

**Albion Park Quarry
Stages 5 and 6 Modification
(LEC Consent No. 10639 of 2005 MOD 3)**

**Environmental Assessment Report
Section 75W of the *Environmental Planning and Assessment Act 1979***

1. BACKGROUND

Cleary Bros (Bombo) Pty Ltd (Cleary Bros) owns and operates a hard rock quarry and processing plant near Albion Park, approximately 20 kilometres (km) southwest of Wollongong in the Shellharbour local government area (see **Figure 1**). Cleary Bros has operated the quarry for over 40 years.



Figure 1: Regional Context

The surrounding area contains a mix of agricultural activities, extractive industries and rural/residential land uses (see **Figure 2**). Land to the south and west is owned by Holcim Australia Pty Ltd and is subject to separate quarrying activities. The Belmont Homestead and farmland is located to the east of the extraction pit, and is owned by Cleary Bros. The Fig Tree Hill dairy farm (Fig Tree Hill) is located to the north and north-east of the pit. This farm includes two historic residences, 'The Hill' and 'The Cottage' (see **Figure 2**). Development consent has been granted for a third dwelling at Fig Tree Hill, however construction has not yet commenced (see **Figure 2**).

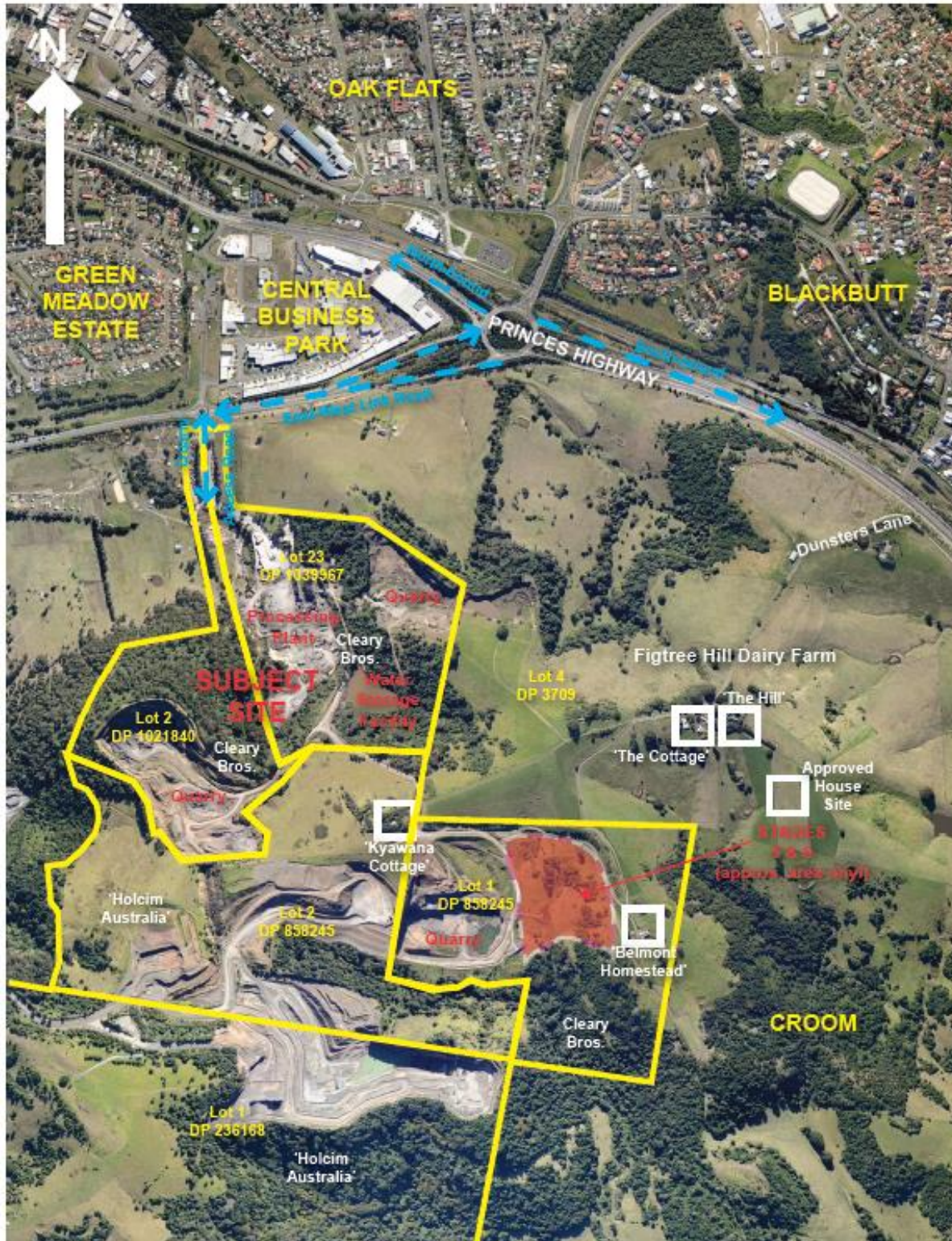


Figure 2: Albion Park Quarry Layout

In May 2005, the then Minister for Infrastructure and Planning granted consent for an extension of the existing quarry under DA 466-11-2003. This led to an appeal in the NSW Land and Environment Court, which was subsequently dismissed. In dismissing the appeal, the Court granted consent subject to a revised set of conditions (LEC Consent No. 10639 of 2005). The development consent has since been modified on two separate occasions to increase production at the quarry. The most recent modification (Modification 2) increased the maximum production rate to 900,000 tonnes per annum (tpa).

