRQ (into Lot 12) extraction areas to holistically encompass the highwall structure, inclusive of appropriate safety offsets.
- Extension of the extraction area to the east and south.
- Material sourced from the overlapping area of the CEA will be transported by internal haul road to either the KEQ or KHRQ for processing, stockpiling, sale and transport to market within currently approved throughput rates.
- Application of contemporary air quality conditions and associated criteria.
- A minor extension of 4,690m² to the KEQ disturbance area. This area is located at the north-eastern boundary of the approved KEQ and is highly degraded and comprised entirely of exotic grasses and disturbed vegetation that has been historically cleared and managed to support a now redundant powerline corridor (infrastructure has been previously removed). This area is proposed to form a minor extension of the approved disturbance area and is incorporated into the consolidated extraction area. With the inclusion of this area, the total site disturbance area of KEQ will increase nominally from 40.18ha to approximately 40.65ha.
- Changes to approved blasting activity as noted above.
- Revised final landform resulting in a free-draining landscape of the current extraction area, reduced geotechnical risks over the long-term and a landform with greater consistency with the existing surrounding environment.

No change is necessary to the Project Approval as it relates to annual extraction, processing and transport rates (capped at 1.5 Mtpa).

3.1.1 Extraction within Disturbed Areas of Lots 11, 12 and 13 DP 1024564

The proposal seeks to concurrently modify the KHRQ Development Consent to extract the known resource contained within already disturbed areas of Lot 11, Lot 12 and Lot 13, including the dividing highwall, within currently approved extraction depths of RL65 at KHRQ and RL45 at KEQ.

Volume estimates identify that there is approximately 28.47 Mt of in-situ material remaining within disturbed areas of Lot 11, 12 and 13 DP 1024564, inclusive of currently approved resource and stockpiled overburden, as measured from LiDAR contours captured in September 2024.

Incrementally, at the KHRQ site, this correlates to an estimated total extraction of 13.20 Mt (i.e. life of quarry extraction) inclusive of extraction already completed and in-situ remaining resource (calculated from surface contours captured in September 2024). This represents an increase of 2.0 Mt (or 18%) compared to the currently approved total resource of 11.2 Mt allowed under DA 265-10-2004.

The proposed modification does not seek to change to the maximum approved extraction, processing and transport rates of 500,000 tpa.

Figure 4 overleaf shows the proposed consolidated extraction area (in blue).

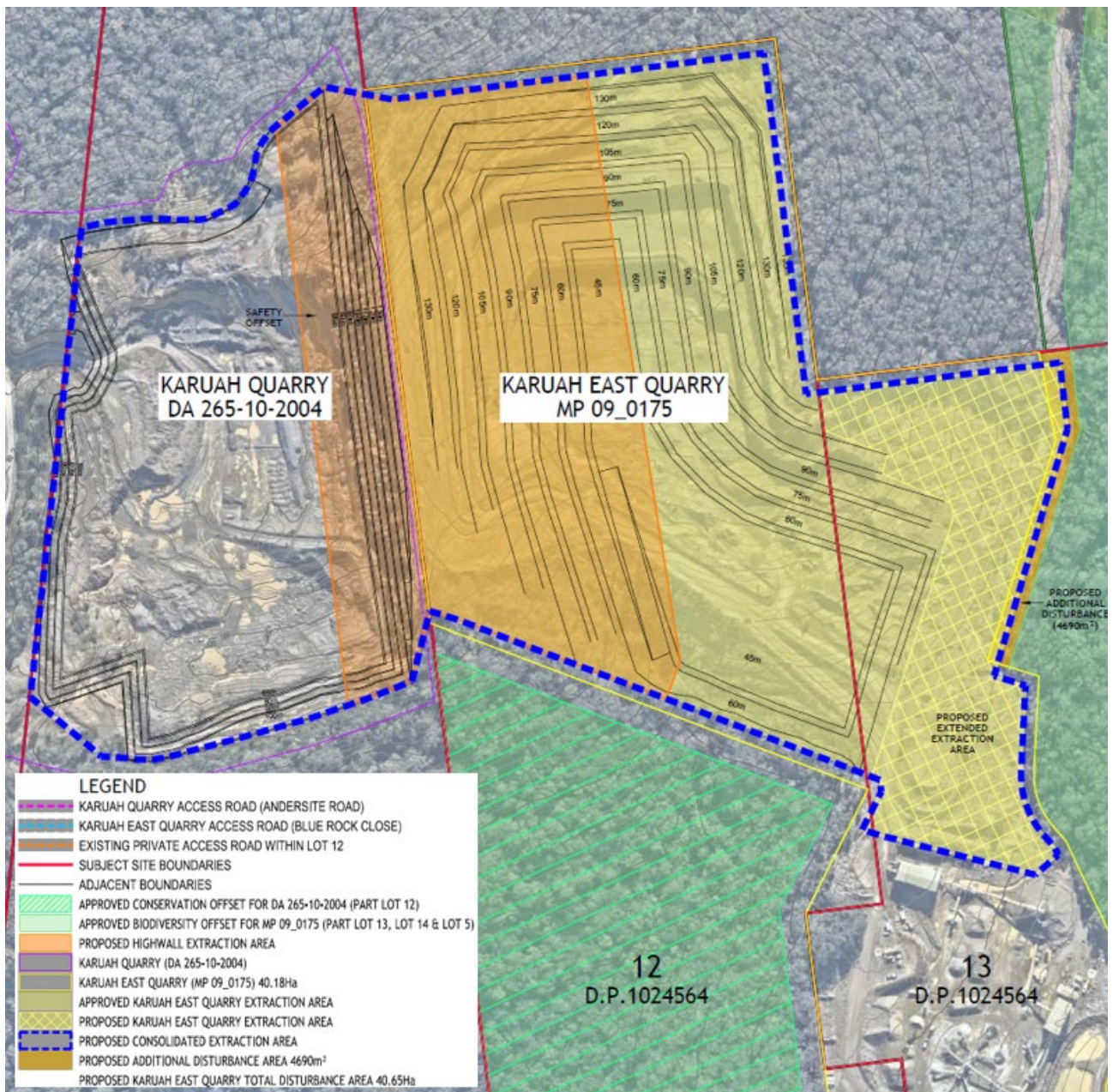


Figure 4: Extract of Plan of Proposed Consolidated Extraction Area

Extraction Staging Sequence

The following coordinated extraction sequence between the KHRQ and the KEQ will be generally undertaken to complete the Karuah Pit Consolidation Project (inclusive of remnant highwall removal):

- Stage 1: Extract the current top benches of the remnant highwall (RL135m) down to RL90m (currently lowest KEQ bench at the time of writing (April 2026)), forming a single extraction level/area on Lot 12. This approach is needed to safely remove peak of the dividing highwall and make the extraction area level with the current KEQ extraction area.
- Stage 2: Extract Lot 12 from RL90m (currently lowest KEQ bench at the time of writing (April 2026)), down to RL65m in line with KHRQ pit floor and KEQ boot-bin levels, forming a single extraction level/area over the entire Consolidated Extraction Area.

- Stage 3: Extract final benches at KEQ (Lots 12 & 13) from RL65m down to RL45m. The KHRQ pit floor is to remain at RL65m.

The above sequencing is logical, orderly, practical and will allow a 'free draining' final landform to be established.

3.1.2 Minor Extension and Overlap of Extraction Boundary

In order to practically extract the remnant rock-mass consisting of the dividing highwall structure between the KHRQ and KEQ pits, an extension of both approved extraction footprints is necessary to holistically encompass the highwall structure, inclusive of appropriate safety offsets.

Accordingly, it is proposed to extend the KHRQ extraction footprint to the east into Lot 12 to contain the highwall structure; and similarly, via a concurrent modification to MP09_0175, the KEQ extraction footprint will be extended to the west into Lot 11. No changes to the approved disturbance boundaries are sought to facilitate this outcome.

Material sourced from this overlapping area of the CEA will be transported by internal haul road to either the KHRQ or KEQ for processing, stockpiling, sale and transport to market within the currently approved throughput rates of:

- 500,000 tonnes per annum at the KHRQ site; and
- 1.5 million tonnes per annum at the KEQ site.

The currently approved annual extraction rates under both DA 265-10-2004 and MP09_0175 are not required to be modified and will remain as follows:

- 500,000 tonnes per annum extracted from the KHRQ pit; and
- 1.5 million tonnes per annum extracted from the KEQ pit.

Cumulatively, no more than 2.0 million tonnes of extraction per annum will occur from both the KHRQ and KEQ extraction areas combined, which is unchanged from what the existing approvals cumulatively allow (i.e. no intensification is required).

It is proposed that HQPL will develop and implement a Consolidated Extraction Area Management Plan (or similar revision to the site's Environmental Management Strategy & Monitoring Program) that details the administrative arrangements required to achieve compliance with the overlapping extraction areas and relevant consent conditions.

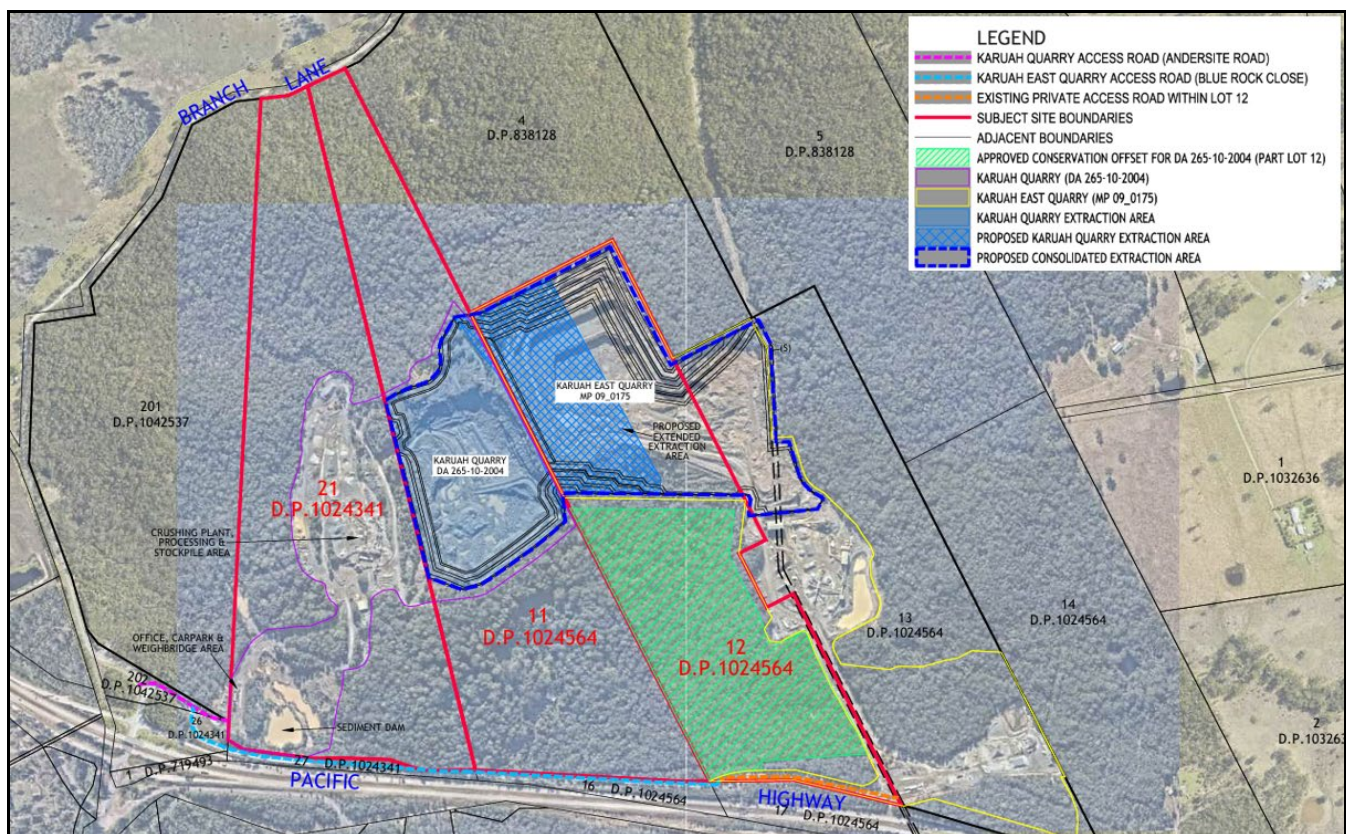


Figure 5: Extract of Proposed Site Plan for Karuah Hard Rock Quarry

3.1.3 Continued Environmental Management

Environmental safeguards incorporated into Management Plans that are in place for the KHRQ operation will be reviewed and updated to accommodate the MOD 2 proposal. Noting that the remnant highwall is situated over two (2) different parcels of land that is subject to two (2) different consents (KHRQ and KEQ), it will be essential that highwall extraction is undertaken in a coordinated and cooperative manner between both operations. As the Applicant (via affiliated companies HQPL and KEQPL) owns both parcels of land subject to the separate consents (for KHRQ and KEQ), this can be readily achieved.

Environmental Safeguards required to accommodate the proposed development are discussed in detail in **Section 6**.

3.1.4 Extension of Life of Quarry Operations

The proposal seeks to extend the life of quarrying operations from 3 June 2027 to 31 December 2034 to achieve consistency with the KEQ (KEQ consented quarry operating life until 31 December 2034).

The project requires a coordinated approach with the adjoining KEQ and additional operating time for quarrying activities is necessary at KHRQ to allow the extraction sequence as described in section 3.1.1 to be facilitated. It is logical to align the operating life of both sites given operational coordination necessary.

3.1.5 Life of Quarry Production Limit

The proposal seeks to increase the approved total resource yield for the KHRQ from 11.20 Mt to 13.20 Mt (18% increase), primarily to accommodate material removed from the remnant dividing highwall within Lot 11 DP 1024564.

3.1.6 Hours of Operation

It is proposed to extend the hours of operation consistent with the recommendations of the Noise Impact Assessment to match the approved hours of operation of the KEQ.

Proposed hours of operation sought are as follows:

- Quarrying Operations:
 - 7.00am to 9.00pm, Monday to Friday.
 - 7.00am to 10.00pm, Monday to Friday on 50 calendar days per year.
 - 7.00am to 6.00pm Saturday.
 - No drilling 6.00pm to 10.00pm Monday to Friday or 1.00pm to 6.00pm Saturday.
 - No quarrying operations on Sundays or Public Holidays.
- Product Loading and Dispatch:
 - 5.00am to 9.00pm, Monday to Friday.
 - 5.00am to 10.00pm, Monday to Friday on 50 calendar days per year.
 - 6.00am to 6.00pm Saturday.
 - No quarrying operations on Sundays or Public Holidays.
- Construction Activities:
 - 7.00am to 6.00pm, Monday to Friday; and 8.00am to 1.00pm Saturdays unless noise from construction activities does not exceed 40 dB(A) L_{Aeq}(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.

3.1.7 Blasting Activities

Changes to approved blasting activities as follows:

- Change in blasting frequency from one (1) blast per week at KHRQ to a combined two (2) blasts per week in total between KHRQ and KEQ.
- This will result in a cumulative reduction of blasting activities between KHRQ (one (1) blast per week currently approved) and KEQ (two (2) blasts per week currently approved) from a total of three (3) blasts per week to two (2) blasts per week.
- Approved blasting hours are proposed to be extended by two (2) hours to occur between 9am and 5pm (Monday to Friday) to provide improved flexibility during blasting of the dividing highwall and align with proposed arrangements at KEQ.

3.1.8 Final Landform

A revised final landform resulting in a free-draining landscape of the current extraction area is proposed, resulting in reduced geotechnical risks over the long-term and a landform with greater consistency with the existing surrounding environment.

3.1.9 Modification Summary

Table 2 below provides a comparison of the approved development with the proposed development. A consolidated project description is enclosed as **Appendix A**.

Table 2: Modified Project Summary Table

Element	DA 265-10-2004		Modified Project (inclusive of MOD 2)
Quarry Operations			
Quarry life	3 June 2027		31 December 2034
Production limit	500,000 tonnes of material per annum		No change.
Operating hours	Construction Activities	7:00am to 6:00pm, Monday to Friday 7:00am to 1:00pm Saturday - No work on Sunday and Public Holidays	7.00am to 6.00pm, Monday to Friday; and 8.00am to 1.00pm Saturdays unless noise from construction activities does not exceed 40 dB(A) _{L_{Aeq}(15 min)} at any privately-owned residence.
	Extraction and Processing	7:00am to 6:00pm, Monday to Friday 7:00am to 1:00pm Saturday - No work on Sunday and Public Holidays	7.00am to 9.00pm, Monday to Friday. 7.00am to 10.00pm, Monday to Friday on 50 calendar days per year. 7.00am to 6.00pm Saturday. - No drilling 6.00pm to 10.00pm Monday to Friday or 1.00pm to 6.00pm Saturday. - No quarrying operations on Sundays or Public Holidays.
	Product loading and dispatch	7:00am to 6:00pm, Monday to Friday 7:00am to 1:00pm Saturday - No work on Sunday and Public Holidays	5.00am to 9.00pm, Monday to Friday. 5.00am to 10.00pm, Monday to Friday on 50 calendar days per year. 6.00am to 6.00pm Saturday. - No quarrying operations on Sundays or Public Holidays.
	Maintenance works on plant and machinery	7:00am – 6:00pm, 7 days per week and public holidays	24 hours a day, 7 days per week, providing maintenance activities are inaudible at any privately-owned residence.
Blasting	9:00am to 3:00pm Monday to Friday, with no more than one (1) blast per week		9:00am to 5:00pm Monday to Friday, with no more than two (2) blasts per week cumulatively at KHRQ and KEQ.
Extraction Method	Drilling and blasting		No change.
Extraction Area Depth	RL65m.		No change.
Vehicle Movements	Average 65 laden trips per day (130 movements).		No change.
Haulage	Haulage from site via the A1 Pacific Highway. Access to the A1 Pacific Highway via Andersite Road and The Branch Lane.		No change.
Employment	Approximately 16 staff.		No change.

Project Area		
Total Disturbance Footprint	DA 265-10-2004 only specified an extraction footprint and currently does not formally specify a total disturbance footprint for the KHRQ. DA 265-10-2004 provided approval to continue to utilise the former Karuah Red Quarry (which previously operated under continued-use rights) and implement the remainder of the existing & approved Stage 1 operation (DA 302/97) and extend the extraction area of the quarry into the Stage 2 area (Lot 11 DP 1024564), which included an approximate additional disturbance area of 10.8 ha.	No new additional disturbance is proposed. Formalise a total disturbance area for the KHRQ of 28.1 ha (current disturbance area).
Native Vegetation Clearance	As per commentary provided by Total Disturbance Footprint.	No change. No vegetation clearing is necessary to accommodate MOD 2.
Conservation Offset Area	Establishment of a 16 ha Conservation Offset Area in part of Lot 12 DP 1024564 as conceptually identified within Appendix 2 of DA 265-10-2004.	No change.
Physical Layout and Design		
Plant and infrastructure	- Crushing plant and processing infrastructure (fixed and mobile equipment). - Stockpiling areas. - Internal haulage roads. - Weighbridge and weighbridge office. - Administration Offices. - Amenity facilities. - Sheds, workshops and other minor structures. - Fencing.	No change.
Stormwater infrastructure	Stormwater management infrastructure including: - One (1) on site dam (Sediment Dam 2) in accordance with the Site Water Management Plan. - Operation of an in-pit sump.	No change, however, the in-pit sump will be proportionally upgraded.
Parking	Sufficient parking for all quarry related traffic to be provided.	No change.
Access	All vehicular access to and from the quarry and the Pacific Highway is via the separated grade interchange at The Branch Lane.	No change.
Rehabilitation	Rehabilitation of the site.	No change. The Rehabilitation & Closure Plan will be amended to respond to the revised final topography post extractive activity and establish a free draining landscape.

3.2 Development Consent DA 265-10-2004 Conditions to be Modified

To facilitate the proposal, a number of conditions of the Development Consent are required to be modified as identified in **Table 3** below. Suggested updated conditions are provided with text to be deleted shown in **red** and text to be inserted shown in **blue**.

Table 3: Conditions to be Modified in Development Consent DA 265-10-2004

CURRENT CONDITION	PROPOSED CONDITION & COMMENTARY																																			
Update the definitions and the entire consent to include reference to the Modification Report for MOD 2. Update the definitions for contemporary agencies, reporting arrangements and policy environment.																																				
Update the entirety of the consent with references to contemporary agencies and policy.																																				
SCHEDULE 2 – ADMINISTRATIVE CONDITIONS																																				
Terms of Approval Condition 2	Update to include reference to the Modification Report for MOD 2.																																			
Limits on Approval Condition 5	Update to reference that quarrying operations can be carried out until 31 December 2034. Provided below is a suggested amended condition: 5. The consent lapses 22 years after the date it commences Applicant may carry out quarrying operations on the site until 31 December 2034. <i>Note: Under this consent, the Applicant is required to rehabilitate the site and carry out additional undertakings to the satisfaction of the Planning Secretary. Consequently, this consent 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>																																			
Limits on Approval Condition 6	No change.																																			
Limits on Approval Condition 7	Update to reference that the Applicant shall not extract more than 13.20 million tonnes of andesite from the site within the period of the consent. Provided below is a suggested amended condition: 7. The applicant shall not extract more than 11.2 13.2 million tonnes of andesite from the site within the period of the consent.																																			
SCHEDULE 3 – SPECIFIC ENVIRONMENTAL CONDITIONS																																				
Noise Impact Assessment Criteria Condition 1	It is appropriate to contemporise the Noise Impact Assessment criteria based on the outcomes of the Noise Impact Assessment. Provided below is a suggested replacement condition: 1. Operational Noise Criteria <i>Except for the carrying out of construction work, the Applicant must ensure that the operational noise generated by the development does not exceed the criteria in the table below at any residence on privately-owned land.</i> <table><tr><th>Noise Assessment Location ^a</th><th>Morning Shoulder L_{Aeq,15minute}</th><th>Morning Shoulder L_{Amax}</th><th>Day L_{Aeq,15minute}</th><th>Evening L_{Aeq,15minute}</th></tr><tr><td>A</td><td>35</td><td>52</td><td>40</td><td>40</td></tr><tr><td>B</td><td>35</td><td>52</td><td>43</td><td>43</td></tr><tr><td>C</td><td>35</td><td>52</td><td>41</td><td>41</td></tr><tr><td>D</td><td>35</td><td>52</td><td>43</td><td>43</td></tr><tr><td>E</td><td>35</td><td>52</td><td>40</td><td>38</td></tr><tr><td>All other residences</td><td>35</td><td>52</td><td>40</td><td>35</td></tr></table> ^a Noise Assessment Locations are Shown in Figure 2.3 of the EMM NIA dated March 2026 <i>Noise generated by the development must be monitored and measures in accordance with the relevant procedures and modifications (including certain meteorological conditions) of the NPfl.</i>	Noise Assessment Location ^a	Morning Shoulder L _{Aeq,15minute}	Morning Shoulder L _{Amax}	Day L _{Aeq,15minute}	Evening L _{Aeq,15minute}	A	35	52	40	40	B	35	52	43	43	C	35	52	41	41	D	35	52	43	43	E	35	52	40	38	All other residences	35	52	40	35
Noise Assessment Location ^a	Morning Shoulder L _{Aeq,15minute}	Morning Shoulder L _{Amax}	Day L _{Aeq,15minute}	Evening L _{Aeq,15minute}																																
A	35	52	40	40																																
B	35	52	43	43																																
C	35	52	41	41																																
D	35	52	43	43																																
E	35	52	40	38																																
All other residences	35	52	40	35																																

	<i>Note: The Noise criteria above do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to exceed the noise criteria, and the Applicant has advised the Department in writing of the terms of this agreement.</i>										
Operating Hours Condition 2	Provided below is a suggested replacement condition to facilitate the proposed hours of operation. 2. Operating Hours <i>The Applicant must comply with the operating hours in Table 1.</i> Table 1: Operating Hours <table border="1"> <thead> <tr> <th>Activity</th><th>Operating Hours</th></tr> </thead> <tbody> <tr> <td>Quarrying Operations:</td><td> 7.00am to 9.00pm, Monday to Friday. 7.00am to 10.00pm, Monday to Friday on 50 calendar days per year. 7.00am to 6.00pm Saturday. - No drilling 6.00pm to 10.00pm Monday to Friday or 1.00pm to 6.00pm Saturday. - No quarrying operations on Sundays or Public Holidays. </td></tr> <tr> <td>Product Loading and Dispatch:</td><td> 5.00am to 9.00pm, Monday to Friday. 5.00am to 10.00pm, Monday to Friday on 50 calendar days per year. 6.00am to 6.00pm Saturday. - 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 construction activities does not exceed 40 dB(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> </tbody> </table> <i>Note: This condition does not apply in the event of a direction from police or other relevant authority for safety or emergency reasons regarding works which may need to be undertaken to avoid loss of life, property loss and/or to prevent environmental harm.</i>	Activity	Operating Hours	Quarrying Operations:	7.00am to 9.00pm, Monday to Friday. 7.00am to 10.00pm, Monday to Friday on 50 calendar days per year. 7.00am to 6.00pm Saturday. - No drilling 6.00pm to 10.00pm Monday to Friday or 1.00pm to 6.00pm Saturday. - No quarrying operations on Sundays or Public Holidays.	Product Loading and Dispatch:	5.00am to 9.00pm, Monday to Friday. 5.00am to 10.00pm, Monday to Friday on 50 calendar days per year. 6.00am to 6.00pm Saturday. - 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 construction activities does not exceed 40 dB(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.
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Maintenance Activities:	24 hours a day, 7 days per week, providing maintenance activities are inaudible at any privately-owned residence.										
Blasting Restrictions Condition 6	Update blasting restrictions as follows: 6. Blasting Restrictions Blasting at the site may only take place: - Between 9am and 3pm 5pm Monday to Friday inclusive; Once Twice per week cumulatively at the Karuah Hard Rock Quarry and the adjoining Karuah East Quarry (MP09_0175) unless an additional blast is required following a blast misfire, or approved by the Planning Secretary; and										

	c) At such other times as may be approved by the DEC the Planning Secretary. Note: A blast may involve a number of explosions within a short period, typically less than 2 minutes.																													
Air Quality Assessment Criteria Condition 13	It is noted that NSW Planning may take the opportunity to contemporise the Air Quality Impact Assessment criteria based on the outcomes of the AQIA, including: • Removal of Depositional Dust criteria. • Provision of assessment criteria for PM_{2.5}. • Provision of incremental criteria for 24-hour average PM₁₀ and PM_{2.5}. • Inclusion of an exemption for extraordinary events. A suggested replacement contemporary condition is provided below: 13. The Applicant shall ensure that the dust emissions generated by the development do not cause additional exceedances of the ambient air quality assessment criteria listed in Tables 6, 7 and 8 at any residence on, or on more than 25 percent of, any privately owned land. <i>Table 6: Long Term Impact Assessment Criteria for Particulate Matter</i> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr><tr><td>Total suspended particulates (TSP)</td><td>Annual</td><td>^{a,c} 90 µg/m³</td></tr><tr><td>Particulate matter < 10 µm (PM10)</td><td>Annual</td><td>30 ^{a,c} 25 µg/m³</td></tr><tr><td>Particulate matter < 2.5 µm (PM2.5)</td><td>Annual</td><td>^{a,c} 8 µg/m³</td></tr></table> <i>Table 7: Short Term Impact Assessment Criterion for Particulate Matter</i> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr><tr><td>Particulate matter < 10 µm (PM10)</td><td>24 hour</td><td>^b 50 µg/m³</td></tr><tr><td>Particulate matter < 2.5 µm (PM2.5)</td><td>24 hour</td><td>^b 25 µg/m³</td></tr></table> <i>Table 8: Long Term Impact Assessment Criteria for Deposited Dust</i> <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>Deposited dust</td><td>Annual</td><td>2 g/m² /month</td><td>4 g/m² /month</td></tr></table> Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 2003, AS/NZS 3580.10.1:1991: Methods for Sampling and Analysis of Ambient Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method. Notes to Tables 6-7: • ^a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources):	Pollutant	Averaging period	Criterion	Total suspended particulates (TSP)	Annual	^{a,c} 90 µg/m ³	Particulate matter < 10 µm (PM10)	Annual	30 ^{a,c} 25 µg/m ³	Particulate matter < 2.5 µm (PM2.5)	Annual	^{a,c} 8 µg/m ³	Pollutant	Averaging period	Criterion	Particulate matter < 10 µm (PM10)	24 hour	^b 50 µg/m ³	Particulate matter < 2.5 µm (PM2.5)	24 hour	^b 25 µg/m ³	Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level	Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month
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	^b Incremental impact (i.e. incremental increase in concentrations due to the development on its own); ^c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Planning Secretary in consultation with EPA.
Rehabilitation Objectives Condition 39(a)	Update to reference the Modification Report for MOD 2.
SCHEDULE 4 – ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING	
Environmental Management Strategy Condition 1	Update the Environmental Management Strategy condition to include a requirement for the establishment and implementation of a management procedure for the CEA. A suggested replacement condition is provided below: <i>Within 6 months of this consent, the Applicant shall prepare, and subsequently implement an Environmental Management Strategy for the development to the satisfaction of the Director-General. This strategy must:</i> (a) <i>provide the strategic context for environmental management of the development;</i> (b) <i>identify the statutory requirements that apply to the development;</i> (c) <i>describe in general how the environmental performance of the development would be monitored and managed during the development;</i> (d) <i>describe the procedures that would be implemented to:</i> <i>keep the local community and relevant agencies informed about the operation and environmental performance of the development;</i> <i>receive, handle, respond to, and record complaints;</i> <i>resolve any disputes that may arise during the course of the development;</i> <i>respond to any non-compliance;</i> <i>manage cumulative impacts; and</i> <i>respond to emergencies; and</i> (e) <i>describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the development; and</i> (f) <i>describe the procedures to manage and report on the overlapping extraction areas between the KHRQ and the adjacent Karuah East Quarry (MP09_0175) to ensure compliance is achieved with all relevant conditions of DA 265-10-2004 and MP09_0175.</i>
Community Consultative Committee Conditions 8, 9 and 10	It is requested that NSW Planning contemporise the conditions relating to the establishment and operation of a Community Consultative Committee (CCC) including reference to the current CCC guideline for State Significant Projects (June, 2023). Noting that a joint CCC has now been formed for both the KHRQ and the KEQ (the Karuah Quarry Complex), provided below is a recommended condition to replace conditions 8, 9 and 10. <i>8. Within 6 months from the approval of MOD 2, a Community Consultative Committee (CCC) must be established for the development in accordance with the Department's Community Consultative Committee Guidelines: State Significant Projects (June, 2023).</i> <i>Notes:</i>

	• <i>The CCC is an advisory committee only. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent.</i> • <i>In accordance with the guidelines, the Committee should comprise an independent chair and appropriate representation from the Applicant, MidCoast Council and the local community.</i> • <i>A joint CCC may be formed with the adjoining Karuah East Quarry (MP09_0175) to the satisfaction of the Planning Secretary.</i>
APPENDICES	
Appendix 1 (of DA 265-10-2004) Stage 1 and Stage 2 Quarry Operations	Update to include the revised MOD 2 Site Plan provided in Appendix E .