The original proposal for DA 466-11-2003 involved six stages of extraction (see **Figure 3**), with Stages 5 and 6 located nearest to the Fig Tree Hill residences. In its original Assessment Report, the Department stated:

"The EIS notes that 'The Hill' residence (ie. the closest sensitive receiver), is within 500m during Stage 5 of the quarry operation (ie. years 21 to 25). Although the Department is satisfied the Applicant has demonstrated that the development would be able to comply with relevant air quality criteria during this stage, the Department has recommended a staged development consent to the quarry extension DA as a precautionary measure given the proximity of the site to 'The Hill'. The staged development consent will require the Applicant to seek the Minister's approval prior to the extraction of Stages 5 and 6. Any such approval would be contingent on the Applicant demonstrating on-going environmental compliance through these stages, based on its performance during Stages 1 to 4."

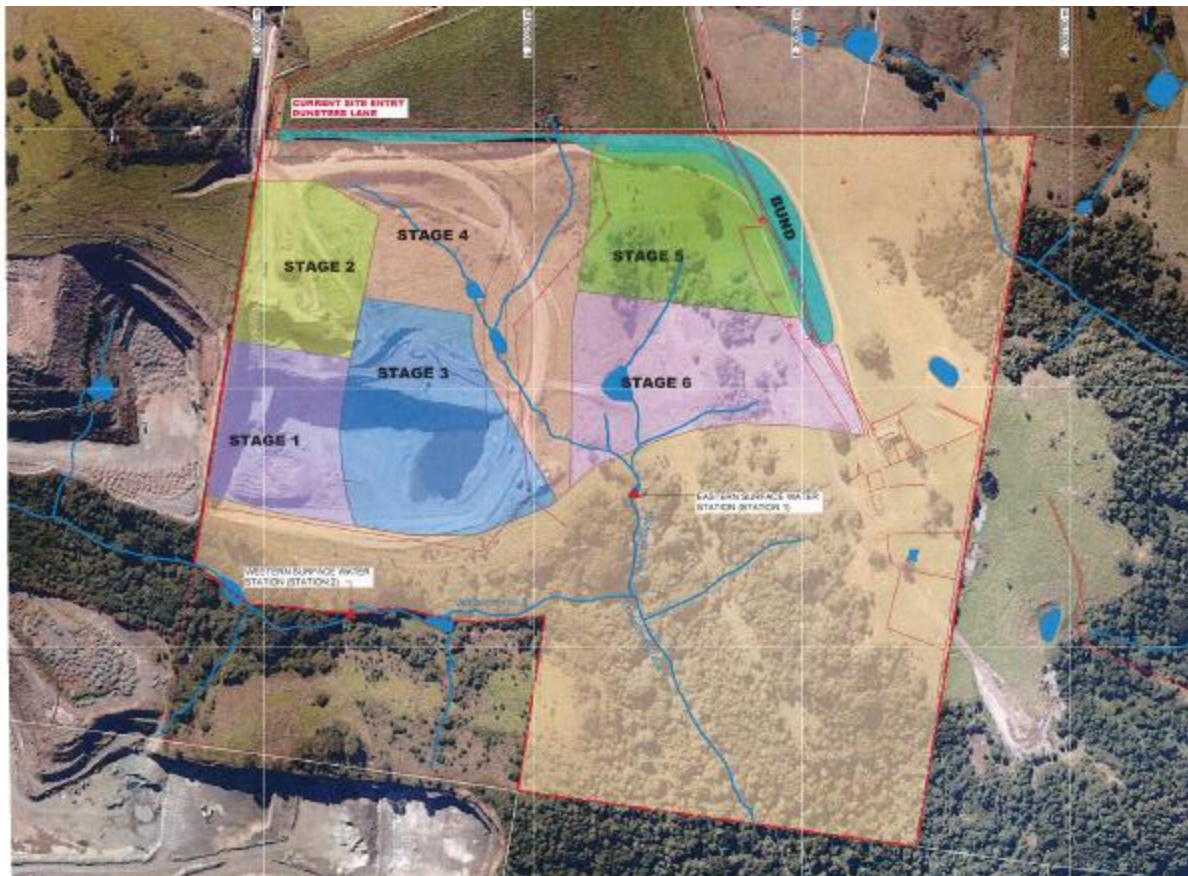


Figure 3: Staging Plan

The Court also adopted this conservative approach under its consent. Condition 6 of Schedule 3 provides:

Under section 80(5) of the Act, Stages 5 and 6 must be the subject of another development consent.

A consent granted in accordance with condition 6 does not require a further development application under section 78A of the Act. However, in seeking consent for Stages 5 and 6, the Applicant shall submit a report to the Minister that has been prepared in consultation with the CCC, the landowner(s) of The Fig Tree Hill Land, and relevant government authorities. The report shall be consistent with the original development application (DA 466-11-2003) and shall include:

- a) details of the proposed quarrying operations for Stages 5 and 6;
- b) results of consultation conducted during preparation of the report;

- c) assessment of the environmental, social, agricultural and economic impacts of Stages 5 and 6, based on the environmental performance of Stages 1 to 4 and consultation referred to in subclause (b) above;
- d) assessment of the consistency of Stages 5 and 6 with relevant environmental planning instruments and strategies; and
- e) justification for the extraction of Stages 5 and 6.

2. PROPOSED MODIFICATION

The proposed modification seeks approval for the extraction of Stages 5 and 6. The application is supported by an Environmental Assessment (EA, see **Appendix A**) which seeks to fulfil the requirements of the Court, as expressed through condition 6 of Schedule 3. In effect, the requirements of the Court are being fulfilled through this modification process.

Should extraction of Stages 5 and 6 be approved, the modification seeks to delete condition 6 of Schedule 3 (which would have fulfilled its only function) and also seeks minor amendments to:

- condition 5 of Schedule 3, which states that consent is only granted for Stages 1 to 4; and
- conditions 29 to 31 of Schedule 4, which relate to the preparation of the site's Water Management Plan (WMP), to require provision of an updated WMP within 3 months of receiving approval to commence Stages 5 and 6.

All other aspects of the existing development and consent would remain unchanged.

Cleary Bros submits that the modification is necessary to meet increased demand for quarry products in the Illawarra and Greater Sydney areas. Based on current production rates, it is estimated that Stages 1 to 4 will be exhausted by 2020. The proposed extraction of Stages 5 and 6 would yield an additional 6 million tonnes of hard rock product for nearby markets.

3. STATUTORY CONTEXT

3.1 Section 80

The approval instrument issued by the Court was a staged development consent. It granted partial consent for the quarry, under section 80(4) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Section 80(4)(b) provides that consent may be granted for a development, whilst excluding a specified part of that development. In this case, consent was granted for Stages 1 to 4, and Stages 5 and 6 were expressly excluded by conditions 5 and 6 of Schedule 3. However, this exclusion did not actually refuse consent for that part of the development. Under section 80(5), consent may be subsequently granted for the excluded component of the development.

The proposed modification would transform the existing instrument from a 'partial' consent to a 'total' consent, and permit the extraction of all six stages.

3.2 Section 75W

The development consent was granted under Part 4 of the EP&A Act. In accordance with clause 8J(8)(d) of the *Environmental Planning and Assessment Regulation 2000*, and the transitional arrangements under Schedule 6A of the EP&A Act, the modification must be determined under the former section 75W of the EP&A Act.

Unlike section 96, section 75W does not require the modified development to be 'substantially the same' as the approved development. It is noted, however that the modified proposal:

- is essentially the same as that proposed in the original EIS; and
- has 'limited environmental consequences beyond those which had been the subject of assessment' (see *Barrick Australia Ltd v Williams* (2009)).

The Department has also considered the underlying intention of conditions 5 and 6 of Schedule 3. The language of condition 6 clearly indicates that the future extraction of Stages 5 and 6 was contemplated at the time consent was granted, provided that Cleary Bros demonstrated satisfactory environmental performance throughout Stages 1 to 4. The condition also makes clear that proceeding with Stages 5 and 6 would not require a separate development application.

The Department considers that a modification application is the appropriate mechanism to permit the extraction of Stages 5 and 6. The Department is satisfied that the proposed modification is within the scope of section 75W, and may be determined accordingly.

3.3 Approval Authority

The Minister for Planning is the approval authority for the proposed modification. However, under the Minister's delegation of 16 February 2015, the Executive Director Resource Assessments & Compliance can determine the application as:

- Shellharbour City Council does not object to the proposed modification;
- there were less than 25 public submissions in the nature of objections; and
- there are no reportable political donations.

3.4 Environmental Planning Instruments

A number of environmental planning instruments apply to the modification, including:

- *State Environmental Planning Policy (SEPP) (Mining, Petroleum Production and Extractive Industries) 2007*;
- *SEPP (Infrastructure) 2007*;
- *SEPP (State and Regional Development) 2011*;
- *SEPP No 33 – Hazardous and Offensive Development*;
- *Shellharbour Rural Local Environmental Plan 2004*; and
- *Shellharbour Local Environmental Plan 2013*.

The Department has assessed the proposed modification against the relevant provisions of these instruments. The Department is satisfied that the proposed modification can be carried out in a manner that is consistent with the aims, objectives and provisions of these instruments.

4. CONSULTATION

After accepting the modification application and accompanying EA, the Department:

- publicly exhibited the EA from 13 September to 12 October 2016 on the Department's website and at:
 - the Department's Information Centre;
 - Shellharbour City Council's Administration Centre; and
 - the Nature Conservation Council's office;
- advertised exhibition of the EA in *The Advertiser Wollongong* and the *Illawarra Mercury*;
- notified affected landowners, including the owners of Fig Tree Hill; and
- notified relevant State Government authorities and Shellharbour City Council.

4.1 Agency Submissions

The Department received five submissions from government agencies. None of these agencies raised objections towards the modification.