Section 4 Statutory Context



4.0 Statutory Context

4.1 Approval Pathway and Permissibility

The Karuah Hard Rock Quarry (DA 265-10-2004) is subject to the modification provisions of Section 4.55 of the EP&A Act 1979 (EP&A Act). This application seeks to amend the approved development in accordance with Section 4.55(2) of the EP&A Act.

During scoping discussions with NSW Planning, the Section 4.55(2) pathway was confirmed. Following review of the project scoping report, NSW Planning issued correspondence dated 1 October 2025 (refer to **Appendix D**) that confirmed:

'Based on the information contained in the scoping report, the Department considers that the proposal can be assessed under Section 4.55(2) of the Environmental Planning and Assessment Act 1979, provided the supporting Modification Report demonstrates that the modified development is substantially the same development as that originally approved.'

The relevant sections of Section 4.55 of the EP&A Act are addressed in Section 4.2 below.

4.2 Relevant Issues under Section 4.55 of the EP&A Act 1979

Under Section 4.55(2) of the EP&A Act, the consent authority needs to be satisfied that the modified development is the same or substantially the same as the development for which consent was originally granted and before that consent as originally granted was modified as follows:

- (2) **Other modifications** A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if—
- (a) *it is satisfied that the development to which the consent as modified relates is the same or substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all), and*

Comment: The modified development will remain substantially the same development as that originally approved under DA 265-10-2004. The following is noted in this regard:

- The development, as proposed to be modified, remains qualitatively the same as the approved development. The proposal will not result in any significant changes to the nature of the development, the method of quarrying or introduce any new uses which were not previously considered or already being undertaken within the site.
- The development consent as it relates to annual extraction, processing and transport rates will not be affected by the proposal. The quarry will remain capped at a maximum production of 500,000 tpa.
- The total life of quarry extraction from 11.2 Mt to 13.2 Mt represents a minor 18% increase and is essential to allow remnant material (inclusive of the highwall) to be extracted.
- No additional land disturbance is necessary to facilitate the proposed modification to DA 265-10-2004.
- The proposed extension of quarry operations from June 2027 to 31 December 2034 is essential to coordinate holistic highwall removal with the adjoining KEQ. An extension of quarry operations until 31 December 2034 is nominally consistent with the maximum SSD consent timeframe life of 30-years for an Extractive Industry with a major resource deposit.
- Proposed adjustments to the operating hours are minor and necessary to allow a coordinated and holistic approach to removal of the remnant highwall. The hours of operation proposed will match the adjoining KEQ hours of operation, which have been demonstrated to be acceptable for the receiving locality via ongoing noise monitoring.
- No changes are proposed to the approved extraction depth limit of RL 65m.

- Proposed changes to approved blasting frequency will result in reduced cumulative blasting between KHRQ and KEQ – from three (3) to two (2) per week.
- The receiving surrounding environment is well understood and no significant environmental impacts are expected to arise as a result of the proposed modifications. Management plans can be readily updated to accommodate the proposal.

(b) *it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 4.8) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent, and*

Comment: It is understood that NSW Planning will refer the application to relevant public authorities as required.

- (c) *it has notified the application in accordance with:*
- (i) *the regulations, if the regulations so require, or*
 - (ii) *a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising of applications for modification of a development consent, and*
- (d) *it has considered any submissions made concerning the proposed modification within the period prescribed by the regulations or provided by the development control plan, as the case may be.*

Comment: It is understood that NSW Planning will publicly exhibit the proposal and invite public feedback.

Given the above, it is clear that the request to modify the consent can be assessed under the parameters of Section 4.55(2) of the EP&A Act and is therefore submitted to NSW Planning for approval on this basis.

4.3 Relevant Issues under the EP&A Regulation (2021)

Part 5, Division 1 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation 2021) sets out additional requirements that all applications for modifications of consent under Section 4.55 of the EP&A Act must comply with. The relevant requirements and how they have been complied with are set out in the following table:

Table 4: Division 1, Section 99 and 100 Requirements

SECTION 99 REQUIREMENTS	COMMENT
(1) <i>A modification application must—</i>	
(a) <i>be in the approved form, and</i>	The application has been prepared in accordance with the approved form.
(b) <i>contain all the information and documents required by—</i>	The application has been prepared in the approved form.
(i) <i>the approved form, and</i>	
(ii) <i>the Act or this Regulation, and</i>	The application contains all the relevant information and documents required by the Act and Regulation.
(c) <i>be submitted on the NSW planning portal</i>	The Modification Application will be submitted via the NSW Planning Portal.
(2) <i>If the modification application is for State significant development—</i>	
(a) <i>the application must also include particulars of the nature of the modification, and</i>	Provided within Section 3 of this Section 4.55(2) Report.
(b) <i>the applicant must consider the State Significant Development Guidelines in preparing the application.</i>	This S4.55(2) Report is prepared in accordance with the SSD Guidelines for preparing a Modification Report.

SECTION 100 REQUIREMENTS	COMMENT
(1) A modification application must contain the following information—	
(a) <i>the name and address of the applicant,</i>	Provided within this Section 4.55(2) Modification Report and as part of the application on the NSW Planning Portal.
(b) <i>a description of the development that will be carried out under the development consent,</i>	Discussed within Section 3 of this Section 4.55(2) Modification Report.
(c) <i>the address and folio identifier of the land on which the development will be carried out,</i>	Provided within this Section 4.55(2) Modification Report and as part of the application on the NSW Planning Portal.
(d) <i>a description of the modification to the development consent, including the name, number and date of plans that have changed, to enable the consent authority to compare the development with the development originally approved,</i>	Discussed within relevant sections of this Section 4.55(2) Modification Report.
(e) <i>whether the modification is intended to—</i> (i) <i>merely correct a minor error, misdescription or miscalculation, or</i> (ii) <i>have another effect specified in the modification application,</i>	Discussed within relevant sections of this Section 4.55(2) Modification Report.
(f) <i>a description of the expected impacts of the modification,</i>	Discussed within relevant sections of this Section 4.55(2) Modification Report.
(g) <i>an undertaking that the modified development will remain the same or substantially the same as the development originally approved,</i>	Addressed within Section 4.2 of this Section 4.55(2) Modification Report.
(h) <i>for a modification application that is accompanied by a biodiversity development assessment report—the biodiversity credits information,</i>	N/A
(i) <i>if the applicant is not the owner of the land—a statement that the owner consents to the making of the modification application,</i>	Owners consent for all parcels of land subject to the proposed modification are provided as part of this application.
(j) <i>whether the modification application is being made to—</i> (i) <i>the Court under the Act, section 4.55, or</i> (ii) <i>the consent authority under the Act, section 4.56.</i>	N/A

4.4 Relevant Issues under Section 4.15 of the EP&A Act 1979

In accordance with section 4.55(3) of the EP&A Act, when determining a modification of development consent, the consent authority must take into consideration the following matters referred in section 4.15(1) of the EP&A Act (where relevant to the application).

(a) the provisions of—

(i) any environmental planning instrument, and

Consideration has been given to the provisions of all relevant environmental planning instruments (EPIs). The EP&A Act is addressed in earlier sections of this report. Other EPIs applicable to the proposed amendments are discussed below:

State Environmental Planning Policy (Transport and Infrastructure) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP (Transport and Infrastructure)) provides an efficient planning framework for delivering infrastructure in NSW and ensures that infrastructure is delivered with appropriate environmental assessment and consultation.

Chapter 2 - Infrastructure

SEPP (Transport and Infrastructure) Chapter 2 provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The Chapter supports greater flexibility in the location of infrastructure and services along with improved regulatory certainty and efficiency.

Section 2.122 and Schedule 3 of the SEPP (Transport and infrastructure) identify traffic generating development that requires referral to Transport for NSW (TfNSW).

The proposal does not involve any change to annual extraction, processing and transportation rates. Accordingly, the proposed development is not categorised as traffic generating development that requires referral to TfNSW.

State Environmental Planning Policy (Resources and Energy) 2021

State Environmental Planning Policy (Resources and Energy) 2021 (SEPP (Resources and Energy)) contains planning provisions for the assessment and development of mining, petroleum production and extractive material resource proposals in NSW.

Chapter 2 – Mining, Petroleum Production and Extractive Industries

Chapter 2 of SEPP (Resources and energy) aims to provide for the proper management and development of mineral, petroleum and extractive material resources for the social and economic welfare of the State. It establishes appropriate planning controls to encourage ecologically sustainable development.

In addition to providing permissibility (clause 2.9(3)(a)) and extinguishing any LEP provisions (Clause 2.10), Part 2.3 of the SEPP provides that additional matters be considered by the consent authority relating to:

- Compatibility with other land uses;
- Consideration of the Voluntary Land Acquisition and Mitigation policy (VLAMP);
- Compatibility with mining, petroleum production or extractive industry;
- Natural resource management and environmental management;
- Resource recovery;
- Transport; and
- Rehabilitation.

The KHRQ has been demonstrated to operate satisfactorily in respect of the above considerations. It is noted that no VLAMP matters apply to the KHRQ consent.

Of particular relevance to MOD 2, environmental management and rehabilitation are necessary to be addressed. **Section 6** of this 4.55 Modification Report address all key environmental management considerations as well as rehabilitation. Management Plans will be updated, as necessary, to ensure the long-term management of key environmental considerations and rehabilitation.

Proposed MOD 2 is considered to be acceptable in terms of the each of the above listed considerations.

State Environmental Planning Policy (Resilience and Hazards) 2021

State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) aims to promote the protection and improvement of key environmental assets for their intrinsic value and the social and economic benefits they provide. Relevant chapters of SEPP Resilience and Hazards are considered below:

Chapter 2 – Coastal Management

The aim of this chapter is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the *Coastal Management Act 2016*, including the management objectives for each coastal management area.

The four (4) coastal management areas are:

- Coastal wetlands and littoral rainforests area;
- Coastal vulnerability area;
- Coastal environment area; and
- Coastal use area.

Areas of mapped Coastal Wetland occur to the south-west of the subject site, on the opposite (southern) side of the Pacific Highway. This Coastal Wetland is associated with riparian areas of Yalimbah Creek.

The south-western corner of the subject site contains land mapped as Coastal Environment Area with a minimal portion of land also mapped as containing Coastal Use Area (refer to **Figure 6** below). Both of these areas are well clear of the extraction area of the KHRQ (approximately 200 m of separation from the mapped Coastal Environment Area and approximately 430 m of separation from the mapped Coastal Use Area). No other coastal management area occurs within the site.

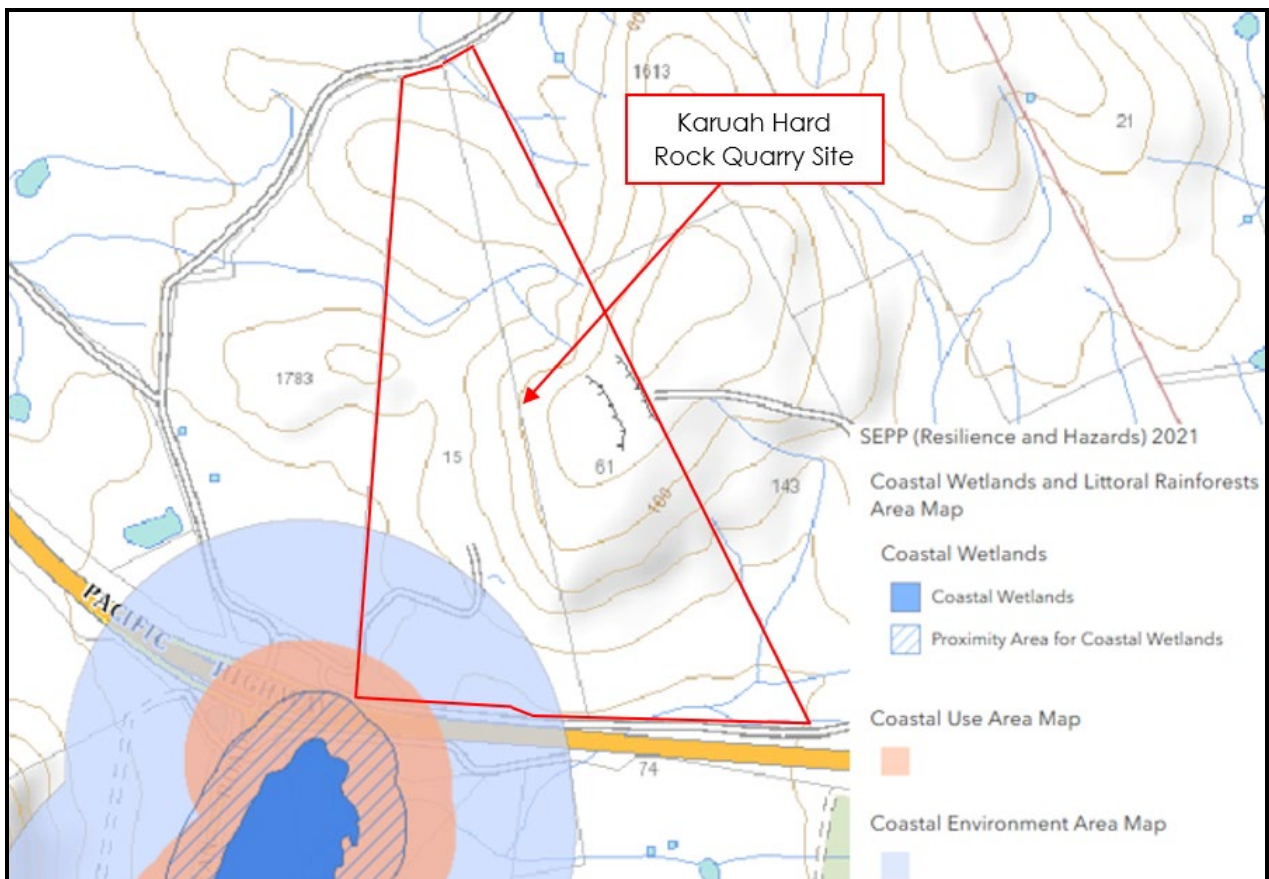


Figure 6: Coastal Management Areas Mapping

Tables 5 and 6 below address the relevant SEPP provisions for the Coastal Environment Area (clause 2.10) and the Coastal Use Area (clause 2.11).

Table 5: Development on Land within the Coastal Environment Area (Clause 2.10)

SEPP PROVISION	RESPONSE
(1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following—	
(a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,	The proposal is unlikely to have any adverse impact on the biophysical, hydrological and ecological environment. A Surface Water Assessment and Groundwater Assessment have been undertaken to support the proposed modification (refer to Sections 6.5 and 6.6 and to Appendices J and K). The proposed modification to the KHRQ does not require any additional land disturbance and accordingly there are no ecological impacts.
(b) coastal environmental values and natural coastal processes,	The proposal seeks to extract remnant andesite material from within an established quarry. The proposal is unlikely to affect coastal environment values or processes. Water management is addressed within Sections 6.5 and 6.6 and to Appendices J and K).
(c) the water quality of the marine estate (within the meaning of the Marine Estate Management Act 2014), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,	The proposal is not located within proximity of any coastal lakes listed within Schedule 1. Water management is addressed within Sections 6.5 and 6.6 and to Appendices J and K).
(d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,	The proposal does not seek approval to disturb any vegetation, undeveloped headlands or rock platforms.
(e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,	Not applicable.
(f) Aboriginal cultural heritage, practices and places,	The proposal can be completed within already disturbed areas of the KHRQ. No impacts on Aboriginal heritage is anticipated.
(g) the use of the surf zone.	Not applicable.
(2) Development consent must not be granted to development on land to which this section applies unless the consent authority is satisfied that—	
(a) the development is designed, sited and will be managed to avoid an adverse impact referred to in subsection (1), or	The proposal has been designed and can be managed to avoid any adverse impacts as identified within subsection (1).
(b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or	Of particular relevance is water management, which is addressed within Sections 6.5 and 6.6 and to Appendices J and K).
(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.	

(3) This section does not apply to land within the Foreshores and Waterways Area within the meaning of State Environmental Planning Policy (Biodiversity and Conservation) 2021 , Chapter 6.	Not applicable.
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Table 6: Development on Land within the Coastal Use Area (Clause 2.11)

SEPP PROVISION	RESPONSE
(1) Development consent must not be granted to development on land that is within the coastal use area unless the consent authority—	
(i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,	Not applicable.
(ii) overshadowing, wind funnelling and the loss of views from public places to foreshores,	Not applicable.
(iii) the visual amenity and scenic qualities of the coast, including coastal headlands,	A Visual Impact Assessment has been prepared to accompany the modification application which demonstrates that the project will have a positive visual impact. Refer to Section 6.7 and Appendix L .
(iv) Aboriginal cultural heritage, practices and places,	The proposal can be completed within already disturbed areas of the KHRQ. No impacts on Aboriginal heritage, practices and places are anticipated.
(v) cultural and built environment heritage, and	The proposal can be completed within already disturbed areas of the KHRQ. No impacts on cultural environmental heritage are anticipated to occur. There are no items of built heritage on the subject site or within proximity of the subject site.
(b) is satisfied that—	
(i) the development is designed, sited and will be managed to avoid an adverse impact referred to in paragraph (a), or (ii) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or (iii) if that impact cannot be minimised—the development will be managed to mitigate that impact, and	The project involves the removal of remnant andersite material within an established quarry. The proposal has been appropriately designed and is unlikely to have any impacts on the matters identified in paragraph (a).
(c) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.	The proposal has taken into account the surrounding coastal and built environment in the context of the proposed development. Relevant environmental and operational management matters are addressed within Section 6 of this Modification Report.
(2) This section does not apply to land within the Foreshores and Waterways Area within the meaning of State Environmental Planning Policy (Biodiversity and Conservation) 2021 , Chapter 6.	Not applicable.

Chapter 3 – Hazardous and Offensive Development

Chapter 3 of SEPP (Resilience and Hazards) provides definitions for ‘hazardous industry’, ‘hazardous storage establishment’, ‘offensive industry’ and ‘offensive storage establishment’. The definitions apply to all planning instruments, existing and future. The definitions enable decisions to approve or refuse a development to be based on the merit of a proposal.

The SEPP requires specified matters to be considered for proposals that are 'potentially hazardous' or 'potentially offensive' as defined in the SEPP.

Former SEPP (Hazardous and Offensive Development (SEPP 33)) (now Chapter 3 of SEPP (Resilience and Hazards)) was considered during the assessment process for the KHRQ. The proposed modification will not result in any changes to the storage and handling of potentially hazardous materials (as was considered as part of the original approval) and does not trigger the provisions of this chapter.

Great Lakes Local Environmental Plan 2014

The site is zoned RU2 Rural Landscape under the Great Lakes Local Environmental Plan 2014 (GLLEP 2014). An extract of the zoning plan is shown in Figure 7.

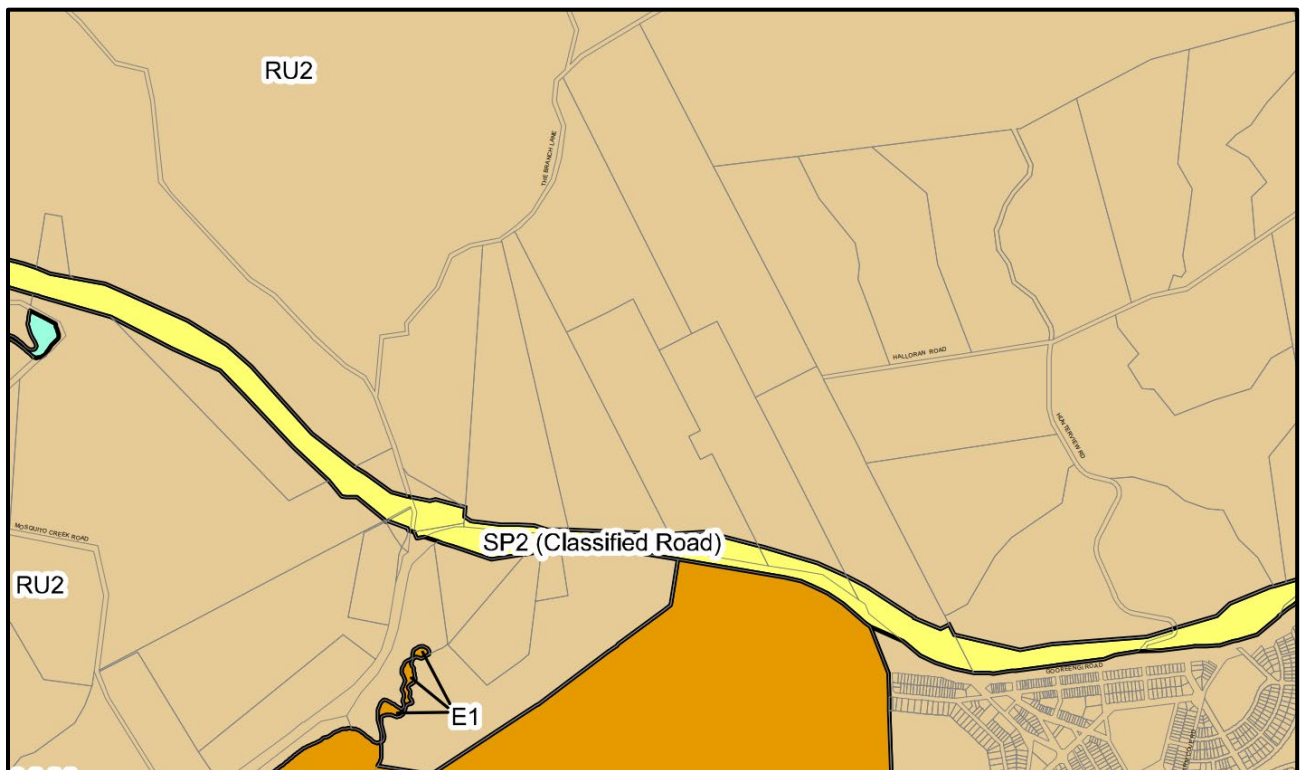


Figure 7: GLLEP 2014 Zoning Plan

Permissibility

The proposal forms part of an 'extractive industry' under the GLLEP 2014. An extractive industry is defined below.

***extractive industry** means the winning or removal of extractive materials (otherwise than from a mine) by methods such as excavating, dredging, tunnelling or quarrying, including the storing, stockpiling or processing of extractive materials by methods such as recycling, washing, crushing, sawing or separating, but does not include turf farming.*

An extractive industry is permissible in the RU2 Rural Landscape zone.

- (a)(ii) *any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and*

The Draft MidCoast Local Environmental Plan (Draft MidCoast LEP) was endorsed at MidCoast Council's ordinary meeting on 26 February 2025.

The Draft LEP is currently with NSW Planning for finalisation, which is anticipated in late 2026.

The zoning of the subject site is proposed to remain as RU2 Rural Landscape Zone upon gazettal of the draft MidCoast LEP. Development for the purpose of extractive industries remains permissible with development consent in the RU2 zone.

(a)(iii) any development control plan, and

Not Applicable.

(a)(iiiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and

Not applicable.

(a)(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), that apply to the land to which the development application relates,

Part 5, Division 1 of the EP&A Regulation 2021 is addressed in the earlier sections of this report. There are no other matters prescribed by the regulations relevant to the application.

(b) the significant likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

An environmental assessment of the proposal is provided within **Section 6** of this report that addresses all significantly likely impacts of the proposed modification. The surrounding receiving environment is well understood by the Applicant and it is considered that the project can be undertaken without any adverse impacts. Management Plans in place can be readily updated to accommodate the proposal.

(c) the suitability of the site for the development,

The subject site is considered suitable for the proposed development for the following reasons:

- There is a proven, high quality andesite resource within the remnant dividing highwall (as well as within other disturbed areas) between two established quarries operated by the Applicant (via affiliated companies).
- Infrastructure exists at both the KHRQ and adjoining KEQ to efficiently extract, process and deliver the andesite product to market.
- Additional resource can be extracted, processed and supplied to market without the need for any additional land disturbance, and the approved disturbance footprint of the KHRQ will remain unchanged.
- Key environmental considerations in the area are well understood and can be readily managed. HQPL is affiliated with KEQPL, who operate the established KEQ on Lot 12 and Lot 13. Noting the adjoining operations, HQPL and KEQPL can extract and process the resource within the CEA in an efficient manner whilst ensuring that coordinated operational and environmental management (as needed) can readily occur.
- The subject site is well separated from any sensitive receivers or significant areas of urban development.
- The KHRQ has direct access available to the Pacific Highway (via The Branch Lane interchange and Andersite Road). The haulage route to the Pacific Highway does not require heavy vehicles to pass any sensitive receivers (e.g. a property with a rural dwelling).

(d) any submissions made in accordance with this Act or the regulations,

Any public submissions will be considered by NSW Planning and the proponent.

(e) the public interest.

The proposed modification is considered to be within the public interest for the following reasons:

- The proposal will involve removal of the remnant dividing highwall between KHRQ and KEQ, resulting in a significant visual amenity improvement, particularly when viewed from the Pacific Highway and Halloran Road.
- The proposal will result in the extraction of a proven, high quality andesite resource that will be supplied to market to support key infrastructure projects and the general construction industry. This will contribute to the long term supply of quality construction materials. This is consistent with key strategic planning documents including the Hunter Regional Plan 2041 and the MidCoast Local Strategic Planning Statement.
- The proposal will continue to support the Applicant's large client base that includes Transport for NSW, a number of local Councils, the Port of Newcastle, Ausgrid, Newcastle Airport, Tier 1 infrastructure providers as well as the general construction, land development and infrastructure industries within Greater Newcastle, the Hunter Valley and Mid-North Coast regions.
- The project can be efficiently delivered, noting that existing plant and infrastructure already exists.
- The project can be undertaken without the need to intensify approved annual extraction and processing rates.
- Extraction and processing of material can be undertaken without the need for any new land disturbance.
- Ensuring continued and uninterrupted employment for existing HQPL staff.

4.5 Other Legislative Matters

4.5.1 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

Following its review of the referral of the original KHRQ project, on 19 March 2004 the now Commonwealth Department of Climate Change, Energy, the Environment and Water (Commonwealth DCCEEW) confirmed that the KHRQ is not a Controlled Activity and therefore an approval under the provisions of the EPBC Act 1999 was not required.

The proposal does not seek to extend the disturbance area of the KHRQ or undertake any clearing activity. Accordingly, the proposal will not generate the need for a new EPBC referral or approval.

4.5.2 NSW Protection of the Environment Operations Act 1997

An Environmental Protection Licence (EPL) (EPL 11569) applies to the KHRQ.

Upon determination of MOD 2, a variation to the EPL will be necessary for the contemporised air quality and noise monitoring regime. Any variation to the EPL will be undertaken in consultation with the NSW Environment Protection Authority.

4.5.3 NSW National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) is the primary state legislation relating to Aboriginal cultural heritage in NSW.

Under the NPW Act, it is an offence to harm an Aboriginal object or place. However, it is a defence from prosecution if the proponent can demonstrate that harm was authorised under Section 90 of the NPW Act, or the proponent exercised due diligence in respect to Aboriginal cultural heritage.

The proposed modification can be undertaken within existing disturbed areas of the KHRQ and no additional clearing or land disturbance is necessary. Accordingly, it is unlikely that the proposal will have any impact on Aboriginal cultural heritage.

4.5.4 NSW Heritage Act 1977

Historical archaeological relics, buildings, structures, archaeological deposits and features are protected under the *Heritage Act 1977* and may be identified on the State Heritage Register (SHR) or by an active Interim Heritage Order.

The proposed modification will have no impact on heritage.

4.5.5 NSW Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act), the *Biodiversity Conservation Regulation 2017* (BC Regulation) and amendments to the *NSW Local Land Services Act 2013* (LLS Act) commenced on 25 August 2017. The legislation aims to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. The BC Act repeals several pre-existing Acts, most notably the *NSW Threatened Species Conservation Act 1995* (TSC), the *NSW Nature Conservation Trust Act 2001* and the *NSW Native Vegetation Act 2003*.

The BC Act together with the BC Regulation outlines the framework for addressing impacts on biodiversity from development and clearing. The framework details a pathway to avoid, minimise and offset impacts on biodiversity from development through the Biodiversity Offset Scheme (The BOS).

Entry into the BOS is triggered by developments, projects and activities that meet criteria or certain thresholds for significant impacts on biodiversity in accordance with Section 6.3 of the BC Act. Alternatively, the BOS can be entered into on an opt-in basis.

Criteria to which the BOS applies includes the following:

- State Significant Development (SSD) and State Significant Infrastructure projects (SSI), unless “the Secretary of the Department of Planning, Industry and Environment and the environment agency head determine that the project is not likely to have a significant impact”.

The proposed development does not seek approval for any additional land clearing or disturbance. Accordingly, the BC Act does not apply to the proposed development.

4.5.6 Commonwealth National Greenhouse and Energy Reporting Act

The Commonwealth *National Greenhouse and Energy Reporting Act* (NGER Act) established a mandatory reporting system for company greenhouse gas emissions and energy production and consumption.

The proposed modification does not involve any change to annual extraction and processing rates or transportation movements. It is not anticipated that there will be any significant additional greenhouse gases generated. Recent calculations demonstrate that emissions from the “Hunter Quarries” group of affiliated companies consistently does not trigger NGER Act reporting thresholds.

An air quality assessment has been prepared to accompany this modification application and is detailed in **Section 6.3** of this report and provided within **Appendix H**.

4.5.7 NSW Water Management Act 2000

The *Water Management Act (2000)* (WM Act), as well as the *Water Act (1912)* establish requirements for water harvesting and reuse. The WM Act defines licensing requirements for water storages which exceed maximum harvestable rights.

The proposal does not generate the requirement for any separate approvals under the provisions of the WM Act.

A surface water assessment has been prepared as part of this Modification Application, refer to **Section 6.5** and **Appendix J**.

Section 5

Engagement



5.0 Engagement

Prior to lodgement of the MOD 2 application, substantial engagement has been undertaken with key government agencies and the local community.