The **Environment Protection Authority (EPA)** did not object to the proposed modification. However, the EPA did recommend changes to existing conditions regarding air quality and noise monitoring, and the site's Water Management Plan. These matters are addressed in **Sections 5.1, 5.2 and 5.4** of this report, respectively.

The **Department of Primary Industries (DPI)** did not object to the proposed modification. However, in its initial submission, DPI raised some historical issues regarding water licensing arrangements at the site, and recommended a review of the quarry's Integrated Water Management Strategy, in consultation with DPI. In a supplementary submission following the Response to Submissions (RTS), DPI also requested additional information regarding historical groundwater inflows and proposed methods of groundwater disposal. These matters are discussed in **Section 5.4** below.

The **Division of Resources & Geoscience (DRG)** of the Department expressed its support for the proposed modification, noting that the site's latite resource represents a regionally significant source of hard rock aggregate for the Illawarra and Greater Sydney markets.

The **Office of Environment and Heritage (OEH)** did not object to the proposed modification. However, in supplementary comments following the RTS, OEH raised concerns regarding potential impacts on Aboriginal cultural heritage. In response to these concerns, Cleary Bros provided a more detailed desktop Aboriginal heritage assessment. This issue is discussed in **Section 5.5** of this report.

Shellharbour City Council did not raise any objections to the proposed modification, and did not recommend any changes to existing conditions.

4.2 Public Submissions

The Department received two public submissions objecting to the proposed modification.

The first submission raised concerns regarding the adequacy of the EA, as well as potential noise and blasting impacts on Fig Tree Hill. In particular, the submission raised concerns that the potential impacts on the future dwelling site had not been adequately assessed. Concerns were also raised with respect to the management of flyrock and the structural impacts of blasting on nearby buildings. These issues are addressed in **Sections 5.3** and **5.5** below.

The second submission raised concerns regarding the gradual intensification of the development. The submission noted that the production rate at the quarry has been modified on two separate occasions, increasing from 400,000 tpa to 900,000 tpa. The Department notes that the previous two modifications did not increase the extraction footprint. Rather, these modifications simply allowed the resource to be extracted more rapidly in response to market demands. The proposed extraction footprint (incorporating Stages 5 and 6) is the same as that originally proposed under DA 466-11-2003. As such, the Department considers that the modified proposal is generally consistent with the original development.

The second submission also raised concerns regarding the impacts of extraction on environmentally sensitive areas and watercourses. The impacts of the proposed modification on water resources and terrestrial biodiversity and are discussed in **Sections 5.4** and **5.5** of this report, respectively.

The submission also raised concerns regarding potential impacts of blasting activities, including impacts on cattle and nearby heritage items. These issues are discussed in **Sections 5.3** and **5.5** of this report.

Finally, the submission also raised concerns regarding potential conflicts of interest. However, as these claims have not been substantiated, and are not directly relevant to the proposed modification, they have not been further considered in the Department's assessment.

As the author of the second submission did not wish it to be published, the submission was not published on the Department's website. However, a summary of the key issues was provided to Cleary Bros for consideration. Copies of all other submissions can be found in **Appendix B**. A copy of Cleary Bros' RTS can be found in **Appendix C**.

5. ASSESSMENT

In assessing the merits of the proposed modification, the Department has considered the:

- Environmental Impact Statement (EIS) for the original development application;
- conditions of consent for the development as originally approved;
- modification application, EA, submissions and RTS; and
- relevant environmental planning instruments, policies and guidelines.

The Department considers that the key assessment issues relate to air quality, noise, blasting and water resources. The findings of the Department's assessment are summarised below.

5.1 Air Quality

The EA included an Air Quality Assessment (AQA) which was subsequently revised as part of Cleary Bros' RTS. As the modification application was lodged prior to 20 January 2017, the AQA was prepared in accordance with the EPA's *Approved Methods for the Modelling and Assessment of Air Pollutants* (2005).

The AQA identified six sensitive receivers in close proximity to the extension area, including 'The Cottage' and 'The Hill' (see **Table 1** and **Figure 4**).

Condition 15 of Schedule 4 of the development consent specifies air quality criteria for all sensitive receivers in proximity to the quarry (see **Table 2**). Ongoing monitoring data indicates that particulate emissions from the quarry have generally remained well within the limits specified in **Table 2**.

Table 1: Identification of Sensitive Receivers

Receiver	Receiver Name	Distance (m) / Direction from Site Boundary	Elevation (m AHD)
R1	The Cottage	330 / NE	140
R2	The Hill	440 / NE	140
R3	Approved Property	520 / ENE	110
R4	St Ives Farm	1020 / E	60
R5	Deer Farm	970 / E	70
R6	Kurrawong	1180 / SE	50

Table 2: Existing Air Quality Criteria

Pollutant	Averaging Period	Criterion	
Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m ³	
Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m ³	
Total suspended particulates (TSP)	Annual	90 µg/m ³	
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

The AQA utilised atmospheric dispersion modelling, incorporating local meteorological data and previous monitoring data from the quarry. The AQA modelled the likely impacts of the extraction of Stages 5 and 6, based on a worst-case scenario, with blasting and scraping and grading of the haul road all occurring within the same 24-hour period.

The AQA concluded that the extraction of Stages 5 and 6 would easily comply with existing air quality criteria at all identified receivers. The AQA also included an assessment of projected PM_{2.5} concentrations. There are currently no impact assessment criteria for PM_{2.5} specified under the consent. The AQA concluded that PM_{2.5} concentrations for Stages 5 and 6 would remain well within the EPA's new criteria, specified in the *Approved Methods for Modelling and Assessment of Air Pollutants in NSW* (2016) in January 2017.

In its submission, the EPA supported the findings of the AQA, and noted that the extraction of Stages 5 and 6 is unlikely to result in any deterioration of the quarry's environmental performance. However, the EPA did recommend the inclusion of real-time particulate monitoring as part of a revised Air Quality Management Plan (AQMP) for the site.

In its RTS, Cleary Bros agreed to the implementation of real-time monitoring, and proposed a series of changes to existing operational conditions, including the deletion of all existing air quality criteria, and replacement with a series of trigger levels to be specified under the AQMP. This proposal was supported by the EPA, on the basis that real-time air quality monitoring equipment does not accurately measure compliance with the EPA's air quality criteria (see **Table 2**).

While the Department supports the use of real-time monitoring at the site, it considers that the existing criteria in **Table 2** should generally be retained, with the exception of the criteria for deposited dust. These latter criteria do not generally provide useful data to manage off-site emissions at nearby residences. The EPA does not object to the deletion of the deposited dust criteria.

Rather than deleting the other air quality criteria, the Department considers that existing conditions should be amended to require supplementary risk-based monitoring against the specified criteria. The Department considers that a revised AQMP should be prepared for the site, which outlines protocols for both real-time air quality monitoring and risk-based compliance monitoring.

The Department considers that dust impacts can be suitably managed through the proposed amended air quality conditions and the site's AQMP.



Figure 4: Location of Sensitive Receivers

The Department is satisfied that the air quality impacts of the proposed quarry extension would be minimal, and that the modified project would be able to operate in compliance with all modern air quality criteria. The Department is satisfied that air quality impacts would be suitably managed by the modified conditions of consent (see **Appendices D and E**).

5.2 Noise

The EA included a Noise and Blasting Assessment (NBA) which was subsequently revised as part of the RTS. These documents are included in **Appendices A and C**, respectively.

There are four key receivers in the area surrounding the quarry. Three of these receivers ('The Hill', 'The Cottage' and the approved rural worker's dwelling) are located within the Fig Tree Hill property to the north-east. The fourth receiver is the Greenmeadows Residential Estate, which is located approximately 1.6 km north-west of the quarry. Condition 4 of Schedule 4 imposes noise criteria for each of the four receivers over the quarry extraction stages, including Stages 5 and 6 (see **Table 3**)

Following the commencement of Stage 1, a 3 metre (m) high vegetated bund was constructed along the north-eastern boundary of the extension area to provide visual and acoustic protection for the key receivers (see **Figure 3**). Since the commencement of Stage 1, noise monitoring has been conducted at three of the four receiver locations ('The Hill', 'The Cottage' and Greenmeadows Estate). This monitoring data indicates that noise levels generated at the quarry have remained within the limits specified in **Table 3**.

Table 3: Existing Noise Criteria

Receiver Locations	Noise Limits dB(A) L_{Aeq} (15minute)		
	Stages 1-2	Stages 3-4	Stages 5-6
'The Hill' residence	35	38	35
'The Cottage' residence	35	38	35
Approved rural workers dwelling	35	38	35
Greenmeadows Residential Estate	41	41	41

The revised NBA reviewed the noise modelling for Stages 5 and 6 in the original EIS, incorporated subsequent noise monitoring data and reflected some minor variations in the proposed equipment fleet. The revised NBA indicates that operational noise levels during Stages 5 and 6 would be lower than predicted in the EIS. The revised assessment indicates that the quarry's actual noise contribution at the nearest receiver ('The Cottage') would be between 28 and 34 dB(A) L_{Aeq} (15min). The predicted noise level contribution at 'The Hill' would be between 27 and 33 dB(A) L_{Aeq} (15min). On this basis, it concluded that operational noise levels during Stages 5 and 6 would comply with the existing criteria (see **Table 3**).

In its submission, Fig Tree Hill raised concerns that potential noise impacts on the future dwelling were not specifically assessed. However, the NBA assessed noise impacts at the two closest receivers. Since noise levels are predicted to comply with existing criteria at these receivers, the Department is satisfied that noise levels at the approved dwelling site, which is further away, would also comply.

The EPA raised no objections regarding the findings of the NBA. In its initial submission, EPA recommended some minor changes to existing conditions regarding measurement of noise levels (see **Appendix B**). However, following consideration of supplementary information in the RTS, the EPA agreed that these changes were unnecessary.

The Department is satisfied that noise impacts associated with Stages 5 and 6 would be minimal, and that the modified project would be able to operate in compliance with all existing noise criteria.

5.3 Blasting

The potential impacts of blasting activities were assessed as part of the NBA. At present, Cleary Bros conducts up to 26 blasts per year, with no more than one blast permitted per day. The key receivers for blasting impacts are the three dwellings on the Fig Tree Hill property. Conditions 10 and 11 of Schedule 4 specify blasting criteria for the quarry (see **Tables 4** and **5** below).