Consultation has occurred with NSW Planning, Transport for NSW, Water Group within NSW DCCEEW, NSW EPA, MidCoast Council and the Joint Karuah Quarry Complex CCC for the MOD 2 application. Refer to **Appendix N** for Agency consultation correspondence and **Appendix O** for CCC correspondence.

5.1 NSW Department of Planning, Housing & Infrastructure

Table 7 below provides a summary of consultation completed with NSW Planning.

Table 7: Summary of Consultation with NSW Planning

Date	Item	Outcome / KEQPL Response
16/07/2025	HQPL staff provided a preliminary project briefing to NSW Planning staff.	NSW Planning staff directed HQPL to submit a proportionate Scoping Report in relation to the project.
14/08/2025	HQPL submitted two (2) concurrent Scoping Reports for the proposal (i.e. one Scoping Report for MOD 2 to DA 265-10-2004 (KHRQ) and another Scoping Report for MOD 11 to MP09_0175 (KEQ).	N/A
01/10/2025	NSW Planning issued Environmental Assessment Requirements for MOD 2 to DA 265-10-2004 (KHRQ) and MOD 11 to MP09_0175 (KEQ). The following is noted in relation to the MOD 2 requirements:	
	The approval pathway for the project is Section 4.55(2) of the EP&A Act.	Noted and agreed. The requirements of Section 4.55(2) are addressed in Section 4.2 of this Modification Report. This Modification Report is prepared in accordance with the NSW Government's <i>State Significant Development Guidelines</i> , in particular <i>Appendix E, Preparing a Modification Report</i> .
	Proportionate assessments of the following matters is necessary: - Noise and Vibration; - Blasting; - Air Quality; - Traffic and transport; - Water Resources; - Visual Amenity; and - Rehabilitation and Final Landform.	Each of these items are addressed within Section 6 of this Modification Report as well as corresponding appendices.
	Consultation is recommended with the following Government Agencies: - TfNSW; - Water Group within NSW DCCEEW; - CPHR Group within NSW DCCEEW; - NSW EPA; - MidCoast Council; and - Heritage NSW.	Consultation with each of these agencies was undertaken during completion of this Modification Report. Refer to Sections 5.2 – 5.8 below.

	If the proposal is likely to have a significant impact on Matters of National Environmental Significance (MNES), approval will be required under the <i>EPBC Act</i> .	The MOD 2 proposal does not involve the removal of any vegetation and EPBC referral and approval is not necessary.
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5.2 Transport for NSW

Table 8 below provides a summary of consultation undertaken with Transport for NSW during preparation of the Modification Application.

Table 8: Summary of Consultation with Transport for NSW

Date	Item	Outcome / KEQPL Response
05/02/2026	HQPL provided a detailed project briefing to TfNSW and an invitation to comment. The briefing noted that of particular relevance to TfNSW is the proposed extension of hours and extension of operational life of the KHRQ to match the KEQ. A Transport and Traffic Impact Statement (TTIS) (Intersect Traffic, 5 February 2026) was supplied to TfNSW for consideration as part of the briefing package, which provided the following findings: - The existing Local and State road network is of a suitable standard to cater for all traffic generated by the operation of the existing KHRQ and KEQ. - Both Andersite Road and Blue Rock Close as two-lane two-way roads with a 50 km/h speed limit have a two-way mid-block capacity of at least 1,800 vtp. With peak hour traffic being only in the order of a maximum of 160 vtp these roads are currently operating with excellent levels of service and with uninterrupted flow conditions. - With no additional traffic generated by the proposal, the Local and State road network adjacent to the KHRQ and KEQ will continue to operate with uninterrupted flow conditions or with no loss of two-way mid-block level of service or intersection level of service. - There is no nexus for any road infrastructure upgrades resulting from the proposal. - The existing quarries currently operate with at grade vehicular accesses off Andersite Road (KHRQ) and Blue Rock Close (KEQ) that are constructed to suit their use by heavy vehicle traffic associated with the operation of the quarries. With the proposed pit consolidation project not generating any additional annual traffic and the current accesses being approved within the existing consents for the quarries there is no nexus in this project for the upgrading of the existing vehicular accesses to both quarries.	N/A

	• The proposed extended operational life of the KHRQ (from 2027 to 2034) and extended operating hours can be readily accommodated by the existing Local and State Road network as well as existing quarry access. • There are no cumulative impacts that arise from the proposed development. • Noting that no intensification of traffic will be generated by the proposal, there is no nexus in this project for the provision of additional on-site car or heavy vehicle parking within each quarry. • The consolidation project does not result in any nexus for the provision of upgraded or new servicing infrastructure within either the KHRQ or KEQ. • The proposal does not result in a nexus for the provision of upgraded or new pedestrian infrastructure within or external to both the KHRQ and KEQ. • The proposal does not result in a nexus for the provision of upgraded or new alternate transport mode facilities or services external to either the KHRQ or KEQ.	
11/03/26	Provided below is a summary of the items raised by TfNSW (with commentary provided in full in Section 6.4.5): 1. Clarification regarding any potential changes to traffic movements to / from the Karuah quarry complex, by extending the hours available for transportation for one of the quarries and the potential impacts of this change to traffic movements on the broader network. 2a. Assessment of any impacts to the Pacific Highway and the associated interchange. 2b. Austroads turn treatment warrants assessments at key intersections along the transport routes. 3. Consideration of cumulative quarry generated heavy vehicle movements travelling in each of the available directions, to and from the subject quarries to determine the full impact of the proposal and existing developments on the road network. 4. The following be addressed: (a) <i>Identify all key transport / haulage routes applicable to each quarry.</i> (b) <i>Identify the maximum daily and hourly production and transportation rates for each quarry.</i> (c) <i>Identify the peak hours for traffic movement, for each quarry, and the cumulative impacts of those peak hours.</i>	The Applicant commissioned Barker Ryan Stewart to review and respond to the TfNSW comments. See Section 6.4.5 and Appendix I2) for a detailed response.

	(d) Include traffic counts of existing background traffic on all roads located between the subject quarries and the classified (State) road, as per the key transport / haulage route/s. (e) Undertake Austroads turn warrants assessments for all key intersections along the key transport / haulage routes. (f) Address the existing condition of the relevant roads and address the impacts of the additional 7 years of operational life for KHRQ may have on the road conditions and maintenance requirements.	
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5.3 Water Group within NSW DCCEEW

Table 9 below provides a summary of consultation undertaken with the Water Group within NSW DCCEEW during preparation of the Modification Application.

Table 9: Summary of Consultation with the Water Group within NSW DCCEEW.

Date	Item	Outcome / KEQPL Response
30/01/2026	HQPL provided a detailed project briefing to the Water Group and an invitation to comment. The briefing noted that of particular relevance Surface Water and Groundwater Advice will be provided as part of the Modification Application. The outcomes of preliminary investigations were provided as follows: <u>Surface Water</u> - A review of stormwater management and infrastructure at both KHRQ and KEQ confirms that the proposal can be readily managed to ensure minimal impact on sensitive downstream environments. - The KHRQ and KEQ water management systems will continue to operate independently. The project represents a minor adjustment to catchments with no significant redirection of flows and no changes to water demands. - This results in no changes to: - Site water balance for either KHRQ or KEQ sites. - Maximum Harvestable Rights and associated licencing requirements. - Licensed Discharge Point (LDP) requirements. - Water monitoring program arrangements. - Erosion and sediment control practices can be readily adjusted to cover the proposed development in all extraction stages. - Addendum letters to the approved KHRQ and KEQ surface water assessments will be prepared as part of the modification applications that address the above.	N/A

	<u>Groundwater</u> • Noting the final depth of the KHRQ (RL65m) and KEQ (RL45m) will not be affected by the proposal, groundwater will not be intercepted and a significant buffer of approximately 10 m above known groundwater level will be maintained. • A Water Access Licence (WAL) is not necessary noting that groundwater will not be intercepted or harvested (i.e. by bore extraction) by the proposal. • Groundwater quality can be readily managed by the ongoing implementation of well-established monitoring and adaptive management processes and triggers at both the KHRQ and KEQ. • Noting that groundwater will not be intercepted, other licenced groundwater users in the locality will not be affected. An updated Site Water Management Plan (inclusive of ongoing monitoring and management requirements) will be prepared to include the project and any recommendations of the Surface Water and Groundwater Assessments.	
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At the time of writing this s4.55 Modification Report, no response has been received from the Water Group.

5.4 Conservation Programs, Heritage and Regulation Group within NSW DCCEW

Consultation was undertaken with CPHR in relation to the proposed modification to the KEQ consent (MOD 11). Consultation was not necessary in relation to the proposed modification to the KHRQ (MOD 2) noting that no additional disturbance area is proposed. This was noted in a meeting with CPHR on 17 December 2025 (refer to the Modification Report prepared for MOD 11 to the KEQ).

5.5 Heritage NSW

Consultation was undertaken with Heritage NSW in relation to the proposed modification to the KEQ consent (MOD 11). Consultation was not necessary in relation to the proposed modification to the KHRQ (MOD 2) noting that no additional disturbance area is proposed. The outcomes of consultation with Heritage NSW are provided in the Modification Report prepared for MOD 11 to the KEQ.

5.6 NSW Environment Protection Authority

Table 10 below provides a summary of consultation undertaken with NSW EPA during preparation of the Modification Application.

Table 10: Summary of Consultation with NSW EPA

Date	Item	Outcome / KEQPL Response
15/10/2025	HQPL provided a detailed project briefing to the NSW EPA. The briefing noted that of particular relevance will be the completion of contemporary impact assessments for air quality, blasting, noise and surface water.	N/A.

	It was noted that post determination the existing KEQ Environment Protection Licences for KHRQ (EPL 11569) and KEQ (EPL 20611) will be varied accordingly.	
10/11/2025	NSW EPA acknowledged receipt of briefing.	N/A
06/11/2025	The NSW EPA contacted HQPL via phone and advised that both Modification Applications should consider the following items: 1. Potential air quality and noise impacts associated with the proposal, including the loss of shielding as a result of highwall removal. 2. Water catchments are to be addressed. 3. Environment Protection Licence arrangements should be considered.	In response to the items raised, the following is noted: 1. An Air Quality Impact Assessment (refer to Section 6.3 and Appendix H) and Noise Impact Assessment (refer to Section 6.1 and Appendix F) has been prepared as part of this modification application. Air quality and noise modelling has been prepared based on the proposed 'pit shell' at various critical extraction stages, including with and without shielding effects. The reports confirm that the proposal is acceptable in terms of noise and air quality considerations. 2. Water catchments are considered within the Surface Water Assessment provided within Appendix J and detailed within Section 6.5 of this Modification Report. There are no material changes to water catchments at the KHRQ and the adjoining KEQ. 3. The KHRQ is subject to EPL 11569 and the adjoining KEQ is subject to EPL 20611. No changes to this arrangement are necessary (i.e. two (2) EPL's will remain in place no changes are necessary to the EPL premises boundaries (they remain on the lot boundary). Any variations to air quality monitoring points, noise criteria, blasting hours and operational hours will be undertaken following determination of the Modification Applications.

5.7 MidCoast Council

Table 11 below provides a summary of consultation undertaken with MidCoast Council during preparation of the Modification Application.

Table 11: Summary of Consultation with MidCoast Council

Date	Item	Outcome / KEQPL Response
15/10/25	HQPL provided a detailed project briefing to MidCoast Council.	N/A.
20/10/25	MidCoast Council provided the following comments: • The proposal will provide a range of beneficial outcomes. • The Modification Report will consider statutory requirements.	KEQPL note the following: • Welcome Council's comments and agree that the proposal will provide a range of beneficial outcomes. • Section 4.0 of this report addresses relevant statutory requirements.

	- The Modification Report should consider how highwall removal will deliver efficiencies in quarry operations, materials handling and stockpiling as well as how the removal of the highwall can facilitate enhanced quarry closure and post quarry use outcomes. - Further feedback will be provided at the extraordinary CCC meeting.	- Refer to the project justification provided in Section 7.0 for commentary on efficiencies that will be achieved and enhanced closure outcomes including a free draining landscape post quarry use. - Refer to Section 5.8 below in relation to feedback received during the extraordinary CCC meeting.
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5.8 Joint Karuah Quarry Complex Community Consultative Committee

The proposed Karuah Pit Consolidation Project was introduced to the Joint Karuah Quarry Complex CCC for both KHRQ and KEQ at an extraordinary meeting held on 3 November 2025.

A copy of the minutes of the CCC meeting are provided within **Appendix O**.

HQPL representatives at the CCC meeting provided a detailed briefing of the key elements of the proposal, the project background, confirmed project justification and outlined the approval pathway (as confirmed with NSW Planning) as well as the range of specialist assessments that were being prepared to inform the application. As part of the extraordinary CCC meeting proceedings, the CCC undertook a site inspection of both the KEQ and KHRQ extraction areas.

Overall, there was a general level of support from the CCC for the proposal.

Provided in **Table 12** below is a summary of the key items of discussion from the meeting.

Table 12: Summary of Extraordinary CCC Meeting held on 3 November 2025

Item	KEQPL / HQPL Response
The proposal will result in significant visual amenity improvements associated with the removal of the highwall structure.	Noted and agreed.
Removal of the dividing highwall (which consists of a known quality quarry product) and consolidating the extraction areas is a logical outcome.	Noted and agreed.
In addition to the dividing highwall, the KEQ extraction area will be extended to the east.	Noted (and not relevant to the KHRQ MOD 2 application). Refer to the Modification Report for the concurrent KEQ MOD 11 application (to MP09_0175).
The KEQ footprint will be extended to the east into a small and narrow area adjoining the KEQ that formerly contained a powerline corridor.	Noted (and not relevant to the KHRQ MOD 2 application). Refer to the Modification Report for the concurrent KEQ MOD 11 application (to MP09_0175).
Will a blasting impact assessment be prepared?	Yes, refer to Section 6.2 and Appendix G .
It was discussed by the CCC that given the width and size of the highwall, that blasting will likely be a fast and efficient process.	It was noted that given the narrowness of the highwall (approximately 40m across the top) blasting activity in the dividing highwall will be smaller in size than other blasts typically undertaken at both quarries.
Reduced cumulative blasting across both quarry operations from 3 to 2 was noted.	Noted.
How will the highwall be practically removed?	The highwall will be removed incrementally from the top down. Refer to the general extraction staging sequence provided within Section 3.1.1 .
Will the Noise Impact Assessment consider the various stages of highwall removal?	Yes. Refer to Section 6.1 and Appendix F .
Does the proposal seek to increase the approved depth of either extraction area?	No, the currently approved depths will remain unchanged.

How will the differences in height in the extraction area floors be managed (noting that KEQ has an approved base of RL45m and KHRQ has an approved base of RL65m).	The final landform will be ramped from KHRQ towards KEQ and will include a 'drop' structure for water drainage. Refer to Section 6.8 and Appendix M .
Proposed extended hours of operation of the KHRQ to be consistent with the approved hours of operation of the KEQ. No change to hours of operation at the KEQ.	Achieving consistent hours of operation at both KHRQ and KEQ will allow for holistic and improved operational efficiencies. The proposed extended hours of operation for the KHRQ are supported by contemporary Noise Impact Assessment (refer to Section 6.1 and Appendix F). Refer to Section 3.1.6 of this Modification Report for the proposed hours of operation.
Will the life of the KHRQ need to be extended to facilitate the project?	Yes, the life of the KHRQ is proposed to be extended to 31 December 2034 to achieve consistency with the KEQ consent. This will allow for a holistic, efficiently managed operation and rehabilitation process.
Is an approved operational timeframe of December 2034 long enough to complete the proposed pit consolidation project?	Extraction rates are driven by market demand however yes, operation to December 2034 provides adequate time to complete the project.
Improved final landform outcomes.	The proposal will result in a free draining final landscape. KHRQ void will drain to KEQ to the east and the KEQ void will drain to Dam 1 via a shaped water channel. Woodland vegetation will be established at both sites (refer to Section 6.8 and Appendix M).
MidCoast Council's representative at the meeting noted that the matter had been referred to all relevant departments within Council. Council's position is that the project is a very positive outcome for the management of quarry operations and the supply of resource to market. Council is interested in the project but has no specific concerns or comments based upon the briefing.	Support noted and welcomed.
Public exhibition.	Both MOD 2 (to DA265-10-2004) and KEQ MOD 11 (to MP09_0175) will be publicly exhibited by the NSW DPHI in accordance with the exhibition provisions of Section 4.55(2) of the NSW EP&A Act 1979. The proponent will notify the CCC when exhibition details are available.

Further to the above, a recap of the proposal was provided at the regular CCC meeting dated 17 March 2026. No new issues or items were discussed, with a general level of support for the project confirmed by the CCC.

Section 6

Assessment of Impacts



6.0 Assessment of Impacts

This section provides an assessment of the key environmental issues associated with the proposed modification.

6.1 Noise

EMM was commissioned by the Applicant to prepare a Noise Impact Assessment (NIA) for the proposed MOD 2 development. The NIA assesses the noise and vibration impacts of the proposed modification on existing sensitive receptors in the surrounding area. The NIA is enclosed as **Appendix F**.

The NIA was completed in accordance with the following guidelines and policies:

- *Noise Policy for Industry* (NPfI) (NSW EPA 2017);
- *Road Noise Policy* (RNP) (NSW DECCW 2011); and
- *Voluntary Land Acquisition and Mitigation Policy* (VLAMP) (NSW Government 2018).

Blasting related vibration has been assessed separately, with a summary provided within **Section 6.2** of this report.

6.1.1 Existing KHRQ Noise & Existing Ambient Noise

Operational noise criteria for current approved operations of the KHRQ were established by the original approval on 3 June 2005. These criteria are provided in Schedule 3, Condition 1 of Development Consent DA 2065-10-2004.

The derivation of these limits was based on the now superseded NSW EPA policy (Industrial Noise Policy).

Table 13: Existing Operational Noise Limits (dB) (DA 265-10-2004)

Noise Assessment Location	Day L _{Aeq,15 min} dB	Evening L _{Aeq,15 min} dB	All Other Times L _{Aeq,15 min} dB
Any privately owned receptor	48	47	46

Noise Sensitive Receivers

The closest noise sensitive receivers are shown in **Figure 8** below and described in **Table 14** below.

The noise assessment locations have been updated to align with the more contemporary KEQ consent documents and associated noise assessment. This is an administration change only, with no alternation to the physical receptor locations or assessment positions adopted in previous assessments. The revised identifiers represent a clearer and more consistent referencing of receptors across both the KHRQ and KEQ sites for the Applicant, nearby residents and regulatory authorities.

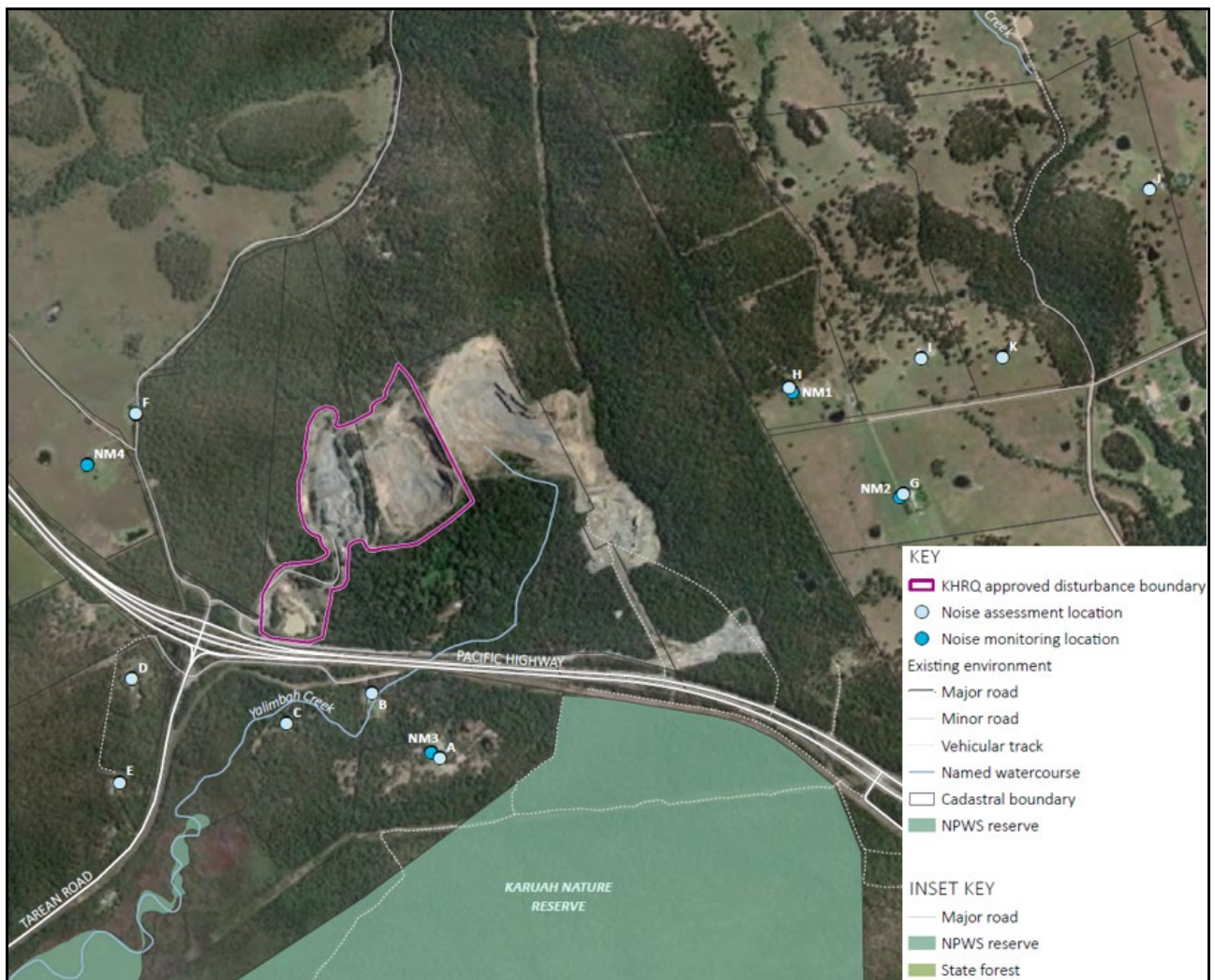


Figure 8: Noise Monitoring and Assessment Locations

Table 14: Noise Assessment Locations

RECEPTOR ID	PROPERTY DETAILS
A	Lot 100 DP 1028885
B	Lot 3 DP 785172
C	Lot 1 DP 785172
D	Lot 250 DP1092111
E	Lot 22 DP 1024341
F	Lot 50 DP 1036893
G	Lot 1 DP 1032636
H	Lot 10 DP 1032636
I	Lot 11 DP 1032636
J	Lot 13 DP 1032636
K	Lot 12 DP 1032636

Existing Quarry Noise Emissions

Daytime noise monitoring is currently undertaken at Receptors NM1 and NM2 on a six-monthly basis. This monitoring is undertaken in accordance with the approved KHRQ Environmental Management Strategy and Monitoring Program (EMS&MP).

Noise compliance monitoring results show that noise from the KHRQ is generally not audible at locations A and B over noise from the traffic on the Pacific Highway and noise emissions from the KHRQ satisfy the relevant operational noise limits in DA 265-10-2004.

Ambient Noise Environment

A background noise monitoring program was undertaken by EMM to appropriately characterise the noise environment at relevant receivers.

The monitoring program included:

- Unattended noise monitoring at four locations surrounding the KHRQ to establish ambient and background noise levels; and
- Operator-attended noise monitoring at the unattended noise logger locations.

The monitoring program provided opportunity to validate the computer noise model under noise-enhancing weather conditions.

6.1.2 Noise Assessment

Contemporary noise goals (PNTL's (Project Noise Trigger Levels)) were established based on the results of the ambient noise monitoring undertaken. PNTL's are the lower (i.e. more conservative) of with the project intrusiveness or amenity levels (described above).

These are summarised in **Table 15** below.

Table 15: Project Noise Trigger Levels

Assessment Location	Intrusive Noise Level, $L_{Aeq,15min}$, dB			Amenity Noise Level, $L_{Aeq,15min}$, dB			PNTL, $L_{Aeq,15min}$, dB		
	Morning Shoulder ¹	Day ¹	Evening ¹	Morning Shoulder ¹	Day ¹	Evening ¹	Morning Shoulder ¹	Day ¹	Evening ¹
A	46	51	51	38	53	43	38	51	43
B	46	51	51	38	53	43	38	51	43
C	46	51	51	38	53	43	38	51	43
D	46	51	51	38	53	43	38	51	43
E	46	51	51	38	53	43	38	51	43
F	46	51	51	38	48	43	38	48	43
G	42	46	46	38	48	43	38	46	43
H	38	40	45	38	48	43	38	40	43
I	38	40	45	38	48	43	38	40	43
J	35	40	35	38	48	43	35	40	35
K	38	40	45	38	48	43	38	40	43

Note: 1. Morning shoulder: 5am to 7am Monday to Saturday; 5 am to 8 am Sundays and public holidays; Day: 7 am to 6 pm Monday to Saturday; 8 am to 6 pm Sundays and public holidays; Evening: 6 pm to 10 pm.

It is noted that during the assessment process for MOD 9 to the adjoining KEQ (approved 2 December 2021), clarification was sought by the NSW EPA regarding why the evening PNTLs were higher than the day PNTLs for residences H and I. This was investigated and addressed to the satisfaction of the NSW noting the following:

- Changes in diurnal patterns are most likely due to weather effects and variances in traffic flow on the Pacific Highway;
- There is a direct correlation between the ambient background noise levels measured at locations G and H. This indicated that the primary influence on ambient and background levels is part of the broader environment and not something that is localised to a particular residence; and

- Of 10 long-term unattended noise monitoring periods undertaken at location G since February 2019 only one of those monitoring periods recorded an evening RBL less than the daytime. On all other occasions, the measured evening RBL was equal to or greater than the daytime RBL (ranging from equal to up to 6 dB higher). This clearly demonstrates that this is a long-term feature of the locality.

Noise modelling was based on three-dimensional digitised ground contours of the surrounding land and surface infrastructure. Noise predictions were carried out using the iNoise software. iNoise calculates total noise levels at assessment locations from concurrent operation of multiple noise sources. The model considers factors such as the lateral and vertical location of plant, source-to-receptor distances, ground effects, atmospheric absorption, topography of the surface facilities area and surrounds and applicable meteorological conditions.

In order to accurately model the noise emissions over the project lifecycle, three distinct critical stages representing the progressive extraction sequence have been developed relevant to noise emissions:

- **Extraction Sequence Stage 1:** Extract the current top benches of the remnant highwall from RL135 down to RL90 (currently lowest KEQ bench at the time of writing (April 2026), forming a single extraction level/area on Lot 12. The noise modelling for this stage assumes extraction equipment operating at RL135 in a worst-case location.
- **Extraction Sequence Stage 2:** Extract Lot 12 from RL90 (currently lowest KEQ bench at the time of writing (April 2026), down to RL65 to in line with KHRQ pit floor and KEQ boot-bin levels, forming a single extraction level/area over the entire Consolidated Extraction Area. The noise modelling for this stage assumes extraction equipment operating at RL90 in a worst-case location.
- **Extraction Sequence Stage 3:** Extract Lots 12 & 13 (KEQ) from RL65 down to RL45. The KHRQ pit floor is to remain at RL65. The noise modelling for this stage assumes extraction equipment operating at RL65 in a worst-case location.

A conservative approach was selected for the consideration of potentially noise enhancing weather conditions. Noise emissions from the quarry have been predicted for noise enhancing conditions.

The noise model considered a representative snapshot of surface operations with equipment placed at locations representing a realistic operational scenario. Equipment sound power levels have been based on measurements undertaken at KHRQ and KEQ. **Table 16** below provides a summary of the acoustically significant fixed and mobile equipment considered in the noise model.

Table 16: Acoustically Significant Plant and Equipment

ITEM	SOUND POWER LEVEL PER ITEM (dB(A))	QUANTITY OPERATING		
		MORNING SHOULDER	DAY	EVENING
Excavator (70t)	102	Nil	2	2
Front end loader	104	2	2	2
Articulated haul trucks ¹	107	Nil	2	2
Excavator (7t)	98	Nil	1	1
Bobcat	95	Nil	1	1
Mobile screen	115	Nil	1	1
Mobile stacker	105	Nil	1	1
Water cart	107	1	1	1
EWP	94	Nil	1	1
Telehandler	96	Nil	1	1
Road trucks	103	4	4	4
KHRQ Processing Plant	117	Nil	1	1

Notes: 1. It is assumed that two haul trucks continuously operate between the pit and the processing area.

Results of Operational Noise Assessment

Operational noise emissions for each proposed period of operation are summarised in **Table 17** below.

Table 17: Operational Noise Predictions

Location	Period	Predicted Noise Level MOD 2 Operations ($L_{Aeq,15\text{ min}}$) (dB)			PNTL ($L_{Aeq,15\text{ min}}$) (dB)	Existing Noise limit ($L_{Aeq,15\text{ min}}$) (dB)
		Stage 1	Stage 2	Stage 3		
A	Morning shoulder	<30	<30	<30	38	46
	Day	40	40	40	51	48
	Evening	40	40	40	43	47
B	Morning shoulder	<30	<30	<30	38	46
	Day	43	43	43	51	48
	Evening	43	43	43	43	47
C	Morning shoulder	<30	<30	<30	38	46
	Day	41	41	41	51	48
	Evening	41	41	41	43	47
D	Morning shoulder	32	32	32	38	46
	Day	43	45	45	51	48
	Evening	43	45	45	43	47
E	Morning shoulder	<30	<30	<30	38	46
	Day	38	38	38	51	48
	Evening	38	38	38	43	47
F	Morning shoulder	<30	<30	<30	38	46
	Day	35	35	35	48	48
	Evening	35	35	35	43	47
G	Morning shoulder	<30	<30	<30	38	46
	Day	<35	<35	<35	46	48
	Evening	<30	<30	<30	43	47
H	Morning shoulder	<30	<30	<30	38	46
	Day	<35	<35	<35	40	48
	Evening	<30	<30	<30	43	47
I	Morning shoulder	<30	<30	<30	38	46
	Day	<35	<35	<35	40	48
	Evening	<30	<30	<30	40	47
J	Morning shoulder	<30	<30	<30	35	46

Location	Period	Predicted Noise Level MOD 2 Operations ($L_{Aeq,15\text{ min}}$) (dB)			PNTL ($L_{Aeq,15\text{ min}}$) (dB)	Existing Noise limit ($L_{Aeq,15\text{ min}}$) (dB)
		Stage 1	Stage 2	Stage 3		
	Day	<35	<35	<35	40	48
	Evening	<30	<30	<30	35	47
	Morning shoulder	<30	<30	<30	38	46
	Day	<35	<35	<35	40	48
	Evening	<30	<30	<30	40	47

Notes: 1. This predicted noise level includes a positive 2 dB to account for the low frequency noise from the processing plant.