Table 4: Airblast Overpressure Limits

Airblast overpressure level [dB(Lin Peak)]	Allowable exceedance
115	5% of the total number of blasts over any 12 month reporting period
120	0%

Table 5: Ground Vibration Limits

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

Detailed information for each blast recorded since July 2009 has been included in the NBA. This data indicates that all recorded blasts were within the vibration and overpressure limits in **Tables 4** and **5**. The Department notes that a number of complaints have been recorded with respect to blasting at the quarry. The site's previous Annual Reviews indicate that between 2014 and 2016, seven complaints

were recorded. On each occasion the complaint was investigated, and it was determined that the blasting criteria had not been exceeded.

While the proposed modification would not increase the frequency of blasting, it would involve blasting closer to the receivers on Fig Tree Hill.

In response to the concerns raised in submissions, Cleary Bros advised that a 20 m buffer would be established along the Fig Tree Hill property boundary. No blasting would occur within this buffer and extraction operations within this area would be restricted to mechanical rock fracturing methods. A secondary buffer would be established for blasts located between 20 m and 50 m of the boundary. Within this area, the maximum instantaneous charge would be progressively reduced as blasting operations move closer to the boundary.

Each blast would be designed to comply with the existing standard blasting criteria at all three Fig Tree Hill receivers. This would involve the use of deck charging methods, in which explosive materials within a blast hole are separated by inert materials. Where blasting could not comply with the specified criteria, mechanical methods would be employed. The NBA concluded that, by employing these methods, blasting activities in Stages 5 and 6 would continue to comply with the existing criteria.

The existing conditions of consent require Cleary Bros to prepare a Blast Management Plan (BMP) for each extraction stage, in consultation with the owners of Fig Tree Hill, and to conduct ongoing compliance monitoring. The NBA also outlined a range of additional management and mitigation measures for Stages 5 and 6. This includes preparation of a Blasting Plan for each blast event, to ensure compliance with the blasting criteria. Fig Tree Hill would be notified prior to each blast. Cleary Bros would also liaise with the nearby Holcim quarry in order to minimise the cumulative impact of blasting operations in the area.

Blasts would also be designed to prevent flyrock leaving the site. The RTS indicates that, through the implementation of suitable controls, including adjustments to the stemming length and selection of appropriate stemming material, flyrock can be contained to within 10 m of the blast.

Nevertheless, the Department considers that there is further scope to strengthen the existing blast management conditions, and provide additional protection for receivers at Fig Tree Hill.

Condition 51 of Schedule 4 requires Cleary Bros to conduct baseline surveys of all Fig Tree Hill residences as part of its Heritage Management Plan. In its submission, Fig Tree Hill requested that this condition be revised to include all other buildings associated with the farm. Cleary Bros advised that it has previously been unable to negotiate access to undertake the required surveys. While the company has agreed to undertake the additional surveys as requested, it suggested that condition 51 be amended to state that the carrying out of surveys is subject to "reasonable access being granted".

The Department supports the inclusion of non-residential structures in the survey process, and the proposed clarification regarding the provision of reasonable access. The Department recommends that condition 51 be amended accordingly.

Although all previous blasts have complied with blasting criteria, on some occasions the blasting contractor has implemented additional safety protocols. On two previous occasions, the contractor established exclusion zones within Fig Tree Hill land, requiring relocation of workers and livestock to a distance of 400 m. In its submission, Fig Tree Hill raised concerns about the need for such exclusion zones during Stages 5 and 6, and requested that suitable compensation be provided. In response, Cleary Bros' blasting contractor advised that, based on previous blast performance and proposed flyrock mitigation measures, no evacuation of Fig Tree Hill personnel or livestock would be required during Stages 5 and 6.

Nevertheless, the Department considers that Cleary Bros' obligations in this regard should be clarified. Conditions 13 and 14 of Schedule 4 require Cleary Bros to 'avoid and/or minimise any blasting impacts on Fig Tree Hill land, or the continued rural use of that land', and to include suitable measures in its BMP to 'mitigate, remediate or compensate' for any such impacts. It is recommended that these conditions be amended to provide that flyrock impacts must be avoided, while other blasting-related impacts, such as dust and fume emissions and potential structural damage, are to be minimised in accordance with best practice. The modified conditions would require Cleary Bros to include suitable

measures in its BMP to avoid flyrock impacts on Fig Tree Hill, to minimise dust and fume emissions, and to minimise, mitigate, remediate or compensate for any other blasting-related impacts.

The modified conditions would require Cleary Bros to keep all flyrock impacts within its site, without the need for exclusion zones on Fig Tree Hill Land. In the event that a particular blast cannot be suitably designed so as to contain the impacts within the quarry's property boundaries, mechanical rock fracturing methods would need to be employed. The Department considers that this would clarify Cleary Bros' obligations, and provide increased certainty for the owners of Fig Tree Hill.

Subject to this proposed change, the Department is satisfied that the blasting impacts of the proposed modification would suitably managed under the existing conditions of consent.