KHRQ noise emissions are predicted to comply with the relevant PNTLs and existing noise limits during all extraction sequence stages of extraction and periods of operations at all assessment locations. Accordingly, no further noise mitigation or management is required.

Noting that the proposal includes extended hours of operation at the KHRQ (to match the approved hours of operation of the KEQ), it is appropriate to update the operational noise criteria condition. A suggested replacement condition for Schedule 3, Condition 1 of DA 265-10-2004 has been provided in **Section 6.1.3** below.

Sleep Disturbance

Consideration was given to likely maximum noise level events at the nearest residential assessment locations during the morning shoulder period to determine the potential for sleep disturbance.

Typical maximum noise events are likely to include reversing alarms and impacts associated with loading and/or unloading material. A typical conservative sound power level of L_{Amax} 125 dB has been used to predict potential sleep disturbance impacts at receiver locations.

Results of noise modelling found that maximum noise level events are predicted to satisfy the relevant maximum noise level event screening criteria at all assessment locations under noise-enhancing meteorological conditions. It is unlikely that the project will cause sleep disturbance at any receivers.

Road Traffic Noise Assessment

Based on the annual production limit, which is not proposed to change as a result of proposed MOD 2, the following summarises the traffic generation of the KHRQ:

- A total of 144 vehicle movements per day which equates to 72 despatched loads per day; and
- A maximum hourly traffic flow of 16 vehicle movements which equates to eight (8) despatched loads during that hour.

It is noted that KHRQ related traffic does not pass directly by any residences before entering the Pacific Highway.

Road traffic noise impacts are not predicted as a result of MOD 2.

Cumulative Noise

Cumulative noise was considered for both the KHRQ and KEQ operations in accordance with the NpFI. During all extraction sequence stages of the proposed Karuah Pit Consolidation Project, quarry noise emissions are predicted to be below (i.e. comply with) the relevant recommended amenity noise level during all periods of operations at all assessment locations.

As previously noted, relevant to KSQ, HQPL are now the Applicant for this project. If the KSQ project progresses, it will not commence operations until the cessation of operation at KHRQ and will be the subject of a revised NIA that accounts for the proposed Karuah Pit Consolidation project.

6.1.3 Conclusion and Mitigation Measures

The NIA concludes that the proposed MOD 2 development is acceptable in terms of acoustic considerations. The following is noted:

- Operational noise emissions are predicted to comply with the relevant PNTLs and existing noise criteria during all periods of operation at all assessment locations.
- Cumulative quarry noise emissions from KHRQ and KEQ are predicted to be below the relevant recommended amenity noise level during all extraction sequence stages and periods of operation. Accordingly, no further noise mitigation or management is required.
- If the proposed KSQ is progressed, this quarry will not commence until the cessation of KHRQ operations.
- The proposal is acceptable in terms of cumulative noise considerations, with compliance with recommended amenity noise level achieved for each identified receptor. During all stages quarry noise emissions are predicted to be within recommended amenity noise level during all periods of operations at all assessment locations.
- Road traffic noise generated by KHRQ related traffic is predicted to achieve relevant road traffic noise goals.
- Application will be required to be made to update EPL 11569 which applies to the KEQ.

Recommended Update to Schedule 3 Condition 1 Noise Criteria of DA 265-10-2004

It is considered appropriate to contemporise the operational noise condition within DA 265-10-2004 based on the proposal and the outcomes of the NIA (refer to **Section 3.2**). A suggested replacement condition is provided below.

Operational Noise Criteria

Except for the carrying out of construction work, the Applicant must ensure that the operational noise generated by the development does not exceed the criteria in the table below at any residence on privately-owned land.

Table 18: Suggested Operational Noise Criteria

Noise Assessment Location ^a	Morning Shoulder $L_{Aeq,15minute}$	Morning Shoulder L_{Amax}	Day $L_{Aeq,15minute}$	Evening $L_{Aeq,15minute}$
A	35	52	40	40
B	35	52	43	43
C	35	52	41	41
D	35	52	43	43
E	35	52	40	38
All other residences	35	52	40	35

^a Noise Assessment Locations are Shown in Figure 2.3 of the EMM NIA dated March 2026

Noise generated by the development must be monitored and measures in accordance with the relevant procedures and modifications (including certain meteorological conditions) of the NPfI.

Mitigation Measures

No additional mitigation measures are necessary for the proposed MOD 2 development.

Monitoring

The frequency of monitoring is proposed to be increased to quarterly monitoring (currently six-monthly monitoring is completed), to achieve consistency with the monitoring regime for the KEQ to provide greater compliance confidence and streamlined reporting processes.

The Noise Monitoring Program within the established Environmental Management Strategy & Monitoring Program will be updated to include the proposed changes associated with MOD 2.

6.2 Blasting & Vibration

Heilig & Partners Pty Ltd was commissioned by the Applicant to prepare a Blast Impact Assessment (BIA) for the proposed MOD 2 project.

This BIA provides a framework for the procedures to maintain best practice controls to manage potential environmental impacts during the drilling and blasting activities associated with the extraction of material from KHRQ, inclusive of the proposed MOD 2 development.

The BIA details how HQPL will manage blasting activities and the related environmental impacts such as ground vibration, airblast overpressure and flyrock and sets out performance requirements and procedures to ensure that and potential impacts associated with blasting activities are identified and controlled.

The BIA is enclosed as **Appendix G**.

6.2.1 Existing Conditions & Adjacent Properties

The existing conditions in the area of the Karuah Quarry Complex site are typical of a semi-rural area with minimal sources of external ground vibration, beyond heavy vehicles.

Any instances of perceptible vibration would result only from a combination of heavy vehicle movement coupled with uneven road pavement surfaces. Only under these combined conditions would measurable vibration occur. Even then, it would however be limited to areas immediately around the road and not measurable at the property given the setback distance of the property to the road.

There are no identified locations around the KHRQ where elevated vibration levels already occur.

A review of the neighbouring properties identifies a small number of various types of dwellings and sheds within approximately 550 to 1500 m from the KHRQ extraction area (refer to **Figure 9** below).



Figure 9: Plan showing area of KHRQ MOD 2 on the Context of Surrounding Sensitive Receivers

Table 19: Blast Impact Assessment Locations

ID	Property Details	Description
A	Lot 100 DP 1028885	Private residence
B	Lot 3 DP 785172	Private residence
C	Lot 1 DP 785172	Private residence
D	Lot 250 DP 1092111	Private residence
E	Lot 22 DP 1024341	Private residence
F	Lot 50 DP 1036893	Private residence
G	Lot 1 DP 1032636	Private residence
H	Lot 10 DP 1032636	Private residence
I	Lot 11 DP 1032636	Private residence
J	Lot 13 DP 1032636	Private residence
K	Lot 12 DP 1032636	Private residence

The potential effect of blasting is assessed based on the assumption that blast activities are undertaken at the perimeter of the proposed extraction footprint in order to test conservative minimum separation distances to sensitive receivers.

It is noted that around the planned MOD 2 blast area:

- The nearest residential property is located towards the south and is approximately 550 m from the closest location of possible blasting in the KHRQ, but more than 650 m from much of the blasting after it moves toward the north-east and away from the southern extraction limit boundary.
- Towards the south-west there are several properties along Mill Hill Close and Tarean Road with the closest being approximately 550 m from the closest point of blasting.

- There are no residential properties to the direct east of the KHRQ.
- The property density in the area is low with less than 10 individual buildings/sheds within 1,500 m of the proposed Karuah Pit Consolidation Project.
- A separation distance of approximately 420 m exists between the KHRQ extraction area and the Pacific Highway.

No instances of blast induced vibration damages have been reported to HQPL due to operations to-date.

6.2.2 Drilling and Blasting Method

Extraction within the KHRQ will continue consistent with current operations. This includes a combination of drilling and blasting techniques, together with a small amount of free digging and hydraulic hammering (where required). Quality assurance at the same level that has been applied to all previous aspects of the blasting processes will continue with the MOD 2 development.

The scale of blasting will be controlled by the benching strategy for the site rather than a restricted scale of blasting as a requirement to comply with both vibration and overpressure levels.

Once the extraction area has been established, blasting is planned to continue with the 15 m bench heights. Shallower bench heights will only be used during the initial phase of establishing the bench faces.

Based upon a 15 m bench height, the explosive weight will vary to around 100 kg per blasthole for an 89 mm diameter blasthole loaded with an emulsion explosive type explosive. Lesser explosive weights may be used during the development of the quarry in the initial stages until regular bench heights are established.

6.2.3 Drilling and Blasting Impact Assessment

Modelling was undertaken to assess the proposed MOD 2 development against the existing performance criteria for airblast overpressure and vibration outlined within DA 265-10-2004 (Schedule 3, Condition 4) and EPL 11569, reproduced in **Table 20** below.

Table 20: Existing Airblast Overpressure and Vibration Criteria (DA 265-10-2004 & EPL 11569)

	Ground Vibration and Air Overpressure Measured at a Sensitive Place	
	Monday to Friday 9am to 3pm	Other Times and Public Holidays
Ground Vibration (peak particle velocity)	Exceed 5 mm/s for more than 5% of the total number blasts during the reporting period No blasting > 10mm/s	No blasting to occur, unless special approvals sought.
Airblast overpressure level (dB linear peak)	Exceed 115 dBL for more than 5% of the total number of blasts during the reporting period No blasting > 120dBL	No blasting to occur, unless special approvals sought.

The modelling completed also considers the proposal to extend the approved blasting hours to 9.00am to 5.00pm Monday to Friday (excluding public holidays) and reduce the cumulative blasting frequency between KHRQ and KEQ from three blasts per week (two blasts at KEQ and one blast at KHRQ) to a cumulative two blasts per week.

6.2.3.1 Vibration

Figure 10 shows the expected location of vibration contours for blasting with explosive quantities modelled to comply at all nearest sensitive receivers with a 5 mm/s vibration limit (yellow contour in the below figure).

No adjustment to established vibration criteria within DA 265-10-2004 and EPL 11569 is necessary.

It is important to note that the contours show the maximum extent of the vibration and not that which would be produced from every blasts. When blasting in any area of the KHRQ, the level of vibration at properties on the eastern sides of the quarry near to Halloran Road will fall to low and likely have immeasurable vibration values.

Figure 10 also shows:

- The scale of blasting in the KHRQ will be consistent with the proposed 15 m benches. There are no areas of the KHRQ extraction area where the explosive weight needs to be reduced in order to comply at the closest properties along Halloran Road or Mill Hill Close.
- The residential properties along Halloran Road, Mill Hill Close and Tarean Road do not affect the scale of blasting although may receive perceptible levels of vibration at some stages when blasting occurs at the nearer extents of the KHRQ quarry footprint.
- The entirety of the KHRQ extraction area will not require any adjustment to the scale of blasting.

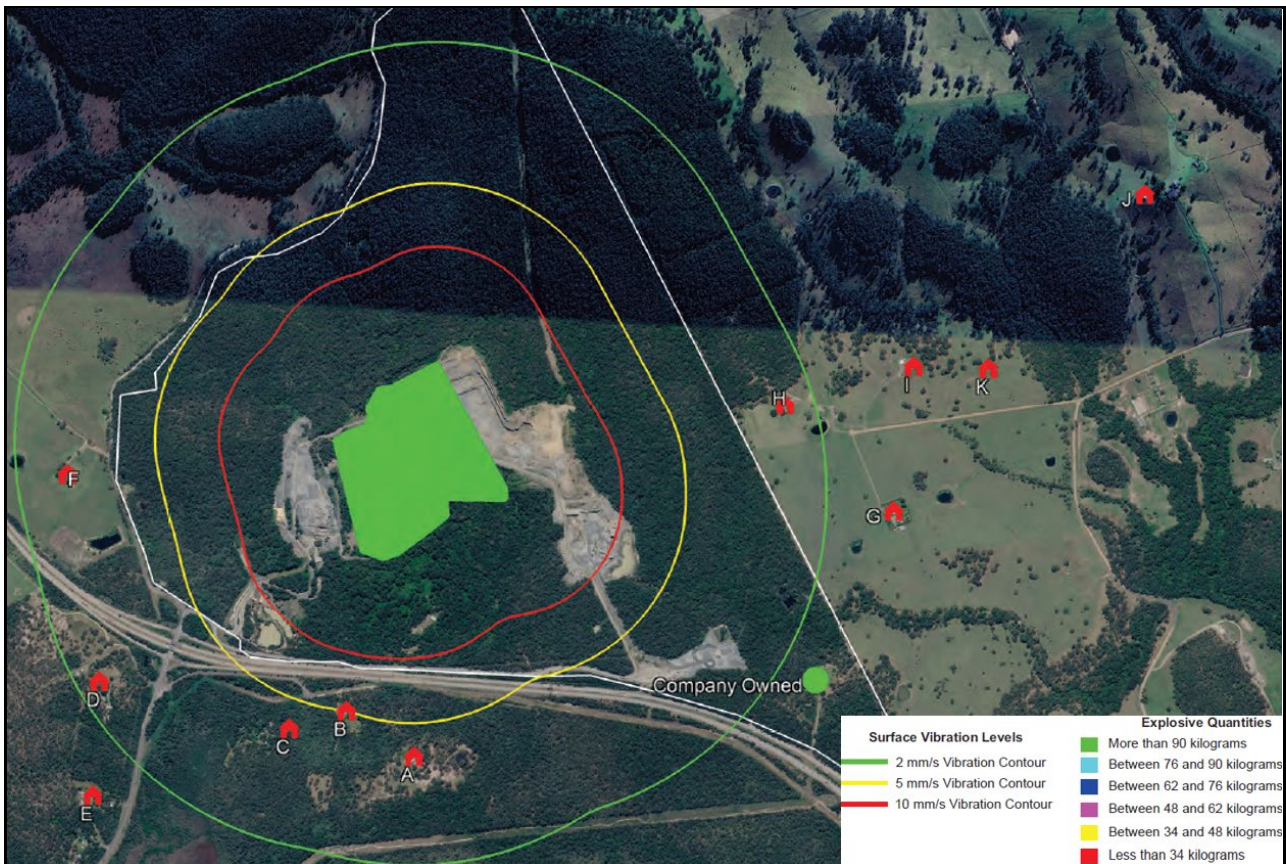


Figure 10: Vibration Contours Demonstrating Compliance with Criterion of 5 mm/s

6.2.3.2 Air Overpressure

Figure 11 below shows the modelled location of the varying air overpressure contours based upon compliance with 115 dBL at the adjacent properties. Figure 11 demonstrates that the blast design with the maximum explosive weight will comply with the 115 dBL limit (yellow contour in below figure).

No adjustment to established overpressure criteria within DA 265-10-2004 and EPL 11569 is necessary.

Figure 11 also indicates:

- No adjustment to the scale of blasting is needed to comply with the 115 dBL criterion at the identified sensitive receivers along Halloran Road, Mill Hill Close and Tarean Road.
- Explosive quantities per blasthole of 130 kg are considered feasible to achieve compliance with the existing environmental performance criteria.
- The KHRQ can be blasted with a 15 m bench height and achieve compliance with the established overpressure criteria.

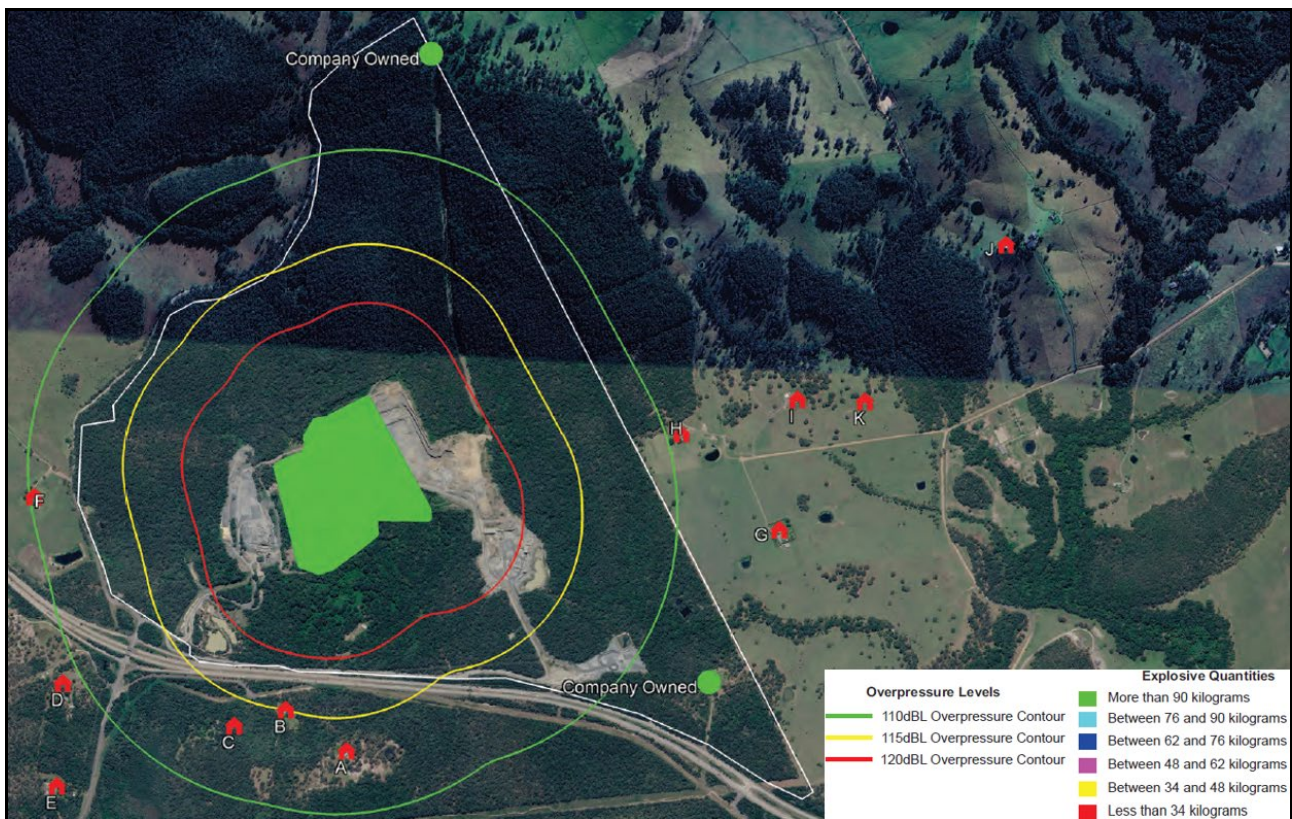


Figure 11: Overpressure Contours Demonstrating Compliance with 115 dBL Criterion

6.2.3.3 Flyrock Assessment

Figure 12 shows the results of the flyrock modelling for a 15 m bench height blasthole loaded with approximately 130 kg of explosive. The modelled landing positions for flyrock are based upon the calculated trajectories and a probabilistic component accounting for the fragment size, direction and velocity. The probabilistic component of the model estimates flyrock ranges based upon a combination of operating conditions and conservatively predicts the outermost envelope of flyrock landing points.



Figure 12: Predicted Flyrock Locations (shown as yellow markers)

The above figure shows the closest point that blasting could occur to Mill Hill Close. It shows that any blast generated flyrock is constrained to within a zone of approximately 50 m around the perimeter of the blast zone, compared to the 500 m at Mill Hill Close and approximately 420 m to the Pacific Highway.

The flyrock modelling also indicates that for a 15 m bench with an uncharged collar of 2.5 m and an explosive weight per blasthole of approximately 130 kg, flyrock is controlled to within approximately 80 m of the blasthole collar. For other bench heights and with a corresponding increase in the weight of the explosive to around 125 kg, the extent of flyrock increases slightly because of the increased explosive weight.

Figure 12 demonstrates that that potential flyrock related issues are extremely unlikely for the proposed blasting within the KHRQ, particularly given the very controlled nature of the blasting activities.

6.2.4 Conclusion

The BIA concludes that the proposed MOD 2 development is acceptable in terms of blasting considerations and can be supported.

The key outcomes of the BIA modelling and assessment confirm:

- Compliance with established blasting criteria (overpressure and vibration) within DA 265-10-2004 and EPL 11569 will continue to be achieved. No amendments to established criteria are necessary.
- No additional mitigation measures (to those already incorporated into the Environmental Management Strategy & Monitoring Program and Blast Control Plan) to reduce vibration, overpressure effects and flyrock during blast activities are required based upon the modelling results and the large separation distances from any sensitive receivers.
- The proposed blasting arrangements at KHRQ including extension of hours from 9.00am to 5.00pm (weekdays and excluding public holidays) as well as the reduction of cumulative blasts between the KHRQ and adjoining KEQ from three (3) per week to two (2) per week is acceptable.
- Modelling completed demonstrates that potential flyrock related issues are extremely unlikely for the proposed development and there will be no impact on the closest sensitive receivers and public roads.
- The established blast management practices within the Environmental Management Strategy & Monitoring Program and Blast Control Plan can be readily updated to include the proposed MOD 2 development.

- The established monitoring program for both vibration and air overpressure levels is satisfactory to accommodate the proposed MOD 2 development.

6.2.5 Monitoring and Management

Mitigation Measures

For the KHRQ, blast management documentation is managed between the Environmental Management Strategy & Monitoring Program (EMS&MP) (latest version 7B, October 2025) (approved by the NSW Planning Secretary) and the Blast Control Plan (implemented to the satisfaction of the NSW Resources Regulator).

The EMS&MP governs how blasting activities will be undertaken to ensure compliance with environmental performance criteria, other management obligations provided by the DA 265-10-2004 and EPL 20611, and any potential impact to external stakeholders.

The Blast Control Plan governs how blasting activities will be undertaken to ensure compliance with relevant Australian Standards and industry best practices and any potential impacts to internal stakeholders.

Both documents will be reviewed and updated as necessary prior to commencing blasting activities associated with the MOD 2 development.

Monitoring

A monitoring program for both vibration and air overpressure levels is established within the EMS&MP (latest version, 7B, October 2025) and will be continued for the MOD 2 proposal. No adjustment is necessary.

A monitoring site has been established south of the KHRQ on Mill Hill Close and is representative of the nearest privately owned sensitive receiver and other sensitive infrastructure. This location is sufficient to accommodate the proposed MOD 2 development and the establishment of new location(s) is not necessary.

6.3 Air Quality

Airen Consulting was commissioned by the applicant to prepare an Air Quality Impact Assessment (AQIA) for the proposed MOD 2 development. The AQIA is provided in **Appendix H**.

The AQIA has been undertaken in accordance with the NSW EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*. The adopted methodology considers the existing operations of the KHRQ, the modification design parameters, site-specific meteorological data and site-specific ambient quality monitoring data to determine the potential impacts to air quality with reference to the EPA's air quality impact assessment criteria.

6.3.1 Assessment Locations

To assess potential air quality impacts across the surrounding area, sensitive receivers within approximately 3km of the subject site were selected as assessment locations. Assessment locations are shown in the below **Figure 13** and **Table 21**.

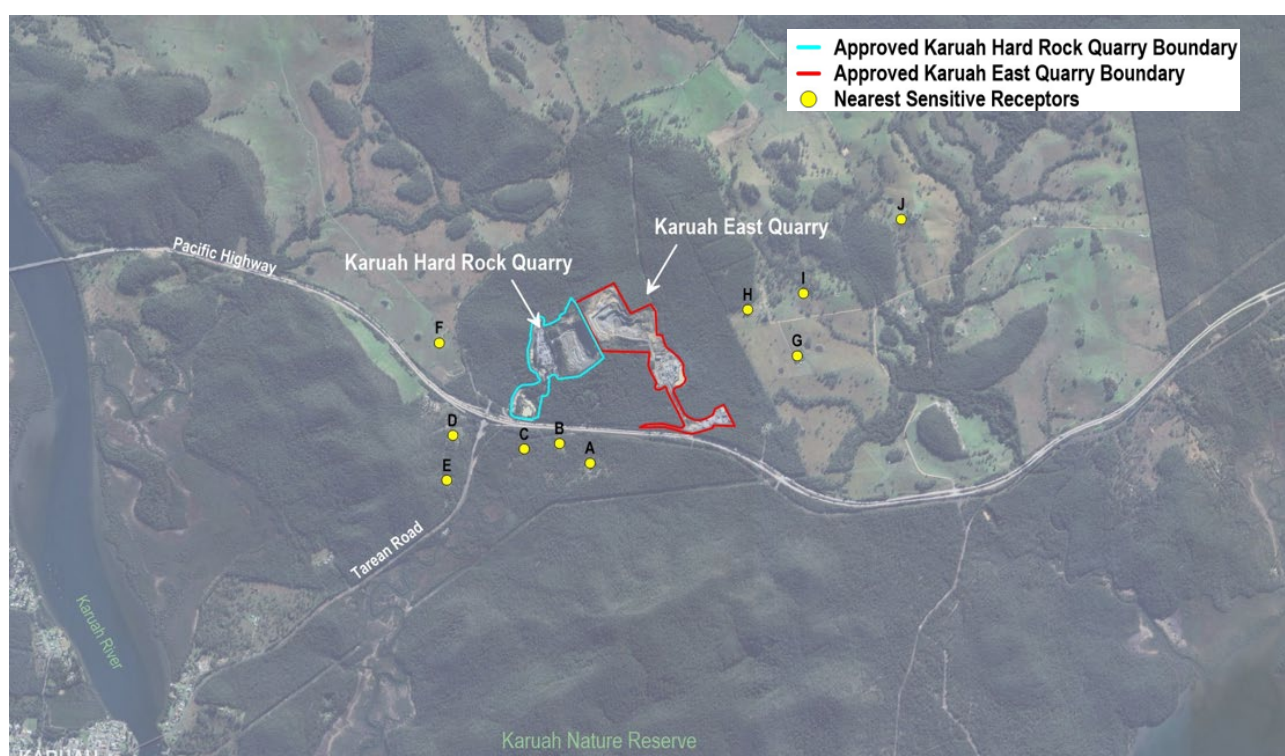


Figure 13: Air Quality Assessment Locations

Table 21: Air Quality Assessment Locations

ID	Property Details	Description
A	Lot 100 DP 1028885	Private residence
B	Lot 3 DP 785172	Private residence
C	Lot 1 DP 785172	Private residence
D	Lot 250 DP 1092111	Private residence
E	Lot 22 DP 1024341	Private residence
F	Lot 50 DP 1036893	Private residence
G	Lot 1 DP 1032636	Private residence
H	Lot 10 DP 1032636	Private residence
I	Lot 11 DP 1032636	Private residence
J	Lot 13 DP 1032636	Private residence
K	Lot 12 DP 1032636	Private residence

6.3.2 Key Issues

The key issues which were identified for the KEQ for consideration in this assessment included:

- Quarry dust i.e. particulate matter in the form of TSP, PM₁₀, PM_{2.5} and deposited dust from extraction, processing and material transport to the site boundary.
- Post-blast fume (NO₂).
- Diesel exhaust (PM₁₀, PM_{2.5} and NO₂).

6.3.3 Existing Environment

A detailed review of the existing environment was carried out including an analysis of historically measured concentrations of key quality indicators from regional and site-specific monitoring stations. The review showed that air quality in many parts of NSW, including the Hunter Region, is heavily influenced by climatic conditions such as drought.

HQPL operate an air quality monitoring program for the KHRQ, consisting of High Volume Air Samplers measuring TSP and PM₁₀, and Depositional Dust Gauges measuring depositional dust levels (refer to **Figure 14** below). Data from site-specific monitoring indicates that concentrations of key air quality indicators near the KHRQ are within acceptable (EPA) levels and that the KHRQ has not caused exceedances of NSW EPA criteria at sensitive locations.

A review of historical monitoring data indicates that the existing operations of the KHRQ are not adversely impacting on local air quality.

Based on averages over the past five (5) years, annual average TSP, PM₁₀, deposited dust, and NO₂ concentrations have been well below the impact assessment criterion.

Note – HQPL does not monitor PM_{2.5}, concentrations have been estimated on the assumption that 50% of the measured PM₁₀ would be PM_{2.5}. The concentrations of PM_{2.5} near KHRQ are inferred to be well below the EPA assessment criteria.

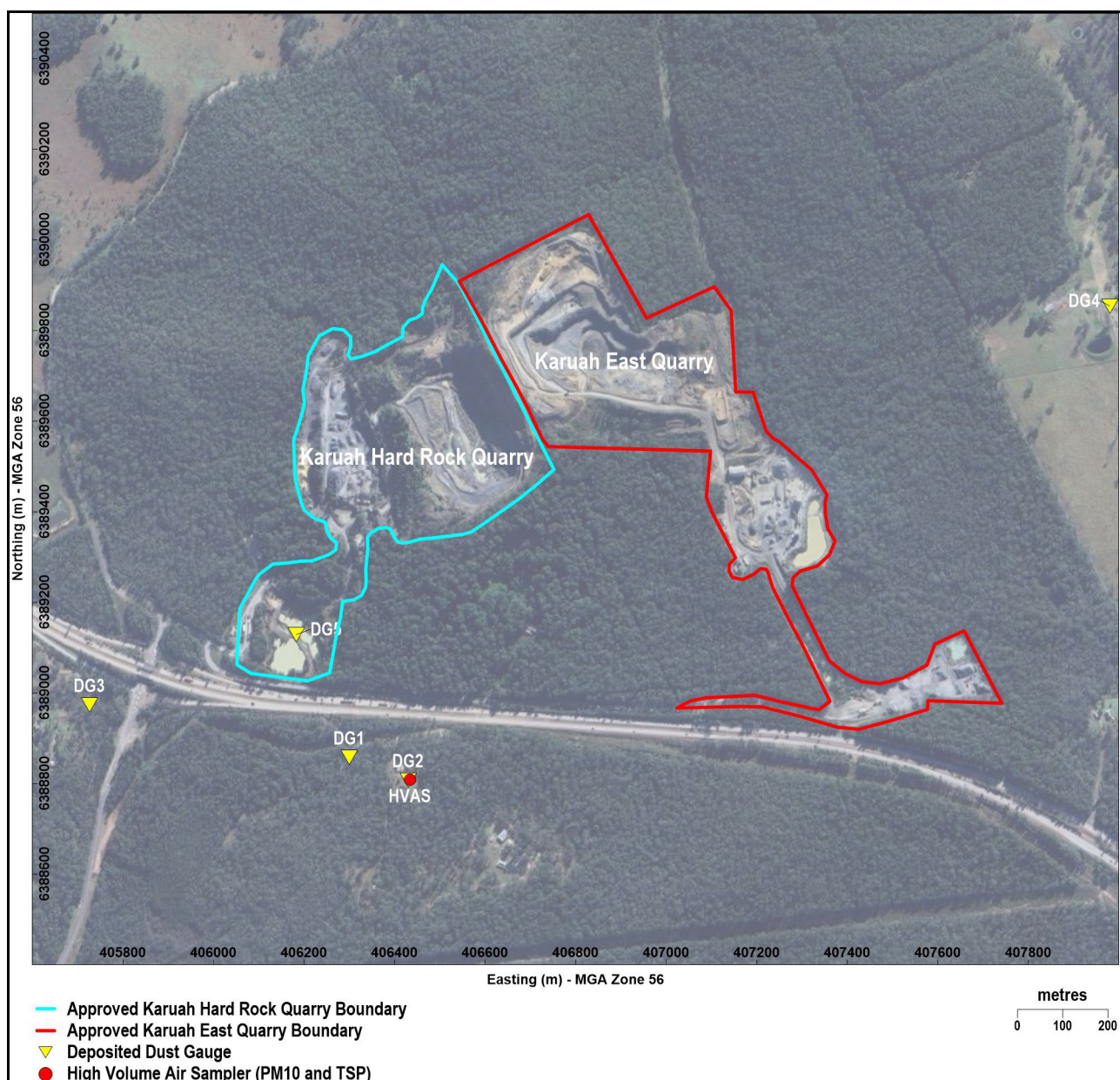


Figure 14: Location of Air Quality Monitors

6.3.4 Assessment Methodology

Dispersion modelling was undertaken using the CALPUFF modelling system to predict ground-level particulate matter concentrations and deposition levels due to the KHRQ and other background sources as well as the adjoining KEQ. A conservative approach was adopted for all modelling which assumed that maximum daily production would occur every day of the year.