5.4 Water Resources

5.4.1 Surface Water

During Stages 5 and 6, surface water from disturbed areas would be directed to the main sedimentation basin, located in the floor of the Stage 1 extraction area. The contents of the sedimentation basin would, after settling, be pumped to a nearby creek and discharged in accordance with the site's existing Environmental Protection Licence (EPL).

Water for dust suppression and landscaping irrigation would be sourced from an existing dam located to the north-west of Stages 5 and 6. In its submission, DPI raised concerns that this dam exceeds the site's harvestable right capacity. While this issue is not directly relevant to the proposed modification, Cleary Bros has since advised that the effective capacity of the dam has since been reduced to 18 megalitres, which is within the allowable limit for the site.

DPI also recommended that the site's Integrated Water Management Strategy (IWMS) is reviewed in consultation with DPI Water. However, condition 27 of Schedule 4 only requires preparation of an IWMS if the site water balance indicates potential demand for water above that which can be collected from rainfall. As it is expected that on-site demands for Stages 5 and 6 would be met by collected surface water, an IWMS is not expected to be required. Further, the Department notes that the overall site WMP would be updated following Modification 3, and thence reviewed on an annual basis. This update and ongoing review would occur in consultation with DPI Water.

The EPA's initial submission raised concerns that potential pollutant discharges during Stages 5 and 6 were not fully assessed in the EA. The EPA recommended that Cleary Bros undertake a full review of expected discharges as part of its revised WMP. The submission also suggested that existing conditions should be amended to require detailed consideration of the NSW Water Quality Objectives (WQO), as part of the revised WMP. In response, Cleary Bros noted that the downstream impacts of discharges from the development were fully assessed in the original EIS, and that a review of the existing WMP was conducted in 2013. This review concluded that previous pollutant discharges from the site had complied with relevant guidelines. Cleary Bros also noted that the WQO have already been incorporated into the site's current WMP. The EPA has accepted this response, and the Department considers that no changes to existing conditions are required in this regard.

The EPA also recommended that Cleary Bros investigate possible treatment measures to mitigate the impacts of surface water discharges, such as vegetated swales. The Department supports this recommendation, and considers that the existing WMP condition should be amended accordingly.

The Department is satisfied that the surface water impacts of the proposed modification would be minimal, and would be suitably managed under the proposed modified conditions of consent.

5.4.2 Groundwater

The local groundwater profile consists of a shallow, perched aquifer within the soil, and a deep regional aquifer within the volcanic bedrock. The latite bedrock has low horizontal permeability, except in fractured zones. Consequently, the EA indicates that there has been minimal groundwater interception at the quarry to date.

In its submission, DPI requested further information regarding historic inflows to the quarry pit, and proposed methods of disposal of groundwater. DPI also advised that additional licensing may be required for any groundwater interception resulting from the extraction of Stages 5 and 6.

No detailed data has been collected by Cleary Bros regarding annual volumes of seepage into the pit. Currently, any groundwater seepage is collected in a sump, together with surface water runoff, at the base of the quarry pit. The collected water is then pumped to the nearby creek for discharge. The site's Environmental Management Plan provides that, where groundwater monitoring indicates a decline in groundwater levels as a result of quarrying activities, the collected water is to be re-injected into the aquifer via an infiltration trench. However, given the minimal groundwater interception that has occurred to date, all pit water has been removed via pumping to the creek.

The Department considers that DPI's concerns can be addressed by an additional condition of consent. This condition would require that in the event that an aquifer containing groundwater is intercepted, Cleary Bros must undertake a hydrogeological investigation with respect to groundwater sources, levels, yield and quality. This report would also identify any risks to groundwater users and groundwater dependent ecosystems, and outline proposed management measures. DPI has agreed to this approach.

The Department has also taken the opportunity to further refine the conditions of consent, by including additional requirements with respect to groundwater management and monitoring. This includes a requirement to monitor groundwater inflows into pit and to require consultation with DPI prior to the re-injection of groundwater.

Subject to these changes, the Department is satisfied that groundwater impacts associated with Stages 5 and 6 would be minimal and would be suitably managed under the modified conditions of consent.

5.5 Other Impacts

Other issues associated with the modification include potential impacts on agriculture, visual amenity, biodiversity, and Aboriginal and European heritage. **Table 6** summarises the Department's assessment of these impacts, including recommended changes to existing conditions.

Table 6: Other Impacts

Issue	Impact and Consideration	Recommendation
<i>Agriculture</i>	- The original EIS included an assessment of the quarry's impacts on the adjacent Fig Tree Hill dairy farm. The key issues identified were potential impacts of blasting on cattle, dust fallout, loss of grazing land, and potential landslips and erosion. This report concluded that the impacts of the quarry were unlikely to compromise the ongoing viability of the farm. - A 2006 report by Heggies Australia found that vibration levels of 200 mm/s had no adverse effects on cattle health. This is significantly higher than the maximum ground vibration level permitted under the consent. - The submissions do not provide any evidence of declining cattle health or pasture productivity following extraction of Stages 1 to 4.	- The Department considers that any impacts on agricultural operations in the locality would be minimal. - The Department considers that any such impacts would be suitably managed under the proposed modified conditions for blasting, air quality and soil and water management.
<i>Visual Amenity</i>	- Potential visual impacts to the east, south and west are limited as affected properties are quarry-owned. - Views from the north and north-east have been screened by the existing earth bund (see Figure 3).	- Existing conditions require Cleary Bros to maintain the bund, and minimise the visual impacts of the development to the satisfaction of the Secretary. This could include, for example, additional screening of the approved dwelling at Fig Tree Hill, if it is built. - The Department is satisfied that the visual impacts of the proposed modification would be minimal and suitably managed under existing conditions.
<i>Biodiversity</i>	Selected areas of the site are identified as 'Environmentally Sensitive Land' (ESL) under the <i>Shellharbour Local Environmental Plan 2013</i>.	The Department is satisfied that the proposal's biodiversity impacts would be minimal and