The results at sensitive receptors were then compared to the relevant air quality assessment criteria, as detailed below.

6.3.5 Air Quality Impact Assessment Results

Operational Dust – Particulate Matter (PM₁₀)

The predicted incremental and cumulative ground level PM₁₀ concentrations due to KHRQ (and KEQ and other sources) are presented in **Table 22** below.

Table 22: Predicted PM₁₀ Concentrations (µg/m³)

ID	Karuah Hard Rock Quarry		Karuah East Quarry		Cumulative (with Background)	
	24-hour average	Annual average	24-hour average	Annual average	24-hour average	Annual average
IAC	50	25	50	25	50	25
A	3	0.8	9	2.5	26	12.9
B	4	1.2	9	2.6	26	13.4
C	4	0.9	6	1.7	24	12.3
D	4	1.0	6	1.2	24	11.9
E	4	0.9	6	1.3	24	11.9
F	5	1.2	5	1.1	24	11.9
G	3	0.4	21	4.1	31	14.2
H	5	0.7	26	4.9	33	15.2
I	3	0.4	14	2.4	26	12.4
J	2	0.2	5	0.8	23	10.7
K	2	0.3	12	2.0	26	11.9

Note: IAC = impact assessment criterion

In relation to the above table, the following is noted:

- Maximum 24-hour average PM₁₀ concentrations due to KHRQ (and KEQ) were modelled. These results show that the maximum potential contributions of KHRQ and KEQ to the nearest sensitive receptors would be in the order of 20 to 50 µg/m³, in both the approved and proposed modified operational scenarios. The results do not show the pattern of concentrations on any one day. Rather they show the maximum daily concentrations that have been predicted at all locations over the course of a year. The NSW EPA does not prescribe an incremental criterion for 24-hour average PM₁₀, so it is necessary to also consider the contributions from other sources of PM₁₀.
- The modelled maximum 24-hour average PM₁₀ concentrations due to KHRQ (and KEQ) as well as contributions from other sources were compared to the EPA's assessment criterion for 24-hour average PM₁₀ (50 µg/m³). The results show compliance with the EPA assessment criterion (i.e. 50 µg/m³) at all sensitive receptors.
- The modelled annual average PM₁₀ concentrations due to KHRQ (and KEQ) including contributions from other sources were assessed against the NSW EPA's annual average PM₁₀ criterion (25 µg/m³). The results show compliance with the NSW EPA's assessment criterion (25 µg/m³) at all sensitive receptors.

Operational Dust - Particulate Matter (PM_{2.5})

The predicted incremental and cumulative ground level PM_{2.5} concentrations due to KHRQ (and KEQ and other sources) are presented in **Table 23** below:

Table 23: Predicted Ground Level PM_{2.5} Concentrations (µg/m³)

ID	Karuah Hard Rock Quarry		Karuah East Quarry		Cumulative (with Background)	
	24-hour Average	Annual Average	24-hour Average	Annual Average	24-hour Average	Annual Average
IAC	25	8	25	8	25	8
A	0.8	0.2	2.2	0.6	11.5	5.6
B	1.1	0.3	1.9	0.6	11.5	5.8
C	1.0	0.2	1.3	0.4	11.0	5.5
D	0.9	0.2	1.2	0.3	10.9	5.4
E	0.9	0.2	1.2	0.3	10.8	5.3
F	1.0	0.3	1.0	0.3	10.8	5.3
G	0.7	0.1	4.4	1.0	11.7	5.9
H	1.0	0.2	5.6	1.1	12.4	6.1
I	0.6	0.1	3.1	0.6	11.2	5.5
J	0.4	0.1	1.2	0.2	10.6	5.1
K	0.5	0.1	2.5	0.5	10.9	5.4

Note: IAC = impact assessment criterion

In relation to the above table, the following is noted:

- The modelled maximum 24-hour average PM_{2.5} concentrations due to KHRQ and KEQ show that the maximum potential contributions would be in the order of 5 µg/m³ at sensitive receptors which is compliant with criteria.
- The modelled maximum 24-hour average PM_{2.5} concentrations due to KHRQ and KEQ including contributions from other sources is compliant with criteria.
- The results show that the proposal will not cause an exceedance of the EPA's assessment criterion (25 µg/m³) at all sensitive receptors.
- The modelled annual average PM_{2.5} concentrations due to KHRQ and KEQ as well as contributions from other sources have been assessed against the EPA's annual average PM_{2.5} criterion (8 µg/m³). The results show compliance with the EPA's assessment criterion (8 µg/m³) at all sensitive receptors.

Operational Dust – Particulate Matter (as TSP) and Deposited Dust

The predicted incremental and cumulative ground level TSP concentrations and dust deposition are presented in Table 24 below:

Table 24: Predicted Ground Level TSP Concentrations (µg/m³) and Dust Deposition (g/m²/month)

ID	Karuah Hard Rock Quarry		Karuah East Quarry		Cumulative (with Background)	
	TSP	Deposited Dust	TSP	Deposited Dust	TSP	Deposited Dust
IAC	90	4	90	4	90	4
A	0.7	0.1	2.7	0.3	23.4	1.3
B	1.3	0.1	2.8	0.3	24.1	1.4
C	1.1	0.1	1.8	0.2	22.9	1.3
D	1.8	0.2	1.1	0.1	22.9	1.3
E	1.4	0.1	1.1	0.1	22.5	1.2
F	2.1	0.2	1.1	0.1	23.2	1.4
G	0.2	0.0	3.0	0.3	23.3	1.3
H	0.4	0.1	4.0	0.5	24.4	1.5
I	0.2	0.0	1.9	0.2	22.2	1.2

ID	Karuah Hard Rock Quarry		Karuah East Quarry		Cumulative (with Background)	
	TSP	Deposited Dust	TSP	Deposited Dust	TSP	Deposited Dust
J	0.1	0.0	0.7	0.1	20.8	1.1
K	0.2	0.0	1.5	0.1	21.7	1.2

Note: IAC = impact assessment criterion

In relation to the above table, the following is noted:

- The modelled annual average TSP concentrations due to KHRQ, KEQ, and other sources show compliance with the NSW EPA's assessment criterion ($90 \mu\text{g}/\text{m}^3$) at all sensitive receptors.
- The modelled annual average deposited dust levels due to KHRQ, KEQ and other sources was assessed against the EPA's annual average deposited dust criteria of $2 \text{ g}/\text{m}^2/\text{month}$ (incremental) and $4 \text{ g}/\text{m}^2/\text{month}$ (total). The results show compliance with the NSW EPA criteria at all sensitive receptors.

6.3.6 Post Blast Fume

Maximum 1-hour average NO_2 concentrations due to post-blast fume were modelled.

Results demonstrated that, under worst-case meteorological conditions with a rated 3 fume, blasting every day between 9am and 5pm and maximum background concentrations, the maximum 1-hour average NO_2 concentrations will not exceed the EPA's criterion at any sensitive receptor.

Modelling was completed on the conservative basis of considering blasting occurring at both KHRQ and KEQ; however, blasting will not occur simultaneously in both quarries (it is noted that the proposal seeks to establish two (2) cumulative blasts per week (Mon-Fri) at KHRQ and KEQ).

6.3.7 Diesel Exhaust

Maximum 1-hour average NO_2 concentrations due to diesel exhaust emissions were modelled.

Results indicated that both the maximum 1-hour average NO_2 concentrations and the annual average NO_2 concentrations due to diesel exhaust emissions are expected to comply with the NSW EPA's criterion all sensitive receptors.

6.3.8 Conclusion

The AQIA concludes that the MOD 2 proposal is acceptable in terms of Air Quality impacts and the proposed modification can be supported.

The key outcomes of the AQIA modelling and assessment were:

- The proposed modification will not cause adverse impacts with respect to dust concentrations or deposition levels, based on modelling which showed compliance with air quality assessment criteria at all sensitive receptors.
- Post blast fume emissions are not expected to result in any adverse air quality impacts based on modelling which showed compliance with air quality assessment criteria at all sensitive receptors.
- Emissions from diesel exhausts associated with off-road vehicles and equipment are not expected to result in any adverse air quality impacts, based on modelling which showed compliance with air quality assessment criteria at all sensitive receptors.
- The modelling results at all sensitive receptors are sufficiently below the respective air quality assessment criteria which demonstrate that any uncertainties in the modelling would not change the outcomes of the assessment.

6.3.9 Monitoring and Management

Mitigation Measures

The modelling results showed that off-site dust concentrations, dust deposition levels and NO₂ concentrations will be below the relevant EPA assessment criteria, and established criteria within DA 265-10-2004. Continuation of the current mitigation measures (detailed below) is considered an appropriate air quality management strategy:

- Minimising disturbance of land to only what is required by quarry activities;
- Minimising distance travelled by hauling rock the shortest distance possible;
- Adopting controls for unsealed haul road dust emissions;
- Use of water sprays when drilling if / as required;
- Use of water sprays on stockpile areas if / as required;
- Undertake regular road sweeping to clean roadways around the entrance to the quarry; and
- Visual monitoring to identify excessive dust generation.

These measures are already implemented by HQPL and can be incorporated into a revision of the established Air Quality Monitoring Program within the Environmental Management Strategy & Monitoring Program (current version HQPL, version 7B, October 2025).

Monitoring

An updated monitoring program is proposed that will consist of:

- One (1) site specific meteorological station, at the current location.
- Removal of Depositional Dust Gauges.
- Provision of an additional HVAS monitor for PM_{2.5}, at the current location, for compliance purposes.
- Two (2) real-time air quality monitors capable of measuring PM₁₀ and PM_{2.5} and positioned on opposite sides of the Karuah Quarry Complex site to allow for the calculation of development contributions to air quality for ongoing management purposes.

Following the determination of the MOD 2 application, HQPL will review and revise the Air Quality Monitoring Program within the KHRQ Environmental Management Strategy & Monitoring Program.

6.4 Traffic and Transport

Intersect Traffic was commissioned by the Applicant to prepare a Traffic and Transport Impact Statement (TTIS) for the proposed MOD 2 development. The TTIS is provided in **Appendix I1**.

6.4.1 Existing Road Network

The road network impacted by traffic generated by the KHRQ and KEQ includes the A1 Pacific Highway, Tarean Road / The Branch Lane, Andersite Road and Blue Rock Close.

The following is noted regarding the capacity of the existing road network:

- The Pacific Highway (A1) is part of the state highway network, in good condition and is considered suitable for ongoing use by heavy vehicles associated with both the KHRQ and KEQ.
- Tarean Road / The Branch Lane is a local collector road which collects and distributes traffic from areas surrounding Karuah to the Karuah township and village centre as well as providing vehicle access to properties along its length.

- Near the KHRQ and KEQ quarry sites it is a sealed rural standard road a minimum 9 m wide providing a 3.5 m travel lane in each direction and 1 to 2 m wide sealed shoulders and table drains along its edges. The road is centre line and edge line marked with a 60 km/h speed limit applying in the vicinity of the KHRQ and KEQ and the Tarean Road north A1 Pacific Highway interchange. Tarean Road is observed to be in good condition and satisfactory for ongoing use by heavy vehicles associated with both the KHRQ and KEQ.
- Andersite Road is a local rural road which provides vehicular access to the KHRQ from The Branch Lane (and Tarean Road). Near the KHRQ it is a sealed rural standard road a minimum 9 m wide providing a 3.5 m travel lane in each direction and 1 to 2 m wide sealed shoulders and table drains along its edges. The road is centre line marked with a 50 km/h speed limit. Andersite Road is observed to be in good condition and satisfactory for ongoing use by heavy vehicles associated with both the KHRQ and KEQ.
- Blue Rock Close is a local rural road which is almost exclusively utilised by vehicles associated with KEQ. It is a sealed rural standard road a minimum 9 m wide providing a 3.5 m travel lane in each direction and 1 to 2 m wide sealed shoulders and table drains along its edges. There is also a large section of the road with upright kerb and gutter on both sides of the road. The road is centre line marked with a 50 km/h speed limit applying in the vicinity of the KHRQ and KEQ. Blue Rock Close is observed to be in good condition and satisfactory for ongoing use by heavy vehicles associated with the KEQ and KHRQ.

6.4.2 Traffic Impact Assessment

Traffic Volumes

Contemporary traffic counts on both Andersite Road and Blue Rock Close were conducted in November 2025 to determine peak hour traffic generation, which is presented in **Table 25**.

Table 25: Peak Hour Traffic

	AM Peak	PM Peak
Andersite Road	32 vtph (7am – 8am)	35 vtph (12pm – 1pm)
Blue Rock Close	50 vtph (8am – 9am)	46 vtph (2pm – 3pm)

Note: vtph – vehicle trips per hour.

Weighbridge data for the first six months of 2025 for the existing KEQ indicates a maximum dispatch capacity of 35 vehicles. This indicates that the peak hour traffic generation would be a worst-case scenario of approximately 80 vtph based on weighbridge capacity, local delivery and light vehicle traffic from the sites.

Therefore, assuming both the KHRQ and KEQ are operating together at capacity, the peak hour traffic volumes on the adjacent local road network providing access to the quarries is as follows:

- Andersite Road – 160 vtph; and
- Blue Rock Close – 80 vtph.

Both Andersite Road and Blue Rock Close likely have a two-way mid-block capacity of at least 1,800 vtph. With peak hour traffic being only in the order of a maximum 160 vtph these roads are currently operating with excellent levels of service and with uninterrupted flow conditions.

With no additional traffic generated by the proposed pit consolidation project, the local and state road network adjacent to the KHRQ and KEQ will continue to operate with uninterrupted flow conditions or with no loss of two-way mid-block level of service or intersection level of service. There is therefore no nexus for any road infrastructure upgrades resulting from the proposed Karuah Pit Consolidation project.

The following is also noted:

- There is ample capacity to accommodate the proposed extension of life of the KHRQ (from 3 June 2027 to 31 Dec 2034).

- Annual extraction limits (and transport volumes) will not change and there is ample capacity to accommodate the proposed extended hours of operation at KHRQ.
- It is anticipated that the average daily vehicle movements would be more evenly distributed over the day with no change in the peak hour volumes.

Vehicular Access

The KHRQ and KEQ currently operate as the sole user of at grade vehicular accesses off Andersite Road (KHRQ) and Blue Rock Close (KEQ) that are constructed to suit their use by heavy vehicle traffic associated with the operation of the quarries.

With the proposed Karuah Pit Consolidation project not generating any additional peak hour traffic volumes and noting the KHRQ and KEQ as approved extraction and transport rates will remain unchanged (500,000 tpa at KHRQ and 1.5 Mtpa at KEQ) it is considered the existing vehicular accesses remain suitable for operations. There is no nexus in this project for the upgrade of the existing vehicular access to the KHRQ.

On Site Parking

On-site parking within KHRQ has been considered under the existing consent (DA 265-10-2004). Staffing numbers are not anticipated to change as a result of the proposed pit consolidation project at KHRQ (or KEQ) and heavy vehicle movements will not change noting that there is no change in annual extraction (and transport) rates.

With no additional traffic being generated by the proposed Karuah Pit Consolidation project, there is no nexus for the provision of any additional on-site car or heavy vehicle parking within the KHRQ.

Servicing

The proposal does not result in any additional servicing for the KHRQ (or KEQ). Accordingly, the proposal does not result in a nexus for the provision of upgraded or new servicing infrastructure at the KHRQ.

Pedestrian Facilities

The proposal does not result in any additional pedestrian traffic within or external to the KHRQ (or KEQ). Accordingly, the proposal does not result in a nexus for the provision of upgraded or new pedestrian infrastructure within or external to the KHRQ.

Alternate Transport Mode Facilities

The proposal does not result in any additional demand for alternate transport mode facilities or services. Accordingly, the proposal does not result in a nexus for the provision of upgraded or new alternate transport mode facilities or services external to the KHRQ.

6.4.3 Conclusion

The TTIS concludes that the proposal can be supported from a traffic, access and parking perspective as the proposal will not adversely impact on the operation or safety of the adjoining local and state road network.

The following conclusions are made:

- The existing adjoining local and state road network is of a suitable standard to cater for all traffic generated by the ongoing operation of the existing KHRQ and KEQ.

- With no additional traffic generated by the proposed Karuah Pit Consolidation Project, the local and state road network adjacent to the KHRQ and KEQ will continue to operate with uninterrupted flow conditions or with no loss of two-way mid-block level of service or intersection level of service therefore the proposed Karuah Pit Consolidation Project will not adversely impact on the adjoining state and local road network.
- The proposed extension of hours of operation and the proposed life extension of the KHRQ will not increase the peak hour traffic generation of the site as the approved extraction and transport rates for the quarry will remain unchanged with no increase in peak hour traffic generation during a major sale but likely to result in the daily traffic volumes being distributed more evenly over the day.
- The proposal does not generate any nexus for:
 - Road infrastructure upgrades;
 - Quarry access upgrades;
 - The provision of additional on-site car or heavy vehicle parking;
 - Upgraded or new servicing infrastructure; and
 - Upgraded or new alternate transport mode facilities or services.

6.4.4 Mitigation and Management Measures

No additional mitigation and management measures are recommended or required to facilitate the proposed development.

6.4.5 Response to TfNSW Correspondence dated 11 March 2026

As part of agency consultation completed prior to lodgement of the Modification Application, the TTIS was supplied to TfNSW for review. On 11 March 2026, TfNSW responded, seeking clarification on a number of items. The Applicant commissioned Barker Ryan Stewart to undertake a peer review of the TTIS and review and respond to the matters raised (refer to **Appendix I2**) with a summary provided below.

Table 26: TfNSW Response Table

TfNSW Comment	Applicant Response
1. <i>The development states there will be no change to the annual extraction volumes or the transportation rate/s, however, the proposal to align the operations of the two quarry sites will enable changes to occur with regard to traffic movements to / from the quarry complex, by extending the hours available for transportation for one of the quarries.</i>	The primary purpose of the Karuah Pit Consolidation Project is to extract known remaining resources within currently disturbed/cleared areas of the Karuah Quarry Complex, in particular the remnant dividing highwall between the KHRQ and KEQ extraction areas, in an internally coordinated approach between the KHRQ and the KEQ sites. This will only result in changes to internal extractive operations, with downstream material processing, stockpiling, sale and transport to external customers remaining unchanged via the ongoing operation of two independent standalone quarry operations. The project will not result in any increased traffic generation. The following should be noted: • Annual production volumes will remain capped at current throughputs at both quarries (500,000 tpa at KHRQ and 1.5 Mtpa at KEQ). • Employment numbers and contracting arrangements will not change as a result of the proposal. • Support vehicles / deliveries will not change as a result of the proposal. • Access arrangements via the exclusively used Andersite Road and Blue Rock Close to The Branch Lane / A1 Pacific Highway interchange will not change as a result of the proposal.

	The only change relevant to traffic generation is the proposed widening of the hours of operation of the KHRQ. This change will have the effect of reducing peak traffic volumes by allowing sales to occur over a wider daily operating period. As outlined in the TTIS, the proposal will not increase the number of annual traffic movements to and from either quarry. The TTIS states, <i>'the proposal does not seek to increase the approved annual throughputs at either quarry (500,000tpa at KHRQ and 1.5 Mtpa at KEQ) (sales volumes and expected transaction numbers) and there will be no increase in annual traffic generated by both quarries. There will be no increase in employees at either the KHRQ or KEQ associated with the proposal.'</i> Further to this, the proposal to widen the hours at KHRQ would further spread the existing traffic generated by the operations over a longer period of time reducing the peak hour traffic generation rates from the quarries. The TTIS states, <i>'An extension of the life of quarrying operations at KHRQ from 3 June 2027 to 31 December 2034 is proposed to align the approved operational timeframe of the KEQ. An extension of hours of operation at KHRQ is also proposed to match the approved hours of KEQ. The extension of hours is expected to spread heavy vehicle movements over wider range of time, thereby reducing average and peak movements.'</i> Noting that the KHRQ and KEQ will continue to operate independently of each other therefore there will be no adverse changes with respect to traffic movements to and from either quarry.
2. <i>Mid-block capacity assessment has been undertaken for Andersite Road and Blue Rock Close only, local roads which connect directly to the two site accesses.</i> a. <i>The assessment does not address impacts to other roads in the immediate vicinity of the quarries and applicable to the quarries' key transport / haulage routes. This is particularly applicable to the Pacific Highway, a classified (state) road and the associated interchange.</i> b. <i>No Austroads turn treatment warrants assessments have been undertaken at key intersections along the potential transport routes and no assessment has been demonstrated to determine the existing or proposed traffic impacts on the Pacific Highway, a classified (state) road or the associated highway interchange.</i>	The haulage route for KEQ (when exiting and vice versa for entry) is Blue Rock Close, Andersite Road, The Branch Lane and Pacific Highway. For KHRQ (when exiting and vice versa for entry) is Andersite Road, The Branch Lane and Pacific Highway. The key intersections are therefore the following: • Interchange at Tarean Road / The Branch Lane with the Pacific Highway. • The Andersite Road and The Branch Lane T-intersection. • Blue Rock Close and Andersite Road T-intersection. As stated in the TTIS, <i>'both Andersite Road and Blue Rock Close as two-lane two-way roads with a 50km/h speed limit would likely have a two-way mid-block capacity of at least 1,800 vtp/h therefore with peak hour traffic being only in the order of a maximum of 160 vtp/h these roads are currently operating with excellent levels of service and with uninterrupted flow conditions.'</i> Interchange at Tarean Road / The Branch Lane with the Pacific Highway As a B-Double route the Pacific Highway can cater for 19m Semi Trailers and 19m Truck and Dog which would be the largest vehicles that transport material from both quarries. The interchange at Tarean Road / The Branch Lane with the Pacific Highway has been designed to accommodate the swept paths of 19m Semi Trailers and 19m Truck and Dogs. It is noted that the construction of the interchange occurred after the KHRQ was well established therefore interchange design would have considered heavy vehicle movements associated with the ongoing operation of the KHRQ. It is also noted that approval of the KHRQ extension into Lot 11 (which is the latest approval for KHRQ operations (DA265-10-2004)) was issued on 03 June 2005, shortly after the interchange became operational.

The assessment process for DA 265-10-2004 would have therefore considered heavy vehicle movements associated with the ongoing operation of the KHRQ.

Furthermore, it is also noted that the assessment process for the KEQ (MP09_0175), which was approved in June 2014 (after the interchange was operational), considered the suitability of the interchange for heavy vehicles associated with both the KEQ and KHRQ. The proposed modifications will not result in any change to the type of vehicles using the intersection associated with quarry operations.

The Andersite Road and The Branch Lane T-Intersection

When assessing the existing Andersite Road and The Branch Lane T-intersection (which is a Rural Basic BAR intersection) against the requirements of *Austroads Guide to Traffic Management Part 6 Intersections, Interchanges and Crossings, Section 2.3.6 Warrants for BA, AU and CH Turn Treatments Figure 2.25* with a speed limit of 60km/h in The Branch Lane and 50km/h in Andersite Road and up to 160 vtp/h in Andersite Road, there could be up to 200 vtp/h in The Branch Lane and the BAR type intersection would be satisfactory. There are fewer peak hour traffic movements in The Branch Lane that could be confirmed with updated traffic counts; however, this is considered unnecessary in this instance given that the modification application will not change the type or increase the frequency of heavy vehicles that access the quarries. As there are no left turn movements from trucks from The Branch Lane into Andersite Road a BAL type assessment is not warranted. It also noted that this intersection was considered during the KEQ approval process (MP09_0175) and Schedule 3 Condition 22(c) of the approval required that prior to the transport of products from the KEQ the following was to occur:

22(c) Upgrading the Branch Lane/Andersite Road intersection with appropriate road markings and advance warning signage, to the satisfaction of Council.

These works were completed by KEQ Pty Limited prior to commencement of operations. Since the time that these works were completed there has been no change to the type or frequency of heavy vehicles that use this intersection associated with quarry operations and the modification applications will not change this.

Blue Rock Close and Andersite Road T-Intersection

When assessing the existing Andersite Road and Blue Rock Close T-intersection (which is a Rural Basic BAR intersection) against the Austroads requirements with a speed limit of 50km/h in both roads and 160 vtp/h in Andersite Road and 80 vtp/h in Blue Rock Close a Basic BAR intersection is considered satisfactory. Traffic associated with KEQ are the only users of Blue Rock Close and traffic associated with KHRQ & KEQ are the only users of Andersite Road. The Blue Rock Close / Andersite Road intersection was considered during the KEQ approval process (MP09_0175) and Schedule 3 Condition 22(b) of the approval required that prior to the transport of products from the KEQ the following was to occur:

22(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.

	These works were completed by KEQ Pty Limited prior to the commencement of quarrying operations. Since the time these works were completed, there has been no change to the type or frequency of heavy vehicles that use this intersection associated with quarry operations and the modification applications will not change this.
3. TfNSW note, given quarries operate on a campaign-basis, all demonstrated traffic impacts should consider the impacts of 100% of the cumulative quarry heavy vehicle generated movements travelling in each of the available directions, to and from the subject quarries, to determine the full impact of the proposal and existing developments on the road network.	This statement is incorrect. For clarification, both quarries operate on a continuous operation and sale basis. The operation of KHRQ and KEQ contribute towards satisfying significant and ongoing market demand associated with various State Significant Infrastructure (SSI) projects in the Greater Newcastle, Hunter Valley and Mid-North Coast regions. These projects are critical to deliver improved connectivity of the Mid North Coast to Newcastle, the Hunter Valley and Sydney and include the Newcastle Inner-city Bypass (SSI-6888), Pacific Highway widening at Hexham Straight, Singleton Bypass, and the M1 Pacific Motorway extension to Raymond Terrace (SSI-7319). The quarries supply high quality quarry products to a large and rapidly emerging customer base that includes TfNSW, a number of local Councils, the Port of Newcastle, Ausgrid, Newcastle Airport, Tier 1 infrastructure providers as well as the general construction, development and infrastructure industries within greater Newcastle, Hunter Valley and the Mid North Coast Regions. Additional supplies are provided to downstream businesses, including the Tea Gardens Hunter Readymix Concrete Plant, which in turn contributes to the local construction industry. There are no proposed increases in peak hour traffic movements that would be generated by the proposed modifications at either quarry site. For this reason, it is not warranted to undertake additional traffic counts and SIDRA modelling and undertake an assessment of traffic impacts in support of the modifications.
4. In order to understand the impacts of the proposed development modification on the broader road network and in particular the classified (state) road and associated interchange, TfNSW recommend the proposed modification is accompanied by supporting documentation in particular the TTIS is updated to identify and address all relevant traffic impacts of the proposal, these include but are not limited to:	N/A.
a) Identify all key transport / haulage routes applicable to each quarry. Noting the TTIS currently only addresses traffic impacts to Andersite Road and Blue Rock Close	Provided below are the key transport/haulage routes. These will not change as part of the proposed development: • KEQ (when exiting and vice versa for entry) – Blue Rock Close, Andersite Road, The Branch Lane and Pacific Highway. Split of approximately 90% south / 10% north on Pacific Highway when laden trucks leave the quarry. • KHRQ (when exiting and vice versa for entry) – Andersite Road, The Branch Lane and Pacific Highway. Split of approximately 90% south / 10% north on Pacific Highway when laden trucks leave the quarry. • Negligible truck movements continue along Tarean Road into Karuah (i.e. less than 0.5%). • No trucks turn right into The Branch Lane.

<i>b) Identify the maximum daily and hourly production and transportation rates for each quarry noting the weighbridge records (supplied for one quarry only) demonstrate only the laden heavy vehicle movements relevant to individual campaign/s occurring at that time, not what the quarry's maximum output capacity is for daily / hourly material production and transporting.</i>	The transportation rates for each quarry remain unchanged by the modification applications and are generally consistent with what was considered as part of the original approvals for both the KHRQ and KEQ, that is: <u>For KHRQ</u> • Average 65 laden trips per day (e.g. average 130 vehicle movements). • <u>For KEQ</u> • Average truck loads per day 216 laden movements (e.g. 432 total per day). • Average 22 laden movements per hour (e.g. 44 movements per hour).
<i>c) Identify the peak hours for traffic movement, for each quarry, and the cumulative impacts of those peak hours.</i>	As outlined in the TTIS, the peak hour traffic movements (vehicle trips per hour (vtp)) based on traffic classifier counts undertaken in the week of Monday 24 November 2025, demonstrate general consistency with the average rates considered above in earlier investigations and are: • Andersite Road – AM peak – 32 vtp (7 am – 8 am) & PM peak – 35 vtp (12 pm – 1 pm). • Blue Rock Close – AM peak – 50 vtp (8 am – 9 am) & PM peak – 46 vtp (2 pm – 3 pm). Based on weighbridge data for the first six months of 2025 for the existing KEQ indicates a maximum dispatch capacity of 35 vehicles. This indicates that the peak hour traffic generation would be a worst-case scenario of approximately 80 vtp at KEQ based on weighbridge capacity, local delivery and light vehicle traffic from the sites. Therefore, as a highly conservative assumption assuming both the KEQ and KHRQ are operating together at capacity (and also assuming that KHRQ can operate at the same dispatch capacity as KEQ), the peak hour traffic volumes on the adjacent local road network providing access to the quarries is as follows: • Andersite Road – 160 vtp (i.e. KEQ and KHRQ combined); and • Blue Rock Close – 80 vtp (KHRQ does not require use of Blue Rock Close). Noting comments provided in 2(a) above, there is significant capacity in the surrounding external road network (some 1,800 vtp compared to a conservatively calculated peak hour traffic number of 160vtp) to accommodate existing peak hour truck movements which will not change as part of the proposed development.
<i>d) Include traffic counts of existing background traffic on all roads located between the subject quarries and the classified (State) road, as per the key transport / haulage route/s.</i>	As there is no increase in peak hour traffic generated by the proposed modifications it is not warranted in this instance to undertake additional traffic counts.
<i>e) Undertake Austroads turn warrants assessments for all key intersections along the key transport / haulage routes.</i>	Refer to 2(b) above.

f) Address the existing condition of the relevant roads (including any relevant quarry signage) and address the impacts the additional 7 years of operational life for KHRQ may have on the road conditions and maintenance requirements.

This is currently addressed via existing conditions of consent (refer to commentary relevant to item 2(b) above) and form part of the current ongoing road contributions to Council to cover the proportionate maintenance and potential damage costs caused by heavy vehicle haulage on local roads.

6.5 Surface Water

ADW Johnson has been commissioned to prepare a Surface Water Assessment (SWA) for the proposed KHRQ MOD 2 development and is enclosed as **Appendix J**. The SWA should be read in conjunction with the SWA prepared as part of the concurrent MOD 11 application for the adjoining KEQ (MP09_0175).

KHRQ has been the subject of extensive previous surface water assessment and surface water management at the site is well understood. The original Surface Water Assessment to inform DA 265-10-2004 was undertaken by GSSE (2004).

The KHRQ also operates in accordance with an approved Site Water Management Plan (IEMA, Ver 8D, December 2024) (SWMP).

The SWA was completed to address the MOD 2 component of the Karuah Pit Consolidation Project and should be regarded as an addendum to the approved Surface Water Assessment. The SWA was specifically prepared to address the proposed surface water management system and sizing of sediment controls for the MOD 2 proposal.

6.5.1 Existing Surface Water Management

The existing surface water management system is described in the approved SWA and SWMP.

The existing Karuah Red Quarry (located at the south western portion of Lot 21 DP 1024341) has been repurposed as a sediment dam, referenced as Sediment Dam 2 (SD2) in the approved SWA and KHRQ SWMP. SD2 receives a disturbed catchment including KHRQ's haul roads, stockpile and processing areas. Runoff from the KHRQ extraction area is collected in an excavated in-pit sump, which is pumped to SD2 via the established dirty water drainage system. Once discharge criteria are met (EPL 11569), SD2 discharges to a tributary of Yalimbah Creek via existing culverts beneath the Pacific Highway.

The approved layout of the site's water management infrastructure is provided in **Figure 15** below (as sourced from the KHRQ Site Water Management Plan).



Figure 15: Approved KHRQ Site Water Management Plan

MOD 2 does not propose or require any significant amendments to the layout of the established surface water management system.

6.5.2 Changes to Surface Water Catchments

The proposal represents a marginal increase in the size of the KHRQ extraction pit and therefore its catchment. This is a direct result of rationalised benching design which allows the KHRQ pit floor to extend to the east to the common boundary of Lot 11 and Lot 12. The extraction area's catchment is estimated to be 11.85 ha.

The approved SWA did not specify the approved pit's final catchment area. However, catchment mapping based on the approved final landform (i.e. without highwall removal) indicates a catchment of approximately 11.0 ha. Therefore, removal of the remnant dividing highwall represents a minimal increase in catchment size that is to be managed by the established in-pit sump and associated infrastructure.

The proposed removal of the remnant highwall will reduce the surface water catchment reporting to SD2 (proportional to the increase in extraction area catchment). This will nominally reduce the design rainfall volume for Dam SD2 and therefore has no adverse impact on Dam SD2's capacity. There is also negligible impact to site water balance, noting that water collected within the extraction area is pumped to SD2 prior to release.

Overall, there is no net change to KHRQ's surface water catchments arising from the Karuah Pit Consolidation Project.

The site's catchments, and therefore its surface water controls, will evolve with each extraction sequence stage of the project, refer to **Table 27** below.

Table 27: KHRQ Surface Water Controls associated with Extraction Sequence Staging

Stage	Description	Surface Water Controls
Stage 1	Extraction to RL 90 m	General controls described in Section 6.5.10 below.
Stage 2	Extraction to RL 65 m (KHRQ pit floor)	- General controls described in Section 6.5.10 below. - Establishment of a bund wall to segregate KEQ and KHRQ catchments (described in Section 6.5.10 below). - Strategic blasting to maintain westward flows in KHRQ and eastward flows in KEQ.
Stage 3	Extraction of KEQ to RL 45 m (KEQ pit floor)	- General controls described in Section 6.5.10 below. - Maintenance of dividing bund.
Post-extraction	Rehabilitation	Implementation of the concept final Rehabilitation Plan has been developed for the KHRQ (refer to Section 6.8.2 of this Modification Report).

6.5.3 Sediment Controls

The size of the in-pit sump has been assessed according to the provisions of Landcom's *Managing Urban Stormwater – Soils and Construction Volume 2E: Mines and Quarries* (the 'Blue Book'). The Blue Book implements a Revised Universal Soil Loss Equation (RUSLE) to estimate soil loss from a disturbed area which informs sump sizing.

Pit Catchment

The revised catchment of the KHRQ extraction area was mapped based on the approved Surface Water Assessment and the proposed KHRQ site plan. The extraction area's catchment is estimated to be 11.85 ha.

The approved SWA did not specify the approved KHRQ pit's final catchment area, however catchment mapping based on the currently approved final landform (i.e. without removal of the remnant dividing highwall) indicates a catchment of approximately 11.0 ha. The proposed MOD 2 development (inclusive of highwall removal) represents a minimal increase in catchment size to be managed by the established in-pit sump and associated infrastructure.

Design Storm

Coastal wetlands are mapped approximately 700 m south-west of the KHRQ extraction area (refer to the below figure). A 5-day, 95th percentile design rainfall depth has been adopted for the in-pit sump as recommended by the Blue Book for permanent controls upstream of sensitive environments. The design rainfall depth is 90.6 mm.

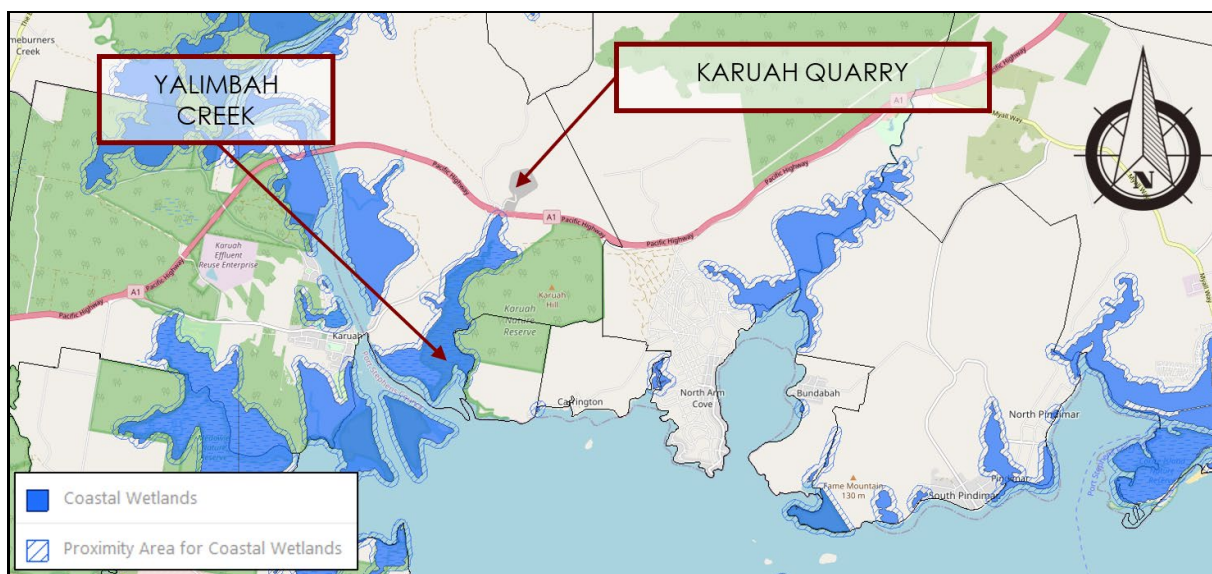


Figure 16: Coastal Wetlands and Proximity Areas

Other Design Considerations

The following was noted in accordance with the Blue Book:

- Soil Classification - Both dispersive and non-dispersive soils are expected at the site. Dams were therefore sized assuming Type D (dispersive) soils.
- Rainfall erosivity factor (R-Factor) – Using Bureau of Meteorology Intensity-Frequency-Duration (IFD) rainfall data, an R-Factor of 2,600mm was calculated.
- Soil erodibility factor - An erodibility factor (K-Factor) of 0.045 was adopted for the subject site and is consistent with reporting for the adjoining KEQ catchment.
- Volumetric Runoff Coefficient - A Volumetric Runoff Coefficient (C_v) of 0.79 was adopted. This is the default value for Type D soils with high runoff potential.

In Pit Sump Sizing

RUSLE calculations were completed for each catchment. Type D sediment controls consist of two (2) volumetric components: a settling zone, in which runoff is detained for settlement of fine particles; and a storage zone, in which settled sediment is retained. Minimum volume calculations for the in-pit sump are presented below.

Table 28: Minimum Sediment Dam Size (In Pit Sump)

Parameter	Value
Predicted soil loss (m^3 /Ha/Year)	42
Storage Zone ¹ (ML)	8.57
Settling Zone (ML)	0.38
Minimum Volume (ML)	8.95

1. Selected to provide 12 months' sediment storage.

Concept design has confirmed that the KHRQ pit floor can readily accommodate an in-pit sump of this volume.

The proposed MOD 2 development will have no impact on established SD2's existing catchment, as the MOD 2 proposal seeks to primarily extract the remnant dividing highwall on the eastern side of the KHRQ pit. Inflows from the in-pit sump to SD2 will be actively controlled by HQPL in accordance with the management actions detailed within the approved SWA.

6.5.4 Interaction with Karuah East Quarry

The proposed KHRQ MOD 2 project seeks to remove the remnant dividing highwall within the KHRQ to a floor level of RL65m, consistent with the currently approved extraction depth under DA 265-10-2004. The adjoining KEQ has an approved extraction depth of RL45m.

A typical section of the proposed remnant highwall removal is provided below. This figure is taken from a site section looking northwest through the proposed pit design.

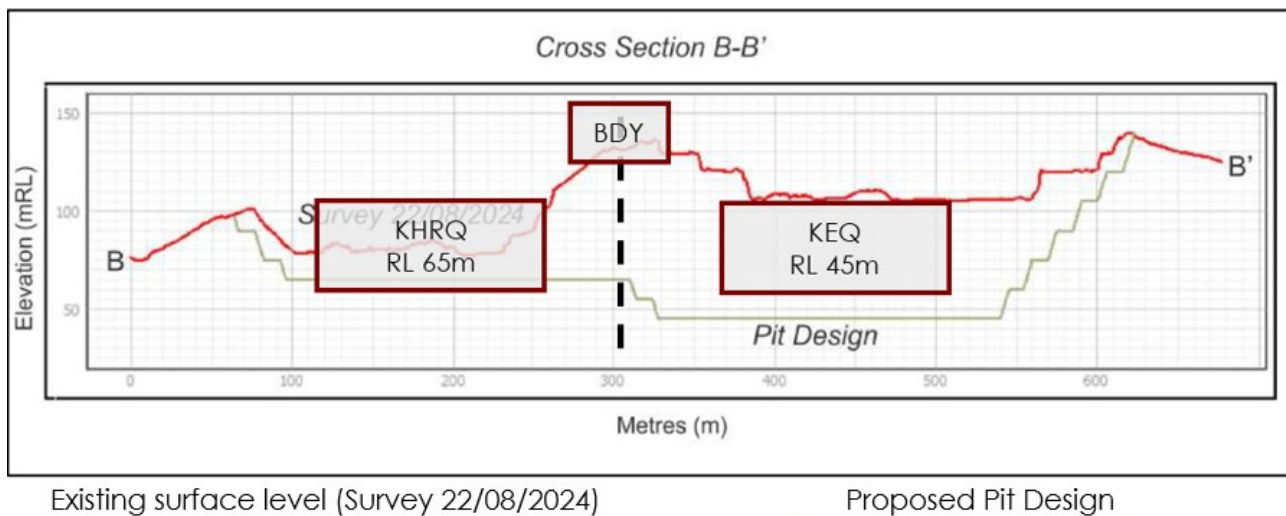


Figure 17: Typical Section of Remnant Highwall Removal on KHRQ/KEQ Boundary

There is substantial surface water storage in the KHRQ extraction pit to be exhausted before runoff from KHRQ could ever overflow into KEQ. As shown on the currently approved KHRQ quarry site plan, KHRQ's pit floor falls westward, away from KEQ, at slopes in the order of 1%. As noted above, the in-pit sump will provide a total volume of 8.95 ML. Additionally, a bund wall will be established along the Lot 11/Lot 12 boundary (for the extent of the adjoining extraction areas) to assist with drainage and safety.

Concept design of the final KHRQ extraction area pit floor has confirmed a total volume of 175 ML is available in the KHRQ pit between the in-pit sump floor and an assumed overflow level of RL66.5 m (assuming a nominal bund wall height of 1.5 m, subject to detailed design).

By comparison, ADW Johnson has examined historical rainfall records for the Tahlee and Clarence Town weather stations from 1887 to 2024 and the adjoining KEQ weather station from 2014 to 2024. The highest 5-day rainfall total recorded during this period was 480.3 mm. Based on an extraction area pit catchment of 11.85 ha and assuming no water is lost or pumped out, the 5-day rainfall record corresponds with a total rainfall volume of 56.9 ML. The maximum 5-day rainfall volume is substantially less than the available storage in the existing KHRQ extraction pit, meaning that KHRQ would never overflow into KEQ.

Furthermore, it is noted that the final KEQ pit floor (RL45m) will be 20 m lower than the KHRQ pit floor (RL65m). Accordingly, runoff from the KEQ pit could never enter the KHRQ water management system.

The assessment confirms that the established KHRQ and KEQ surface water management systems operate entirely independent of one another at present and will continue to do so following completion of the Karuah pit consolidation project. There is no interaction of runoff between KHRQ and KEQ pit catchments. The existing management systems at KHRQ and KEQ are not impacted by the Karuah pit consolidation project.

6.5.5 Site Water Balance

Proposed MOD 2 does not create any additional site water demands. The KHRQ extraction area pit catchment will only be minimally increased by the proposed pit consolidation project.

The water balance represented in the approved SWMP is representative of KHRQ prior to and following the completion of the MOD 2 component of the Karuah pit consolidation project.

6.5.6 Environment Protection Licence

The KHRQ is subject to Environmental Protection Licence (EPL) 11569, which establishes a Licensed Discharge Point (LDP) for discharge of waters from SD2. Pollutant concentration limits are defined in Section L2 of the EPL and are reproduced below.

Table 29: EPL 11569 Concentration Limits (Point 1)

Pollutant	Unit of Measure	100 Percentile Concentration Limit
Oil and Grease	Visible	5 & / or non-visible
pH	pH	6.5-8.5
Total Suspended Solids	Milligrams per litre	50

No variations to EPL 11569 are required in relation to water management.

6.5.7 Closure Arrangements

A concept final Rehabilitation Plan has been developed for the KHRQ MOD 2 project (refer to **Section 6.8.2** of this Modification Report).

By virtue of the removal of the remnant dividing highwall, the proposed amended final landform will become free-draining to the east via a drop structure to the adjoining KEQ and rehabilitated as woodland. The in-pit sump will remain in place and utilised as a sediment dam.

6.5.8 Maximum Harvestable Rights

The MOD 2 proposal seeks to upgrade the established in-pit sump to account for the minor changes to the pit floor's catchment. The in-pit sump is proposed to remain exclusively for sediment control and will not be used for water take/reuse.

In accordance with Schedule 1(3) of the *Water Management Regulation (2018)*, dams used solely to prevent pollution of receiving waters are exempt from Maximum Harvestable Rights. The proposed upgrade to the in-pit sump is therefore exempt from Maximum Harvestable Rights Calculations and does not contribute to KHRQ's Maximum Harvestable Rights Dam Capacity (MHRDC).

All other site water storages will remain consistent with existing arrangements with respect to volume and use.

6.5.9 Conclusion

The SWA concludes that the proposed MOD 2 development does not propose or require any significant departures from the approved and established general arrangement of KHRQ's surface water management system. The proposed MOD 2 development is acceptable and can be readily managed in terms of surface water considerations.

6.5.10 Mitigation and Management Measures

The following measures will be implemented to accommodate the proposed MOD 2 project at KHRQ:

- The approved KHRQ Site Water Management Plan (IEMA, December 2024, Ver 8D) will be updated to incorporate the proposed MOD 2 development.
- The existing in-pit sump (established in accordance with the approved SWA (GSS Environmental, February 2004), will be proportionally upgraded in accordance with the below parameters:

Parameter	Value
Predicted soil loss (m ³ /Ha/Year)	42
Storage Zone ¹ (ML)	8.57
Settling Zone (ML)	0.38
Minimum Volume (ML)	8.95

- A bund wall will be constructed on the Lot 11/12 boundary for the extent of the extraction area at the time the KEQ is extracted to approximately RL65m. Sizing will be subject to further detailed design. This information will be included in an update to the approved Site Water Management Plan (IEMA, 19 December 2024, Ver 8D).

- During Stage 2 of the extraction sequence, strategic blasting is to be undertaken to maintain westward flows in KHRQ and eastward flows in KEQ.
- Erosion and sediment controls will be implemented in accordance with the Blue Book Volume 2E (Mines & Quarries).

6.6 Groundwater

EMM was commissioned by the Applicant to undertake a Groundwater Assessment for proposed MOD 2. This assessment is provided within **Appendix K**.

Given that the proposed modification will not affect the final pit floor level of the KHRQ (which will remain unchanged at RL65m) and the proposed deepest invert level of the upgraded in-pit sump will remain above RL45m, groundwater will not be intercepted or impacted.

6.6.1 Existing Hydrogeology and Groundwater Monitoring Network

The regional groundwater system is characterised as a fractured flow system with low-moderate productivity. Groundwater in the fractured rock groundwater system is present in discrete (secondary porosity) fractures and fissures within the andesite and rhyodacite rather than the bulk rock mass. This is consistent with the observed site geology identified in previous site investigations (Coffey 2012) which were completed to inform the original KEQ approval (located on adjoining lands). The aquifer is discontinuous and semi confined to confined.

Fractured rock aquifers are generally highly heterogenous in nature and exhibit discontinuous fracture networks, resulting in highly variable groundwater flow, storage and quality. Recharge is by rainfall infiltration at outcrop locations and topographic depressions where surface water can pool. Discharges occur where depressions, rivers or creeks intercept the groundwater table and where geology outcrops and/or sub crops.

KEQ's groundwater monitoring bore network is detailed in **Table 31** and **Figure 18** below. Combined monitoring networks of KHRQ, KRQ and KSQ have been considered.

Groundwater monitoring occurs on a quarterly basis for groundwater levels and groundwater quality.

Table 30: Groundwater Monitoring Bores

Bore ID	Easting ¹	Northing ¹	Elevation (mAHD ²)	Total Depth (m)	Total Depth (mAHD ²)	Screen Interval (mbgl ³)	Screened Geology
KSQ-BH3	406622	6389254	49.2	40.67	8.53	34.67 – 40.67	Andesite
KSQ-BH4	406759	6389348	55.1	55.75	-0.65	49.10 – 55.10	Andesite
KSQ-BH7	406551	6389169	42.8	43.48	-0.68	34.15 – 40.15	Andesite
KSQ-BH8	406807	6389298	39.2	39.98	-0.78	27.67 – 33.67	Andesite
BH205	407149	6389456	56.87	40	16.87	31.0 – 37.0	Hornblende dacite
BH207	407343	6389088	32.06	30	12.06	10.6 – 28.6	Sandstone
BH208 ₄	406278	6389771	52.56	30	22.56	17.5 – 20.5	Rhyodacite and conglomerate
BH303	406118	6389723	57.06	35.5	21.56	28.5 – 33.5	Rhyodacite and conglomerate
BH202	407403	63890000	41.1	40	1.1	2.0 – 39.0	Residual soil and Andesite

Notes: 1. Coordinates in MGA z56H 2.m AHD – metres Australian Height Datum; 3. Mbgl – metres below ground level. 4. BH208 has been decommissioned but has been included for completeness.

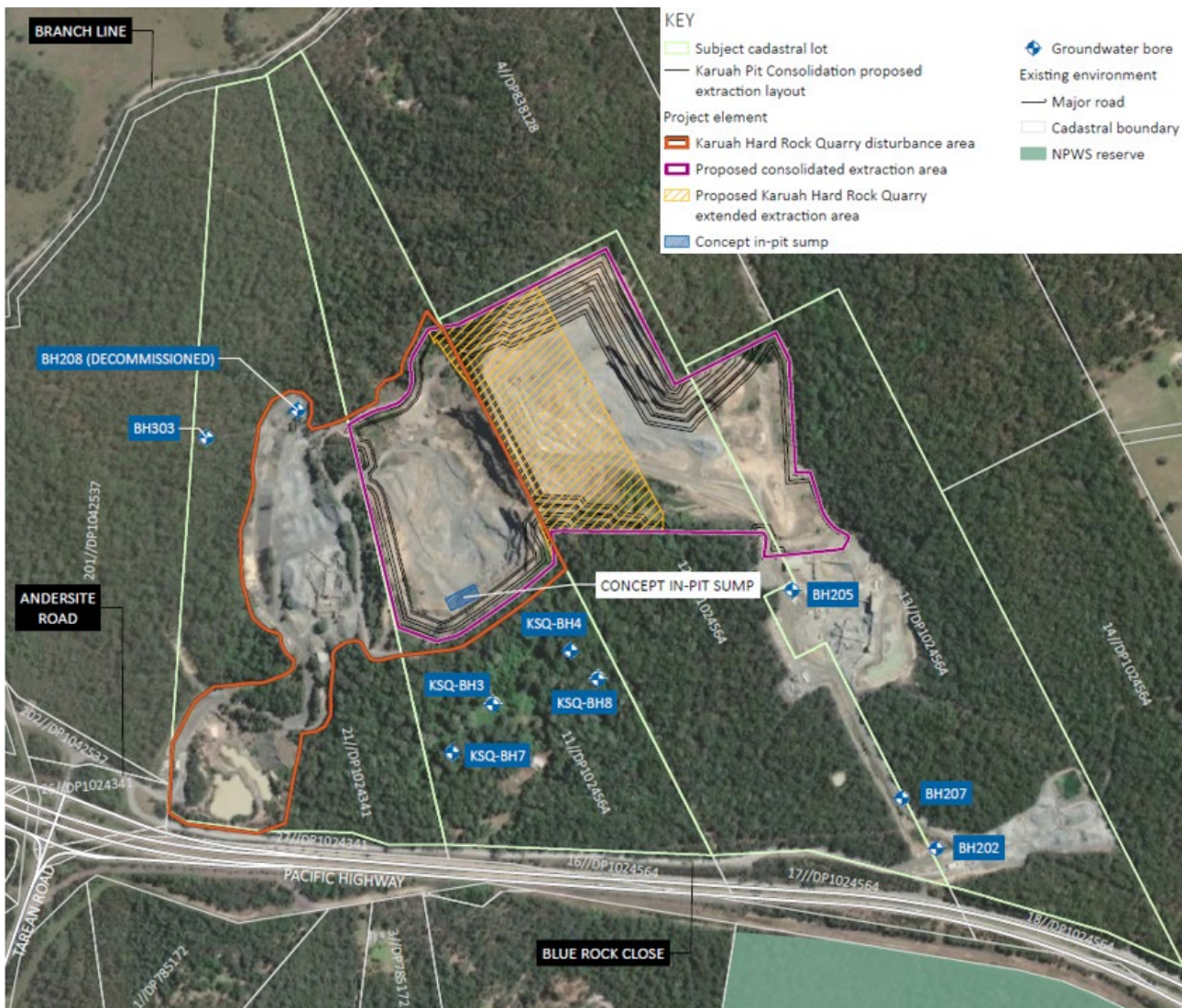


Figure 18: Groundwater Monitoring Bore Network

Groundwater Levels and Flow

The following groundwater trends have been observed:

- From 2017 to date, GW205 and GW207 water levels have increased approximately 9m and 5m respectively. This is considered to be a lagged response from rainfall recharge prior to installation. However, over the last five (5) years, less than a 2.5 m variance in groundwater levels has been observed.
- GW208 and GW303 have shown stable trends since monitoring began in 2016. The historical water level variance across the whole dataset is less than 1.5m. GW208 was damaged beyond repair in mid-2025 and will be decommissioned.
- GW202 was recently included in the monitoring network and has less than one year of monitoring data. The groundwater level is stable.
- The recent data for the KSQ monitoring bores are limited with only one measurement in September 2025 for KSQ-BH3 and KSQ-BH4. KSQ-BH7 and KSQ-BH8 were inaccessible due to vegetation regrowth. The Karuah South Quarry Groundwater Assessment (undertaken as part of SSD-8795) monitored water levels for seven months between April 2018 to November 2018.

The assessment found that water levels at KSQ-BH4, KSQ-BH7 and KSQ-BH8 were relatively static with no correlation to rainfall. KSQ-BH3 water levels fluctuated with rainfall events. The water level measurements between 2017 and September 2025 were consistent for KSQ-BH3 and increased by approximately 6.5 m at KSQ-BH4. Further monitoring will be undertaken required to confirm if the increase is representative.

- The highest water level recorded across the site was approximately 42m AHD at KSQ-BH3 which is located downgradient 200 m south from the KHRQ extraction area.

Groundwater piezometric surface contours completed in September 2025 notes:

- There is no difference between the wet and dry season contours patterns.
- KHRQ (located on the hill) is a groundwater divide, with contours showing groundwater flows to the North-west and to the South-east away from the KHRQ.
- The interpreted groundwater level under the quarry extraction area ranges between 32m to 39m AHD which is below the current KHRQ pit floor at 65m AHD (which is not proposed to change as part of MOD 2) and the proposed deepest invert level of the proposed upgraded in-pit sump.

Groundwater Quality

Groundwater quality samples have been collected quarterly since 2016. Groundwater quality can be described as:

- Moderately acidic to neutral.
- Salinity is generally brackish.
- Metal concentrations were mostly below the guideline value with the exception of some bores where elevated concentrations of arsenic, iron, nickel and zinc were measured.
- Nutrients are present, possibly due to the use of explosives when quarrying and/or surrounding agricultural land use practices.
- Benzene, toluene, ethylbenzene and xylene (BTEX), poly aromatic hydrocarbons (PAH), pesticides and petroleum hydrocarbon results were below the laboratory limits of reporting (LOR).
- Total recoverable hydrocarbon (TRH) was generally below the Laboratory Limits of Reporting (LOR).

Hydrogeological Conceptual Model

A hydrogeological conceptual diagram was developed for the proposed Karuah Pit Consolidation Project (refer below). The main characteristics of the hydrogeological system are as follows:

- The hard rock aquifer is semi-confined to confined with low primary porosity and groundwater flow is controlled by secondary porosity through a network of discontinuous fractures within the rock matrix.
- Seasonal perching is possible in deeply weathered rock due to residual clays.
- Any interception of groundwater perching, seepages or interflow in the unsaturated zone is expected to be minor. Evaporative potential is expected to exceed any potential inflow.
- The ionic composition of the groundwater broadly falls into the sodium chloride type which indicates a rainfall dominant recharge groundwater system.
- Groundwater discharges where creeks and rivers intercept the water table, and where the geology outcrops or subcrops.
- The groundwater level is relatively stable and does not display much variation. The groundwater table generally follows the topography.
- The highest water level recorded across the monitoring network was approximately 42m AHD at KSQ-BH3 which is located approximately 200 m south, downgradient from the extraction area of the KHRQ.
- The interpolated groundwater level under the consolidated extraction area ranges between 32m to 39m AHD which is below the existing approved extraction depth of 65m AHD at KHRQ (which is not proposed to change) and the proposed deepest inert level of the proposed upgraded in pit sump.

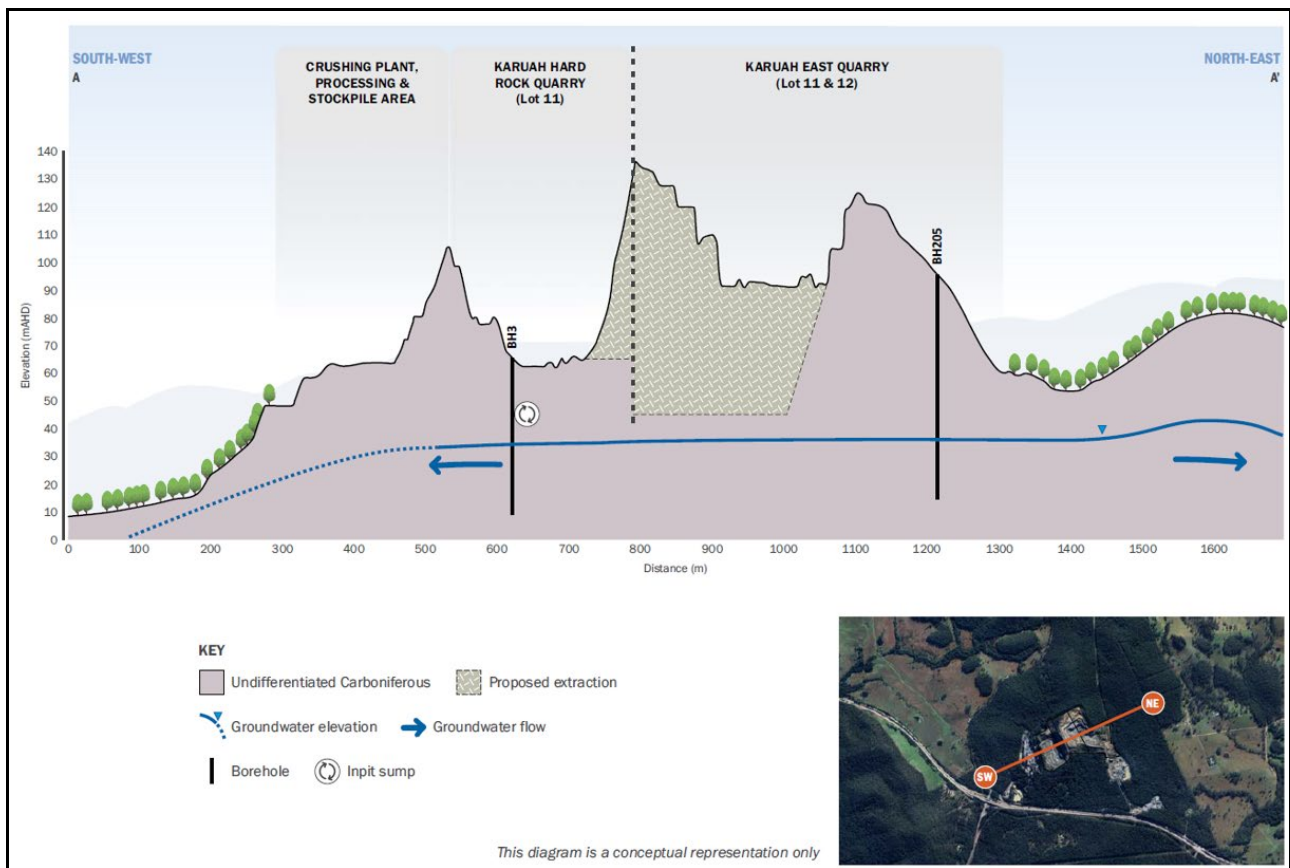


Figure 19: Hydrogeological Conceptual Diagram

6.6.2 Impact Assessment

Groundwater will not be intercepted by the proposed KHRQ MOD 2 development. The indicative groundwater level under the quarry extraction area is between 32m to 39m AHD with water level fluctuations of less than 2.5 m. The final proposed KHRQ pit floor will remain unchanged at 65m AHD (the existing approved depth) and the proposed deepest invert level of the proposed upgraded in-pit sump will remain above 45m AHD, which is approximately 6 m above the maximum groundwater level under the quarry extraction area.

Groundwater seepages from the unsaturated zone are minor and is expected to be controlled by evaporation. There is no evidence of groundwater inflow at the existing quarry pit walls at KHRQ and KEQ.

Aquifer Interference

The NSW Aquifer Interference Policy (AIP) has been considered and is not applicable to the MOD 2 development noting the following:

- There will be no groundwater take because the proposed MOD 2 application will not excavate or extract below the groundwater table.
- Proposed MOD 2 will not alter the existing groundwater levels or flow direction and is not expected to impact down hydraulic gradient groundwater users.
- Proposed MOD 2 will not intercept groundwater and is not expected to impact the supply of the closest landholder bore (GW201611) which is located approximately 3 km north-west of the subject site.

Groundwater Quality

The key risk for consideration of potential impacts from MOD 2 is potential groundwater contamination resulting from quarry operations. (e.g. potential diesel spills).

Any potential groundwater contamination is expected to be minor and localised to within the project area where there are no groundwater users (GDEs or third party bores).

Mitigation measures can be readily implemented to minimise any risk. These are provided in **Section 6.6.4** below.

Licensing

Proposed MOD 2 will not intersect or take any groundwater; therefore, no groundwater licencing is required.

The site water demands are supplied from captured runoff stored in onsite dams under the maximum harvestable right for coastal drainage catchments.

6.6.3 Conclusion

The Groundwater Assessment confirms that the proposed MOD 2 project is acceptable in terms of groundwater considerations provided that the below mitigation and management measures are implemented.

6.6.4 Mitigation and Management Measures

The following mitigation measures will be implemented to minimise potential groundwater impacts associated with the MOD 2 proposal:

- Benches and pit floor will be graded to promote drainage toward the entrance of the extraction area.
- Minor seepage and ponding of water resulting from excessive rainfall/runoff will be managed by conventional drainage measures within the quarry such as periodic pumping of in-pit sumps out to the surrounding drainage controls. Water will be retained on-site for quarry operations and for environmental mitigation.
- Refuelling will be undertaken in the designated non-permeable refuelling areas.
- Runoff water from the site will be collected and monitored for environmental mitigation to prevent chemicals and hydrocarbons such as petroleum, diesel, and oil seeping into the groundwater system.
- Handling and storage of fuel and oil within the project site will be in accordance with the 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.
- Safety Data Sheets (SDS) will be kept in the site safety system for all chemicals used on site. The SDS's 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 sites will be in accordance with Dangerous Goods Act 1975 (NSW), and Australian standards, including AS1940-2004 (Storage and Handling of Flammable and Combustible Liquids).
- Quarry rehabilitation will occur consistent with the Rehabilitation and Closure Strategy (IEMA, 2026) prepared for MOD 2 and the KHRQ Rehabilitation and Closure Plan.
- An updated Site Water Management Plan reflecting the proposed KEQ MOD 2 development will be prepared.

6.7 Visual

Terras Landscape Architects were commissioned by the Applicant to prepare a Visual Impact Assessment (VIA) for the proposed MOD 2 development.

To assess the visual impacts of the project holistically, the VIA for KHRQ considers visual amenity for sensitive features to the west of the Karuah Quarry Complex site. The separate VIA for the KEQ (prepared as part of the MOD 11 application) considers visual amenity from the east.

The VIA is enclosed as **Appendix L**.

6.7.1 Assessment Methodology

The assessment methodology for the VIA included:

- Systematically evaluating the visual environment pertaining to the site and using value judgements based on responses to scenery. This identifies aspects that are more objective (such as physical setting, character and visibility of a proposal), from more subjective aspects, such as the compatibility of the proposal within the setting.
- Visual data collection that involved a systematic evaluation of the visual environment from relevant viewpoints through fieldwork to determine the actual potential for views to the site.
- The selection of viewpoints was based on locations where potential for views of the proposed development will occur. Viewpoint selection criteria included:
 - Consideration of where views can be obtained from publicly frequented locations, such as major traffic corridors;
 - Prominent look-outs or locations of high scenic value; or
 - Where members of the local community may be affected.

6.7.2 Visual Environment

The location of the site features a mix of natural features and established quarries, resulting in a limited variety of landscape settings and characters. Four key landscape character units are identifiable within a 1 km radius of the site. These are:

1. Major Transport Corridor;
2. Quarry / Infrastructure;
3. Cleared / Grassland; and
4. Vegetation.

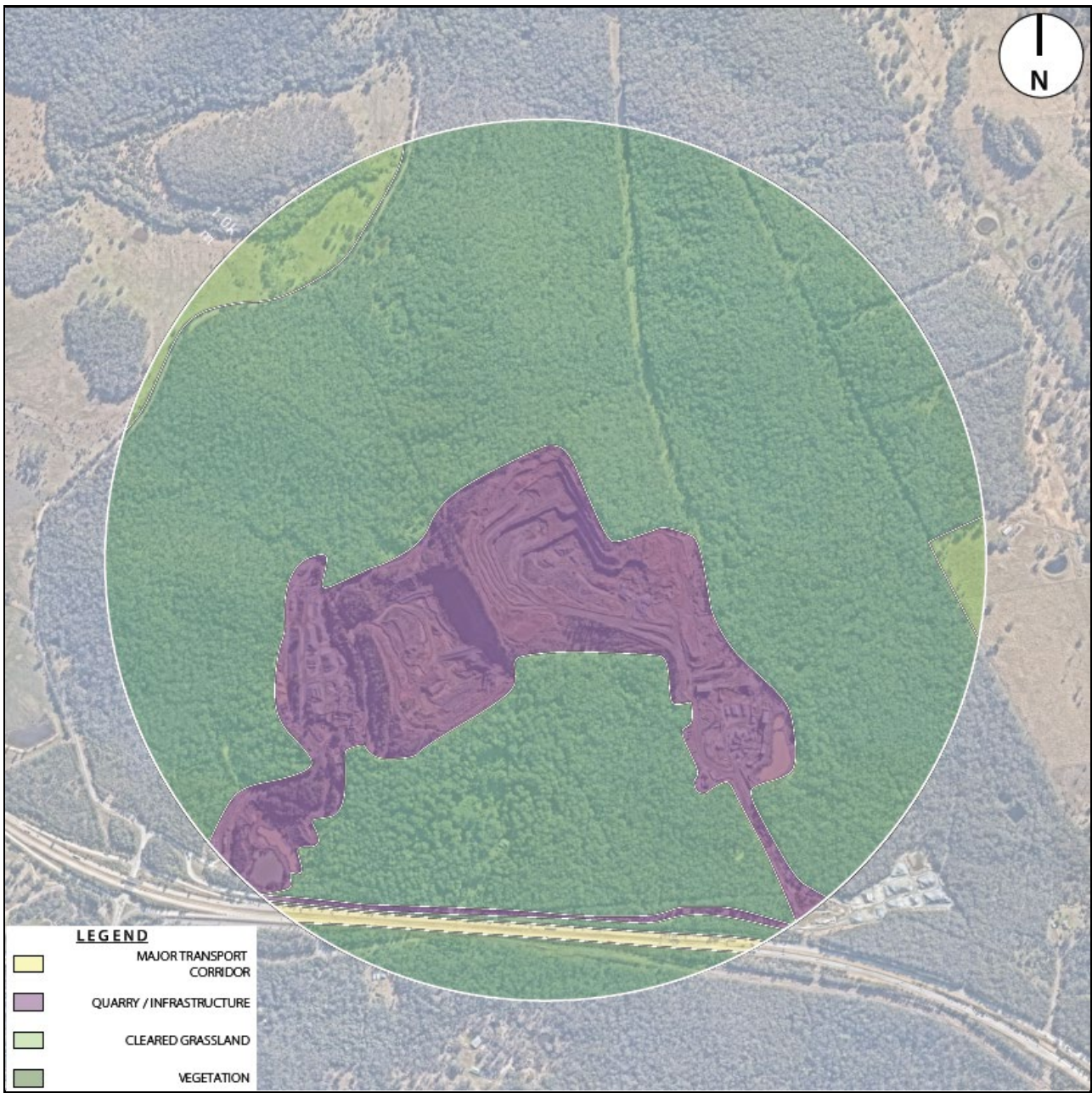


Figure 20: Landscape Character Units Surrounding the Subject Site

Due to local topography, existing vegetation, access and existing development, views to the site are generally limited to less than 1,500m except for filtered views from further distances.

Provided below are viewpoint locations (**Figure 21**) and a viewshed analysis diagram (**Figure 22**).

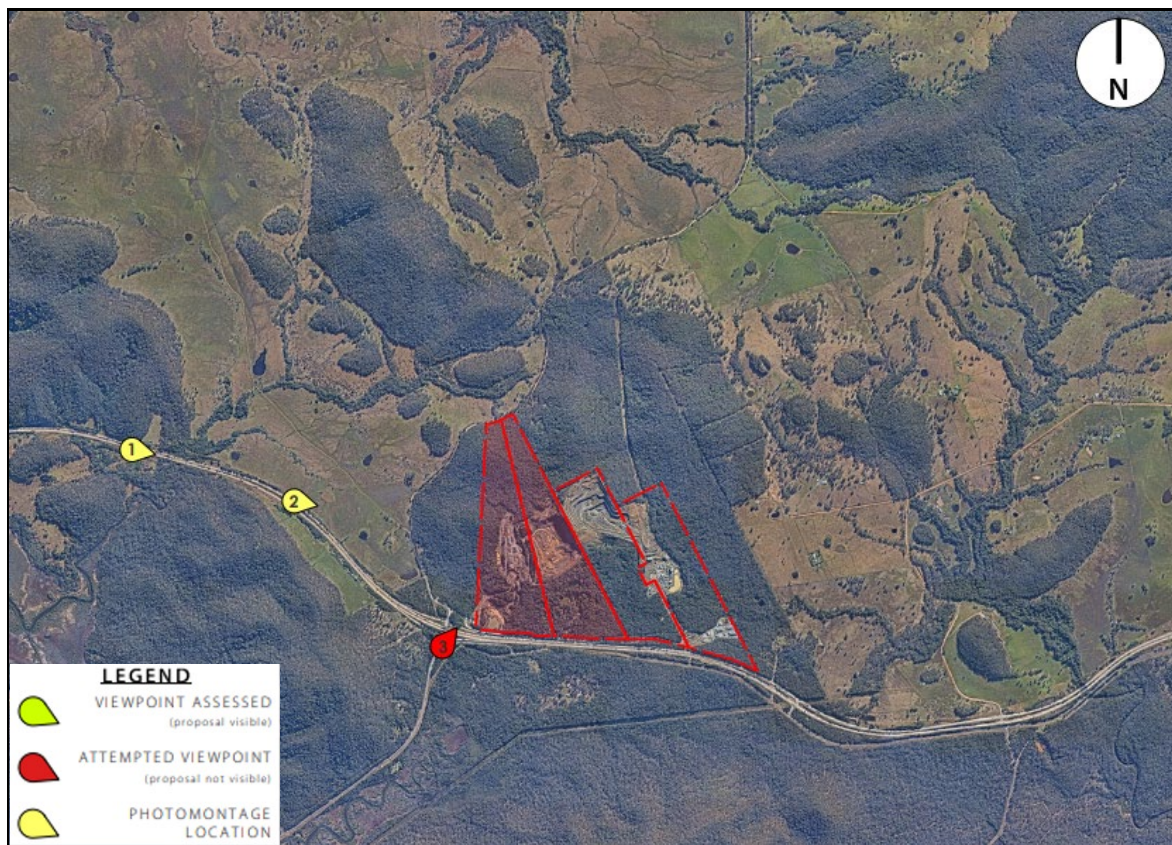


Figure 21: Viewpoint Locations

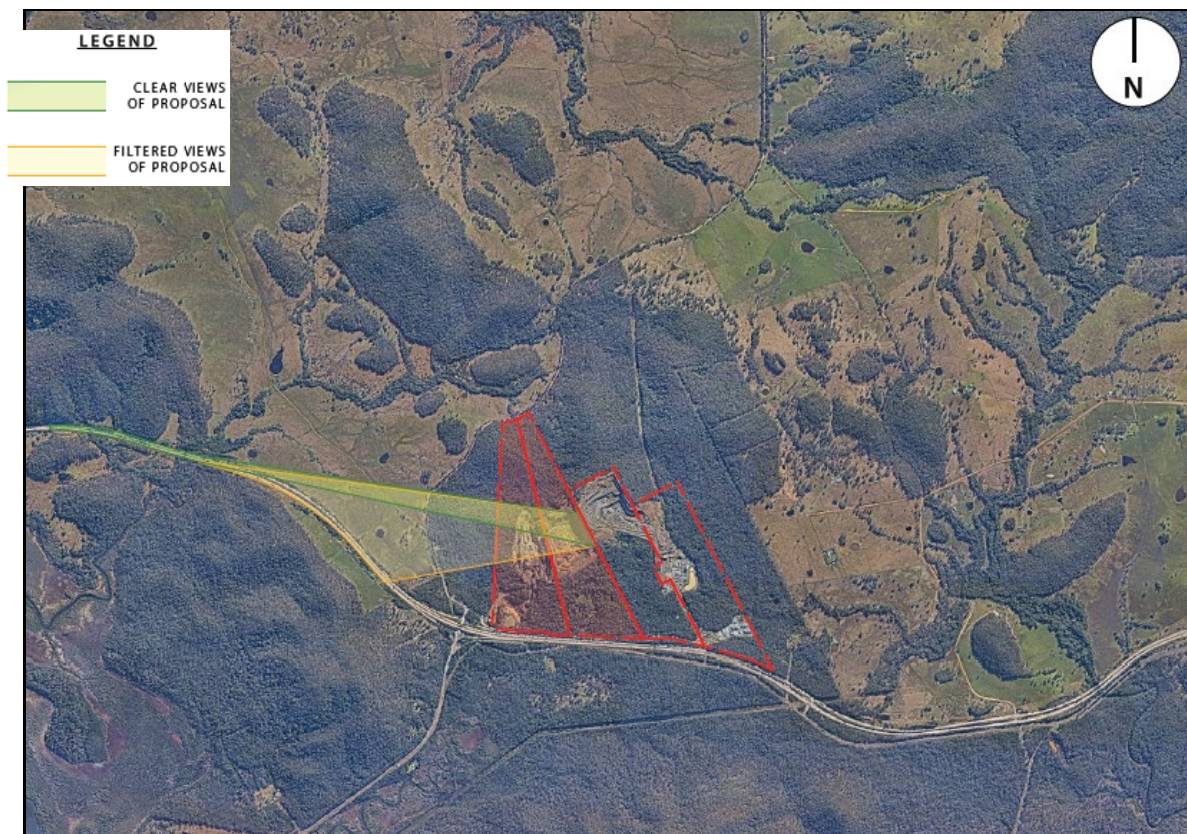


Figure 22: Viewshed Diagram

6.7.3 Visual Impact Assessment

For the purposes of the MOD 2 application, the VIA for the KHRQ considers Viewpoints 1, 2 and 3 whilst the separately prepared VIA for the KEQ MOD 11 application considers Viewpoints 4 to 8.

From each of the viewpoint locations, assessment criteria was applied including landscape values, viewer access, visual quality, visual sensitivity, magnitude of change with the subsequent visual impact calculated. The results of the assessment are summarised in **Figure 23** below.

VIEWPOINT SUMMARY					
	ACCESS	SENSITIVITY	MAGNITUDE	IMPACT	ASSESSED IMPACT
Viewpoint 1 / Photomontage Pacific Highway, Heading East	LOW	LOW	LOW	LOW	LOW
Viewpoint 2 / Photomontage Pacific Highway, Heading East	LOW	LOW	LOW	LOW	LOW
Viewpoint 3 Tarean Road, Heading North	NIL	NIL	NIL	NIL	NIL

Figure 23: Viewpoint Summary Table

Viewpoint 1 – Pacific Highway, Northbound

Viewpoint 1 is located approximately 2.7 km west of the site.

Viewpoint 1 represents the views available to vehicles travelling east (northbound) along the Pacific Highway after crossing the Karuah River Bridge. At this location, the Highway is elevated as it approaches the KHRQ, allowing for an extended view of the quarry in its current state. The proposed removal of the remnant dividing highwall will significantly reduce the visibility of the KHRQ from this point, although some views of a vegetative bund in the foreground will remain. Since the KHRQ can only be seen from vehicles traveling at 110 km/h along the Pacific Highway, the visual impact is assessed as low. This change is viewed positively, as it contributes to the naturalisation of the existing landscape by diminishing views of the quarry.

Relevant to Viewpoint 1, provided below is a comparison of the existing view as well as an indicative montage of the final landform of the proposed development.



Figure 24: Viewpoint 1 – Existing View & Indicative Montage of Proposal

Viewpoint 2 – Pacific Highway, Northbound

Viewpoint 2 is located approximately 1.7 km west of the site.

Viewpoint 2 illustrates typical views for vehicles travelling east (northbound) along the Pacific Highway closer to the proposal site. At this location, the Highway is at a lower elevation and runs parallel to the site. Established roadside vegetation permits brief filtered views of the existing remnant dividing highwall, which are limited by the 110 km/h speed limit. The proposal will eliminate views of the highwall, resulting in a visual impact assessed as low.

This viewpoint also reflects a positive overall visual impact, as removing the remnant dividing highwall significantly reduces quarry visibility and enhances the natural landscape.

Relevant to Viewpoint 2, provided below is a comparison of the existing view as well as an indicative montage of the final landform of the proposed development.



Figure 25: Viewpoint 2 – Existing View & Indicative Montage of Proposal

Viewpoint 3 – Tarean Road, Northbound

Viewpoint 3 is located approximately 1 km south-west of the site (for vehicles heading north along Tarean Road).

Tarean Road connects with the Pacific Highway via The Branch Lane interchange, and is the main approach to the Karuah township from the north when exiting the Pacific Highway.

Viewpoint 3 experiences a nil visual impact because there are no visible sightlines to the existing KHRQ face. This is primarily due to the vegetative bund established as part of the KHRQ approval (DA265-10-2004). The bund effectively blocks any views of the quarry from this location.

Figure 26 below shows viewpoint 3 looking towards the KHRQ.



Figure 26: Viewpoint 3 – Tarean Road, Heading North

Sectional Profiles – Rural Residential Properties

The VIA considers the potential effects of the proposed development on local rural residential properties in the locality. Sectional profiles were created to illustrate the existing views that nearby residents currently experience when looking toward the site.

The locations of sectional profiles are identified in Figure 27 below.

For the purposes of the MOD 2 application, the VIA for the KHRQ considers residences 10, 11 and 12 whilst the VIA for the concurrent KEQ MOD 11 application considers residences 1 to 9.



Figure 27 Sectional Profile Locations

Residence 10

This residence is located at 1714 The Branch Lane, approximately 1.2km from the KHRQ.

3D modelling shows that the KHRQ is likely visible with filtered views through existing vegetation. The visual impact is considered negligible.

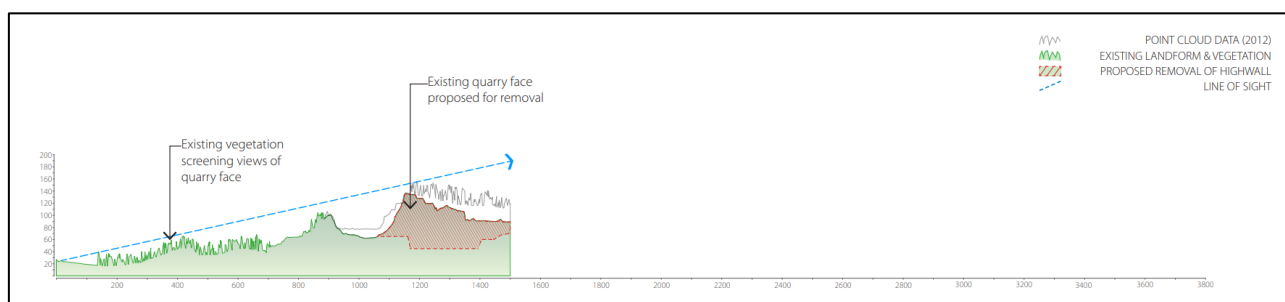


Figure 28: Sectional Profile of Residence 10

Residencies 11

Residencies 11 are located at 64 and 74 Mill Hill Close, approximately 0.9 km from the KHRQ.

3D modelling shows that the KHRQ is not visible from these residencies due to existing foreground vegetation. The visual impact from the proposal is nil.

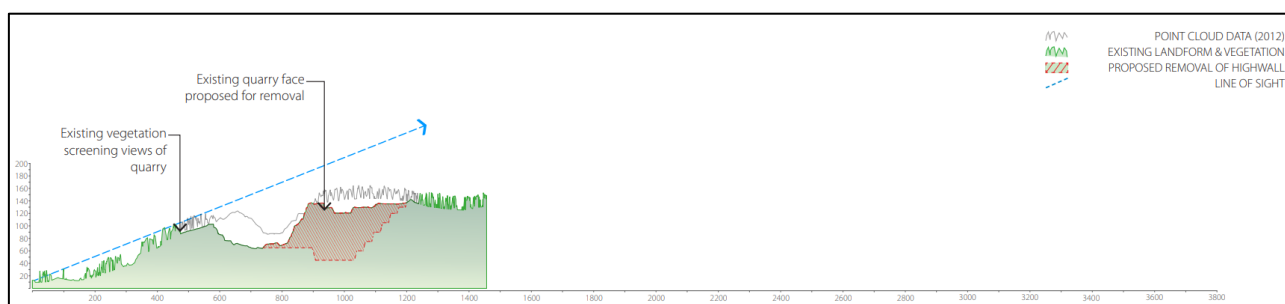


Figure 29: Sectional Profile of Residencies 11

Residencies 12

Residencies 12 are located at 789 and 827 Tarean Road, approximately 1.6 km from the KHRQ.

3D modelling shows that there may be filtered views of the existing KHRQ to these residencies. However, the existing vegetated bund likely obstructs or partially filters these views. Consequently, the visual impact of the proposal is regarded as negligible with any visual impacts regarded as a positive visual change.

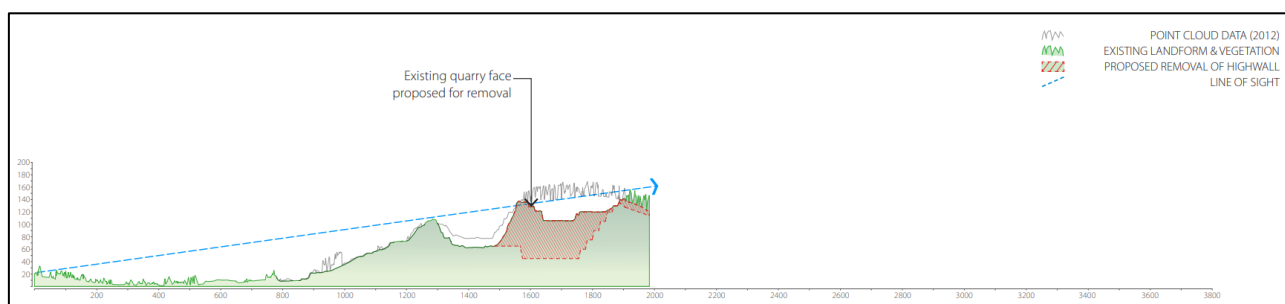


Figure 30: Sectional Profile of Residences 12

6.7.4 Conclusion

The VIA concludes that a review of the visual catchment for the proposed site indicated that views from the west of the proposal are limited along the Pacific Highway. The clear and filtered views from the Pacific Highway are minimal and are experienced from the perspective of a vehicle traveling at 110 km/h. The views of the existing quarry face of the KHRQ from residential dwellings are likely to be removed or highly reduced with the proposed works.

Overall, the proposal has a low to negligible cumulative visual impact, with a beneficial effect on the landscape, as the proposed works will eliminate most views of the site from surrounding areas. By removing views of the existing KHRQ, the proposed changes will enhance the visual character through better integration with the landscape.

There are no recommended mitigation measures due to the overall positive visual impact the proposal is to have on the visual character of the landscape.

6.7.5 Mitigation and Management Measures

There are no mitigation measures recommended by the VIA due to the overall positive visual impact the proposal is to have on the visual character of the landscape.

6.8 Rehabilitation and Closure Strategy

IEMA was commissioned by the Applicant to prepare a Rehabilitation and Closure Strategy (RCS) for the proposed MOD 2 development, which is provided in **Appendix M**.

The purpose of the RCS was to confirm that rehabilitation objectives, completion criteria and overarching management approaches within the KHRQ Rehabilitation & Closure Plan generally remain appropriate and generally consistent with the NSW Mine Rehabilitation and Closure Planning Guidelines (2021) issued by the NSW Resources Regulator within the Department of Primary Industries and Regional Development (DPIRD).

It is noted that Development Consent DA 265-10-2004 does not currently include statutory rehabilitation objectives, however it is proposed to establish contemporary rehabilitation principles to develop clear rehabilitation objects for subsequent revision to the KHRQ Rehabilitation and Closure Plan (RCP) post-approval of the MOD 2 project.

6.8.1 Proposed MOD 2 Rehabilitation and Closure Context

At the closure phase of the KHRQ, the proposed MOD 2 application (and concurrent MOD 11 application to the KEQ) will have resulted in the extraction of the remnant dividing highwall between the KHRQ and KEQ. This will alter the currently approved final landform from two (2) separate flooded quarry voids divided by a remnant highwall to a single consolidated quarry pit that is overall free draining as well as improving long term stability and integration with the surrounding environment to achieve a safe, stable and non-polluting post-quarry landform. Areas around the quarry pit (including remaining unsold overburden) will be shaped, topsoiled and rehabilitated using a woodland seed mix. A section of the quarry pit will remain being converted from an in-pit sump to a sediment dam to serve water management functions as activities progress.

Existing water management infrastructure, including sediment dams, will remain to manage surface water flows from the entire CEA in a staged manner. Surface water from the KHRQ pit will initially drain into the in-pit sump sediment dam before discharge via a purpose-built spillway, channel and drop structure into the adjoining KEQ drainage system. A shaped water channel across the KEQ pit will then convey flows in a controlled manner to the existing KEQ Dam 1. The area will be rehabilitated to woodland post closure land use consistent with the surrounding site.

The sediment dams will remain in place after closure, and if necessary, will be reshaped as part of the site decommissioning works. HQPL are required to ensure they are safe, stable and non-polluting. Sediment dams will also be desilted to increase capacity to accept dirty water during the rehabilitation phases.

A summary of the key changes as they relate to the Karuah Quarry Complex (i.e. KHRQ and KEQ) is provided below.

Table 31: Summary of Key Changes to Rehabilitation at the Karuah Quarry Complex

Key Area	Description
Lot 21 (KHRQ)	Lot 21 contains the existing plant, processing and stockpile areas for the KHRQ. This area will be rehabilitated to woodland vegetation with retained water sources associated with the current water management infrastructure. No changes are proposed as part of the MOD 2 project.

Key Area	Description
Lot 11 (KHRQ extraction area)	Lot 11 contains the current extraction area for the KHRQ and is currently approved to remain as a flooded quarry void at closure. The project proposes to remove the eastern highwall creating a free-draining landscape, that discharges to the KEQ water management system. This change results in the flooded void being replaced with woodland vegetation and a retained water source associated with the conversion of the in-pit sump to a permanent sediment dam.
Lot 12 & Lot 13 (KEQ extraction area)	Lots 12 and 13 contain the current extraction area for the KEQ and is currently approved to remain as a flooded void with wetland vegetation at closure. The project proposes to remove the western highwall that will enable the receipt of surface water discharges from the KHRQ extraction area on Lot 11. Additionally, it is proposed to extend the extraction area within currently disturbed areas to the east and south to create a free draining environment to the existing KEQ Dam 1 (south of the plant and processing area). This change results in the flooded void and associated wetland vegetation being replaced with woodland vegetation consistent with other rehabilitation domains and the surrounding vegetation communities within the Karuah Quarry Complex. This change is addressed in the concurrent MOD 11 application to KEQ.
Lot 13 (KEQ additional disturbance)	An approximate 0.47 ha extension is proposed at the north-eastern boundary of the KEQ disturbance footprint from a now redundant powerline corridor containing disturbed exotic vegetation that was historically cleared. This area is proposed to be rehabilitated with woodland vegetation. This change is addressed in the concurrent MOD 11 application to KEQ.

6.8.2 Established KHRQ Rehabilitation and Closure Plan

The established KHRQ RCP (IEMA, ver 5A, 2025) is currently implemented by HQPL in accordance with Schedule 3, Conditions 39 and 44 of Development Consent DA265-10-2004. The current RCP establishes the rehabilitation objectives and completion criteria for the KHRQ, including the attainment of a safe, stable and non-polluting final landform, rehabilitation of disturbed areas to woodland vegetation consistent with the surrounding landscape, provision of a 'flooded' final extraction void and management of surface water to prevent erosion and off-site impacts.

The RCP adopts a landform-led rehabilitation approach, whereby long-term stability and drainage performance are primary drivers of rehabilitation success, supported by appropriate soil management and revegetation measures. These principles remain applicable to the proposed MOD 2 development, which refines the final landform through removal of the remnant dividing highwall and provision of a free-draining environment.

Accordingly, a minor adjustment to the current rehabilitation objectives is required by replacing the flooded final void with woodland vegetation across the quarry pit floor. In accordance with existing practices, the existing in-pit sump will be converted to a sediment dam post-closure to manage surface water flows from within the current proposed footprint within Lot 11.

The objectives, methodologies and completion criteria set out in the approved RCP have been reviewed in the context of proposed MOD 2 and it is considered that the proposed modification does not result in an adverse change to rehabilitation outcomes.

6.8.3 Rehabilitation and Closure Domains

Rehabilitation and closure domains for the KHRQ have been developed with reference to the current KHRQ RCP. They have been refined to reflect the proposed MOD 2 development.

The proposed rehabilitation and closure outcomes for the KHRQ (the final landform) are identified in the below figure and are summarised into the following domains:

- Domain 1 Woodland Rehabilitation;
- Domain 2 Benches;
- Domain 3 Water Management (inclusive of infrastructure i.e. sediment dams); and
- Domain 4 Haul Roads.

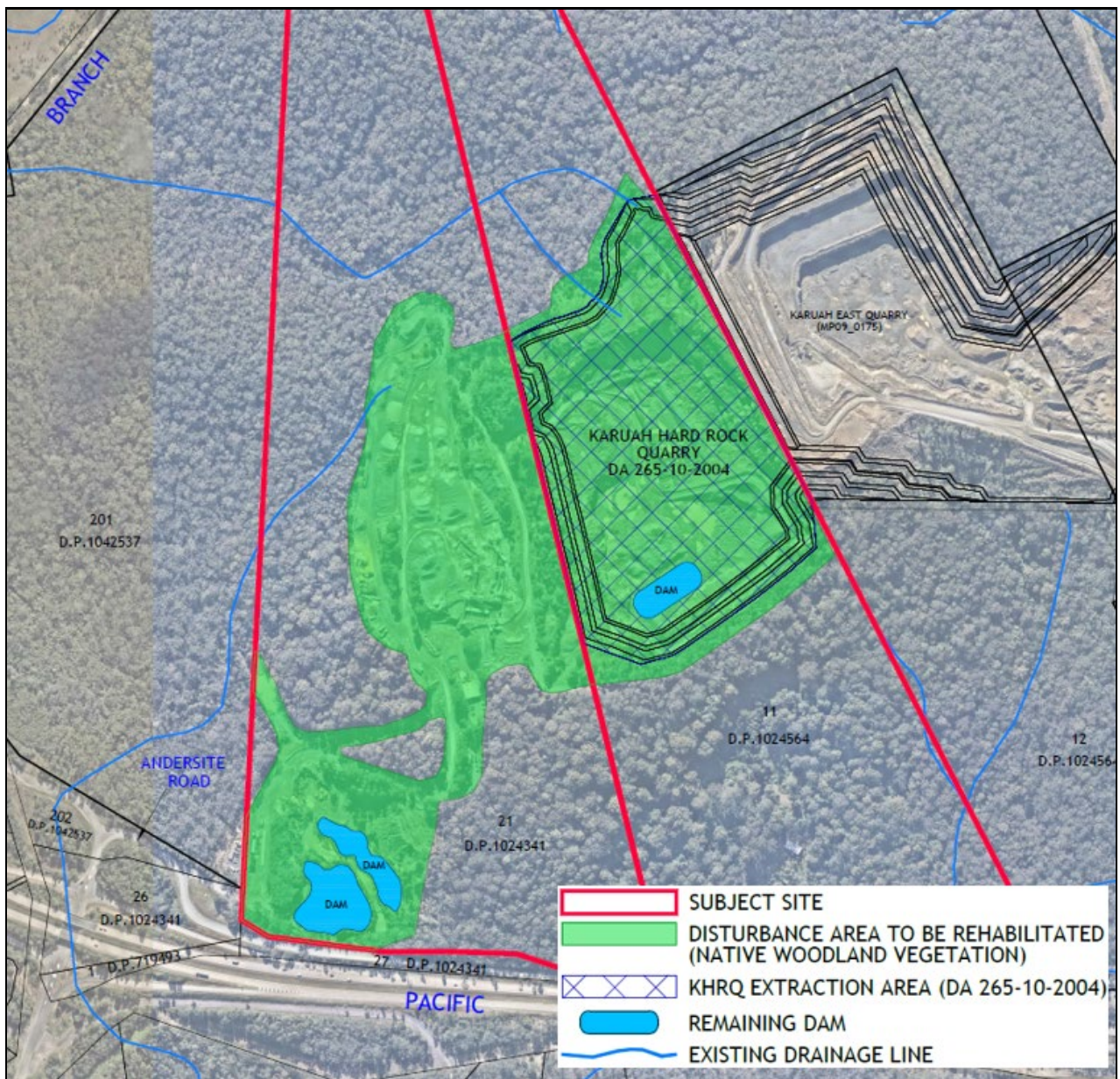


Figure 31: Concept Final Rehabilitation Plan

6.8.4 Rehabilitation and Closure Objectives

While the KHRQ and KEQ remain subject to separate approvals, it is logical for the rehabilitation objectives for both sites to be aligned in intent, reflecting the shared outcomes of landform stability, safety, controlled drainage and rehabilitation to woodland vegetation.

The KHRQ RCP objectives are derived from contemporary rehabilitation principles and will be refined to facilitate the proposed final free-draining landform.

No final void is proposed at closure as a result of MOD 2. The removal of the final void outcome means that this objective is no longer applicable. Areas previously identified as final void will be reshaped and rehabilitated to woodland vegetation consistent with the approved rehabilitation objectives and post-mining land use.

The rehabilitation objectives and refinements to facilitate proposed MOD 2 are outlined in Table 32 below.

Table 32: Rehabilitation Objectives (KHRQ RCP)

Objective	Feature	Current Objectives derived from Consultation with DPHI in 2017.	Change
1	All areas of the site affected by the development	• Safe. • Hydraulically and geotechnically stable. • Non-polluting. • Fit for the intended post-mining land uses. • Final landform integrated with surrounding natural landforms as far as is reasonable and minimising visual impacts when viewed from surrounding land.	• No change.
2	Surface Infrastructure	• Decommissioned and removed, unless otherwise agreed by the Planning Secretary.	• No change.
3	Quarry Benches and Pit Floor	• Landscaped and vegetated using native tree and understory species.	• No change. • Application of this objective across the floor of the main void (or quarry floor).
4	Final Void	• Minimise the size, depth and slope of the batters of the final void. • Minimise the drainage catchment of the final void.	• Deletion of redundant objective. • No final void is proposed at closure as a result of MOD 2. The extraction of the dividing highwall removes the final void by creating a free draining landform. • Therefore, the area will be reshaped and rehabilitated to woodland vegetation.

6.8.5 Rehabilitation and Closure Methodology

The adopted 'Form and Way: Rehabilitation Management Plan for Large Mines' (DPIRD, 2025), while designed for mine sites, also discusses the key phases required to achieve successful rehabilitation and closure of a quarry. Relevant to the proposed MOD 2 development, the following is noted:

- Active Quarrying

During active quarrying, rehabilitation-related management will focus on protecting the resources and conditions required to achieve successful rehabilitation at closure. Disturbance will continue to be confined to approved areas, with measures in place to minimise erosion, instability and environmental impacts during operations. Soil and vegetation resources required for rehabilitation will be conserved and managed appropriately, and adjacent rehabilitated and remnant vegetation will be protected. These measures reflect existing quarry management practices and are intended to safeguard rehabilitation potential throughout the operational phase, consistent with the approved rehabilitation framework and management plans.

- Decommissioning

Decommissioning works will be undertaken to prepare the site for closure and final rehabilitation. This will involve decommissioning and removal of surface infrastructure unless otherwise agreed by the Planning Secretary, and ensuring the site is left in a safe condition.

Decommissioning activities will address the removal of plant, equipment and materials not required post-closure, management of hazardous substances, and remediation of any identified contamination. Where infrastructure cannot practicably be removed, remaining structures will be made safe. Public access to areas undergoing rehabilitation will be restricted as required to protect safety and rehabilitation outcomes. Decommissioning will be undertaken in accordance with the approved Rehabilitation and Closure Plan.

- Landform Establishment

MOD 2 will refine the approved landform establishment phase through removal of the remnant dividing highwall and consolidation of the adjoining quarry pits into a single, free draining landform. This refinement improves long-term geotechnical stability, drainage efficiency and public safety outcomes, while remaining consistent with the approved rehabilitation objectives and post-quarry land use. The removal of the previously identified final void outcome allows the landform to be reshaped and rehabilitated in a manner that better integrates with surrounding landforms and supports progressive rehabilitation. Detailed landform construction methods and sequencing will continue to be addressed in accordance with the approved RCP.

- Surface Water and Drainage Integration

MOD 2 will refine surface water management arrangements to support the consolidated quarry landform and rehabilitation outcomes. Surface water generated within the KHRQ pit will drain to the converted sediment dam (previously in-pit sump) before being conveyed via stabilised spillway, channel and shaped drop structure to the KEQ drainage system. These changes facilitate controlled, free-draining conditions across the rehabilitated landform and do not result in permanent ponding, wetland land use or regulated post closure discharge. Water management infrastructure will continue to function as supporting infrastructure to rehabilitation, ensuring runoff is managed safely and does not result in adverse off-site impacts.

- Growth Medium Development

Growth medium development will focus on establishing suitable physical, chemical and biological conditions to support landform stability and vegetation establishment. Available topsoil and growth media will be managed and reapplied to reshaped areas where practicable, with surface preparation and soil amelioration undertaken as required to reduce compaction, promote root development and minimise erosion risk. The placement and treatment of growth media will be prioritised to support successful revegetation and long-term landform performance. Soil handling and management will be undertaken in accordance with the soil management approach within the approved RCP.

- Ecosystem and Landform Establishment

As a result of the refined landform configuration proposed by MOD 2, rehabilitation can progress beyond the previously identified final void outcome to establishment of woodland vegetation across the consolidated quarry pit.

This change in rehabilitation objectives, will enable improved ecological value, improved landscape integration and a more stable post-quarry condition. Woodland rehabilitation will be undertaken consistent with the approved rehabilitation framework and surrounding vegetation communities, with detailed revegetation methods addressed through the RCP.

- Ecosystem and Land Use Development

Following establishment, rehabilitated areas will be managed to support progression toward a stable, self-sustaining condition consistent with the rehabilitation objectives within the approved RCP. Monitoring and maintenance will be undertaken where required to address weed establishment, erosion or other factors affecting rehabilitation performance. Active management inputs will reduce over time as rehabilitated areas demonstrate stability and resilience. Detailed monitoring and maintenance requirements are provided within the approved RCP.

6.8.6 Completion Criteria

Completion criteria linked to the rehabilitation phases for MOD 2 are detailed below.

Table 33: Objectives, Completion Criteria and Methodology Linked to Rehabilitation Phases for MOD 2

Rehabilitation Phase	Rehabilitation Objective	Completion and Success Criteria	Modification 2 Comment
Active Quarrying	Manage disturbed areas to minimise erosion and instability and support progressive rehabilitation where practicable.	Disturbed areas are stable and managed in accordance with approved plans, with no ongoing erosion or off-site impacts.	No significant change. Active extraction will continue in accordance with the approved framework. Progressive rehabilitation, erosion controls and protection of rehabilitation resources undertaken in accordance with the approved management framework.
Decommissioning	<u>Surface Infrastructure</u> Decommissioned and removed, unless otherwise agreed by the Planning Secretary.	• Redundant infrastructure is removed or made safe and does not pose an ongoing safety or environmental risk. • Remediation of hydrocarbon contamination. • Remove all nominated infrastructure. • Make safe any remaining footings • Remove all remaining rubbish and debris. • Removal of all mobile machinery from the site. • Removal of all petroleum, chemicals and explosive products from the site. • Access to members of the public is restricted.	No significant change. Decommissioning undertaken progressively in accordance with the approved RCP.
Landform Establishment	Establish a safe, stable, non-polluting final landform integrated with surrounding landforms.	• Create a stable landform. • Final landform is consistent with surrounding landforms. • Establish drainage systems as part of batter formation to ensure stability.	Changes required. Refined to remove the remnant dividing highwall and associated final void to improve long-term stability and safety outcomes. Extend woodland vegetation across the shaped quarry floor. Drainage configuration refined to convey flows via a stabilised spillway, channel and drop structure to the KEQ drainage system. No permanent ponding or wetland land use is proposed outside of the converted sediment dam.

Rehabilitation Phase	Rehabilitation Objective	Completion and Success Criteria	Modification 2 Comment
Growth Medium Development	Soil and growth media managed to support stability and revegetation.	- Rehabilitated surfaces support vegetation establishment and remain stable without ongoing soil loss or degradation. - Areas designated for woodland rehabilitation will be deep ripped and then direct seeded with a mix of native tree and shrub species which is blended with an appropriate application of fertiliser or other ameliorant as determined by soil testing. - Undertake follow-up soil testing as considered necessary.	No significant change. Available topsoil and growth media managed and re-spread in accordance with the approved soil management approach.
Ecosystem and Land use Establishment	Rehabilitation to woodland vegetation using locally native species.	- Woodland vegetation is established across all rehabilitated areas and provides effective landscape integration. - Woodland vegetation demonstrates ongoing progression toward a stable condition. - The introduction and spread of weeds and pests should be prevented and an active program in place to minimise their presence. - Undertake vegetation monitoring as required to determine target community structure and floristics. - Sow initial coloniser species with follow-up sowing and/or tube stock planting as required.	Changes required. MOD 2 enables woodland vegetation where a final void was previously identified.
Ecosystem and Land use Development	Demonstrate stable, self-sustaining rehabilitation requiring minimal maintenance. <u>Benches</u> All quarry benches and floors to be successfully landscaped and vegetated using native tree and understory species.	- Rehabilitated areas demonstrate ongoing stability and vegetation development without reliance on active intervention. - Evidence of active use of habitat provided during rehabilitation such as logs and signs of natural generation of shelter sources including leaf litter. - Presence of representatives of a broad range of functional indicator groups involved in different ecological processes. - Typical food and water sources required by the majority of vertebrate and invertebrate inhabitants of that ecosystem type are present. - Water quality of the receiving waters is not affected by surface water runoff from the site and discharge water meets the contaminant limits (EC, pH, TSS and oil and grease) of the EPL conditions. - Nutrient cycling and recycling processes are occurring as evidenced by the presence of a litter layer, mycorrhizae and/or other microsymbionts.	No significant change. Monitoring and adaptive management undertaken in accordance with the approved RCP.

		• Representation of a range of species characteristic from each fauna assemblage (e.g. reptiles, birds, mammals) based on analogue rehabilitation monitoring reference sites. • Continue monitoring until self-sustaining levels are confirmed. • Undertake maintenance work as required – including soil treatment, erosion control, weed spraying and re-sowing.	
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6.8.7 Rehabilitation Monitoring and Maintenance

Adaptive Management

Rehabilitation and closure activities will be implemented using an adaptive management approach. Monitoring outcomes will inform refinement of rehabilitation techniques, timing and maintenance requirements to ensure rehabilitation objectives and completion criteria are achieved.

Rehabilitation Monitoring

Monitoring and maintenance associated with MOD 2 will be undertaken in accordance with the existing Development Consent (DA 265-10-2004) and the approved RCP.

MOD 2 does not result in any new or additional monitoring or maintenance requirements; however, the proposed Schedule of Works and Monitoring Program will be delivered in accordance with the extended quarry life from 03 June 2027 to 31 December 2034.

Post Quarry Maintenance

Post quarrying maintenance will be limited to routine inspection and minor corrective works such as weed management, erosion repair and maintenance of drainage features. These works will reduce over time as rehabilitated areas demonstrate stability and resilience.

6.8.8 Conclusion

The RCS concludes that proposed MOD 2 can be supported as it does not result in any additional or materially different rehabilitation or closure impacts beyond those previously assessed and approved.

The RCS makes the following conclusions:

- Proposed MOD 2 does not adversely alter the approved and established rehabilitation objectives, completion criteria, post-quarry land use or overarching rehabilitation principles.
- Proposed MOD 2 refines the approved landform configuration through consolidation of adjoining quarry landforms and removal of remnant dividing highwall features, improving long-term stability, drainage, safety and integration with surrounding landforms.
- No additional land disturbance is proposed as part of MOD 2 and no new rehabilitation domains or land uses are introduced.
- Rehabilitation outcomes remain focused on achieving a safe, stable and non-polluting landform rehabilitated to woodland vegetation, consistent with the existing RCP.
- No new rehabilitation success factors or monitoring obligations are introduced, with detailed implementation measures continuing to be addressed through the approved KHRQ RCP.

6.8.9 Mitigation and Management Measures

The established Rehabilitation and closure Plan (IEMA, ver 5A, 2025) be updated as necessary to accommodate the MOD 2 proposal.

6.9 Other Considerations

The purpose of this modification is to enable the extraction of previously sterilised andesite resource from the remnant dividing highwall in a coordinated approach with the KEQ.

The key considerations for this modification application have been confirmed in consultation with the NSW Planning and have been addressed in the preceding sections above.

It is considered that the proposal will have no impact nor will it be impacted upon by any of the following considerations:

- Ecology;
- Aboriginal Heritage;
- European Heritage;
- Bushfire; and
- Waste Management.

Assessment of the overall KHRQ in relation to the above items was undertaken as part of the KHRQ Development Consent, DA 265-10-2004. It is considered that the proposed modification will not affect or be affected by any of these considerations.

In terms of social and economic impact considerations, the proposal will have a positive impact noting that:

- MOD 2 will support the efficient long-term operation of the KHRQ and KEQ;
- The proposal will result in the efficient long-term delivery of a known quality andesite resource to the market. This will support local and regionally significant construction and infrastructure projects and promote continued growth;
- Improving operational efficiencies between KHRQ and KEQ will lead to positive flow on effects to the local and regional economies and will generate ongoing employment opportunities; and
- MOD 2 can be undertaken satisfactorily with regard to key environmental considerations and will result in a substantial visual impact improvement.

Section 7 Justification of Modified Project

7.0 Justification of Modified Project

7.1 Project Justification

The Karuah Pit Consolidation Project is considered to be strongly justified. The following is noted:

Continued Economic, Efficiency, Operational & Safety Benefits

- There is a proven, high quality andesite resource in the disturbed areas of the site, including the remnant highwall.
- The remnant highwall is situated across two well established quarry operations, both operated by the Applicant (and affiliated companies) and infrastructure is readily available to efficiently extract and process the resource.
- The proposal will ensure continued and uninterrupted employment for existing HQPL and KEQPL staff.
- Extraction of the remnant dividing highwall will result in significantly improved safety outcomes during operations of the KHRQ and KEQ.
- The remnant dividing highwall between the KEQ & the KHRQ was recognised at the time of the assessment of the KEQ application (it was a logical consideration that the KHRQ be extended to the east into Lot 12 and Lot 13). As was demonstrated in detail during the assessment process for the KEQ, the Applicant was unable to reach an agreement with the Lot 11 landowner at that time to extend the Lot 11 quarry pit into Lot 12 and Lot 13 (which now contains the KEQ pit). Now that the Applicant owns Lot 11, the highwall resource is no longer sterilised and this important project can progress.
- There is a proven market demand for the andesite resource available at the KEQ site. The Applicant has well established markets in the Greater Newcastle, the Hunter Valley and Mid-North Coast regions. The product that will be extracted from the site will contribute to servicing the construction industry in these markets.
- Since the time of approval of the KEQ, the customer and project base of the quarry has evolved, with the quarry now servicing a number of large public infrastructure projects. The evolving client base includes a range of government agencies/organisations including Transport for NSW, a number of local Councils, the Port of Newcastle, Ausgrid, Newcastle Airport and Tier 1 infrastructure providers. The product that will be extracted from the Karuah Pit Consolidation Project will contribute to servicing these important customers that deliver key infrastructure projects.
- In addition to the above, HQPL supply material to State Significant Infrastructure (SSI) projects including the Singleton Bypass, the Newcastle Inner City Bypass (SSI-6888), Pacific Highway widening at Hexham Straight, and the M1 Pacific Motorway Extension to Raymond Terrace (SSI-7319), which are critical to deliver improved connectivity of the Mid-North Coast (including the MidCoast LGA) to Sydney, Newcastle and the Hunter Valley.
- The proposal will result in the orderly and efficient use of the subject site, which is consistent with the objectives of the EP&A Act.

Visual Impact and Rehabilitation Improvements

- The proposal will involve removing the remnant dividing highwall between the KHRQ and the KEQ, resulting in a significant visual amenity improvement, particularly when viewed from the Pacific Highway, Halloran Road, Taren Road and Mill Hill Close.
- Extraction of the remnant dividing highwall will result in improved long-term landform and land use outcomes associated with rehabilitation and closure of both the KHRQ and KEQ sites.
- The proposal will result in improved long-term landform drainage (a free-draining landscape will be established) and reduced geotechnical risk with a long-term landscape that will achieve greater consistency with the surrounding landscape.

Environmental Management Benefits

- Key environmental considerations in the area are well understood and can be readily managed. HQPL is affiliated with KEQPL, who operate the established KEQ on Lot 12 and Lot 13. Noting the adjoining operations, HQPL and KEQPL can extract and process the resource within the CEA in an efficient manner whilst ensuring that coordinated operational and environmental management (as needed) can readily occur.

- The proposal does not seek to intensify quarry operations in terms of annual extraction limits, processing throughput, hours of operation or traffic generation. The KHRQ extraction limit will remain capped at 500,000 tpa.
- Additional resource can be extracted and processed without the need for any additional land disturbance at the KHRQ.
- The proposal seeks to contemporise environmental management arrangements, particularly for air quality, noise and community engagement activities.
- The subject site is well separated from any sensitive receivers or significant areas of urban development.
- The KHRQ has direct access available to the Pacific Highway interchange (via The Branch Lane interchange and Andersite Road). The haulage route to the Pacific Highway does not require heavy vehicles to pass any sensitive receivers (e.g. a property with a rural dwelling).
- The receiving environment is very well understood by HQPL. Environmental safeguards currently in place can be readily adjusted to accommodate the pit consolidation project (including the establishment of any cooperative protocols (as necessary) with the adjoining KEQ operation).
- The findings of the environmental assessments (refer to **Section 6.0**) undertaken confirm that the site is suitable to accommodate proposed modification.

7.2 Alternatives to the Proposed Modification

The need for the proposed development is a logical outcome noting that it will facilitate the extraction of a known high quality andesite resource located between two established quarry operations in an orderly and efficient manner. Due to previous land ownership constraints (which have recently been resolved) application to remove the remnant dividing highwall has not been possible until now.

7.2.1 Consolidated Pit Design and Process to Remove Highwall

To consider the project holistically, the Applicant undertook a detailed design review of the approved extraction and disturbance areas of the KHRQ and adjoining KEQ to determine the most practical and safe means of extracting the remnant dividing highwall and appropriate final extraction area landform. This is included a review of existing and approved pit geometry, topographical conditions and areas of existing disturbance.

It was determined that the most appropriate way to extract the dividing highwall is to establish an 'overlapping' extraction area of KHRQ and KEQ that holistically encompasses the entirety of the remnant highwall as well as a suitable safety buffer, with materials processing able to be undertaken at either existing quarry plant to capitalise on operational efficiencies.

It was identified that the most appropriate way to undertake the proposal (inclusive of highwall removal) in terms of practicality, efficiency and safety considerations is through a coordinated and incremental staged extraction sequence as follows:

- Stage 1: Extract the current top benches of the remnant highwall (RL135m) down to RL90m (currently lowest KEQ bench at the time of writing (April 2026)), forming a single extraction level/area on Lot 12. This approach is needed to safely remove the peak of the dividing highwall and make the extraction area level with the current KEQ extraction area.
- Stage 2: Extract Lot 12 from RL90m (currently lowest KEQ bench at the time of writing (April 2026)), down to RL65 m in line with KHRQ pit floor and KEQ boot-bin levels, forming a single extraction level/area over the entire Consolidated Extraction Area.
- Stage 3: Extract final benches at KEQ (Lots 12 & 13) from RL65m down to RL45m. The KHRQ pit floor is to remain at RL65m.

Relevant to the KHRQ, it was also a logical outcome to rationalise the shape of the KHRQ extraction area (within already approved disturbed areas of the KHRQ) to assist with the development of a geotechnically stable landform and maximise extraction of known residual resource within the disturbance footprint of the established quarry.

The KHRQ is not proposed to be extended to the south given the proposed KSQ (SSD-8795), which will only be commenced (subject to NSW Planning approval) following completion of the pit consolidation project.

7.2.2 Extraction Area Depth

It was considered appropriate to retain the currently approved extraction area final floor levels of RL65m at KHRQ and RL45m at KEQ to enable a 'free draining' final landform to be established as part of the long-term rehabilitation outcome for the site.

7.2.3 Operational Coordination

Consideration was given to the current approved operational parameters of the KHRQ and adjoining KEQ. It was considered that non-aligned operational hours, blasting parameters and life of quarry timeframes would result in operational inefficiencies. Accordingly, it is proposed to adjust the KHRQ operating hours and life of quarry timeframes to align with the currently consented KEQ limits and align blasting hours and frequencies between both sites (cumulative reduction to two (2) blasts per week combined between both quarries between 9am-5pm weekdays).

To practically and efficiently complete highwall removal, the ability to process material extracted from the highwall at either the KHRQ or KEQ is considered essential.

7.2.4 'Do Nothing' Option

The 'do nothing' option will result in the remnant dividing highwall remaining in place long term and all the identified benefits of the project will be lost. These include visual amenity, safety, long term rehabilitation improvements, as well as the loss of supply of a proven high-quality resource to the market that can be extracted in a highly efficient manner noting that two established quarry operations (operated by affiliated companies) are located either side of the remnant highwall. The opportunity to maintain local employment and contribute to the growth of the local and regional economies will be lost.

To secure the known amount of andesite resource as identified within the proposal, additional land disturbance would be required elsewhere (either within the Karuah Quarry Complex or elsewhere). The proposal can be delivered at KHRQ without any additional land disturbance. This opportunity would be lost if the 'do nothing' option was to occur.

The 'do nothing' option will result in a medium-term postponement to the completion of rehabilitation at the KHRQ in accordance with the current KHRQ Rehabilitation and Closure Plan (RCP) which has in part progressed including the side casting of topsoil material across the northern and eastern highwalls. In accordance with the RCP, rehabilitation would be completed between June 2027 to 2030 and this would include the establishment of a large flooded void within the former extraction area and revegetation activities. It is considered that postponing rehabilitation activities in the medium term at KHRQ to accommodate the removal of the highwall is outweighed by a significantly improved long term rehabilitation outcome that includes the establishment of a free draining landscape that is revegetated with native vegetation to achieve greater consistency with the surrounding woodland environment.

The 'do nothing' outcome is considered to be inconsistent with the objectives of the EP&A Act, which seeks to facilitate orderly and efficient development of land.

Section 8 Conclusion



8.0 Conclusion

This modification application (MOD 2) is made under Section 4.55(2) of the *Environmental Planning and Assessment Act 1979* and seeks to modify State Significant Development Consent DA 265-10-2004 for the Karuah Hard Rock Quarry.

The proposal will facilitate the extraction of the previously sterilised andesite resource from the remnant dividing highwall as well as within other disturbed areas from the KHRQ site in a coordinated approach with the adjoining KEQ.

Approved annual extraction rates, processing activity, and transport rates of 500,000 tonnes per annum will not be affected by the proposed modification.

MOD 2 has been lodged concurrently with a reciprocal Section 4.55(2) modification to the separate KEQ Project Approval (MP09_0175) to facilitate the pit consolidation project holistically.

The proposal will generate a range of beneficial outcomes including the extraction of a previously sterilised remnant dividing highwall between two (2) established quarries and delivery to market to support the ongoing growth of the local and regional construction industry and key infrastructure projects. The proposal will result in significantly improved visual amenity (particularly when viewed from the Pacific Highway), improved operational and post closure geotechnical safety and will facilitate an improved final landform (with a free draining landscape) that is consistent with the surrounding landscape. The proposal will also ensure continued and uninterrupted employment for existing HQPL staff.

Consultation has occurred with NSW Planning, the NSW EPA, Water Group within NSW DCCEE, Transport for NSW, MidCoast Council and the Joint Karuah Quarry Complex CCC for both KHRQ and KEQ sites.

This Modification Report has demonstrated that the proposal can be readily undertaken with regard to all key environmental considerations.

Overall, it is considered that the proposed amendment to State Significant Development Consent DA 265-10-2004 is a suitable development that can be supported.

Appendix A

Updated Project Description



Appendix B

Updated Summary of Mitigation Measures



Appendix C

Statutory Compliance Table



Appendix D

NSW Planning Requirements Table



Appendix E

Proposed Development Plans



Appendix F

Noise Impact Assessment



Appendix G

Blast Impact Assessment



Appendix H

Air Quality Impact Assessment



Appendix I1

Traffic & Transport Impact Statement



Appendix I2

TTIS Peer Review & Response to
TfNSW Correspondence dated 11
March 2026

Appendix J

Surface Water Assessment



Appendix K

Groundwater Assessment



Appendix L

Visual Impact Assessment



Appendix M

Rehabilitation & Closure Strategy



Appendix N

Agency Consultation
Correspondence

Appendix O

Community Consultative
Committee – Extraordinary
Meeting Minutes 03 November
2025

Hunter

7/335 Hillsborough Road
Warners Bay NSW 2282
(02) 4978 5100

Central Coast

5 Pioneer Avenue
Tuggerah NSW 2259
(02) 4305 4300

Sydney

Suite 11.02, Level 11
309 George Street
Sydney NSW 2000
(02) 8787 4499

www.adwjohnson.com.au