Issue	Impact and Consideration	Recommendation
	However, the Stage 5 and 6 extraction area is not identified as ESL. - The original EIS included a detailed flora and fauna assessment undertaken by Kevin Mills & Associates. - Although the quarry site has been extensively cleared, there are areas of <i>Illawarra Subtropical Rainforest Endangered Ecological Community</i> (EEC) and some threatened plant species (including <i>Cynanchum elegans</i> (White Cynanchum), <i>Daphnandra</i> sp. <i>Aff micrantha</i> (Illawarra Socketwood) and <i>Zieria granulata</i> (Illawarra Zieria)) listed under the <i>Threatened Species Conservation Act 1995</i>. - The extraction of Stages 5 and 6 would impact on some scattered areas of <i>Illawarra Subtropical Rainforest EEC</i> vegetation. - Existing conditions require Cleary Bros to prepare and implement a Vegetation Management Plan (VMP). This includes measures to conserve, maintain and enhance the <i>Illawarra Subtropical Rainforest EEC</i>, and the three threatened flora species. This plan was approved by the Department in 2008. - Existing conditions also require Cleary Bros to establish a conservation and revegetation area to the south of the extraction area. - OEH has advised that no additional offsets are required for Stages 5 and 6.	suitably managed under existing conditions. However, the Department notes that the southern revegetation area has previously been impacted by feral animals. In response, Cleary Bros has committed to provide exclusionary fencing and further planting. The Department considers that the existing VMP should be updated to incorporate these additional measures. And that the relevant condition should be amended to ensure this.
<i>European Heritage</i>	- No listed heritage items are expected to be impacted by the extraction of Stages 5 and 6. - Existing conditions require preparation of a Heritage Management Plan, including baseline surveys.	The Department is satisfied that the proposed modification would have a negligible impact on European heritage. Any risks would be suitably managed under existing conditions and the site's Heritage Management Plan.
<i>Aboriginal Heritage</i>	- The original EIS included a detailed archaeological investigation. This study did not identify any Aboriginal sites within the development area. - A desktop assessment has been prepared in support of the proposed modification. This assessment concludes there are no known Aboriginal sites on or in the vicinity of the site, and that no further archaeological investigation is warranted. - OEH recommended that existing conditions are modified to include requirements for notification in the event that any unidentified objects or remains are discovered during works and for ongoing consultation with Aboriginal stakeholders. It is proposed to amend the existing Heritage Management Plan condition accordingly.	The Department considers that the proposed modification would have a negligible impact on Aboriginal cultural heritage, and that any risks would be suitably managed under the proposed modified conditions.
<i>Cumulative Impacts</i>	- There are a number of existing quarries in the surrounding locality, including the Bass Point and Dunmore Quarries. - The proposed modification involves the continuation of an existing operation and would not significantly intensify its existing impacts.	The Department is satisfied that the extraction of Stages 5 and 6 would not increase the cumulative impacts of quarrying operations in the locality.
<i>Socio-Economic Impacts</i>	- The quarry represents a regionally significant source of construction aggregates. The proposal would supply an additional 6 million tonnes of hard rock for the Illawarra and Greater Sydney markets. - The proposal would use the quarry's existing operational workforce and equipment to optimise resource recovery from a site already subject to historic quarrying activity. - The proposed modification would not materially change the biophysical or amenity impacts of the	- The Department considers that the proposed modification would continue the existing economic benefits of the project. - The Department is satisfied that these benefits could be achieved without substantially increasing environmental

Issue	Impact and Consideration	Recommendation
	existing operation. Consequently, the Department considers that the social impacts of the proposal would be acceptable.	impacts or demands on local infrastructure.

6. RECOMMENDED CONDITIONS

The Department has drafted a recommended Notice of Modification (see **Appendix D**) and a consolidated version of the consent as it is proposed to be modified (see **Appendix E**). The Department considers that the environmental impacts of the modified project can be managed through existing conditions of consent, subject to a number of minor amendments.

The Department has also taken the opportunity to make some minor administrative changes to existing conditions to reflect the Department's current drafting standards.

Cleary Bros has considered a copy of the recommended conditions and provided feedback. The Department has incorporated this feedback into the recommended conditions of consent.

7. CONCLUSION

The Department has assessed the modification application, EA, submissions and RTS in accordance with the relevant requirements of the EP&A Act. The Department has carefully considered the previous environmental performance of the project, and the likely impacts of the modified proposal on the environment and nearby residents.

The Department is satisfied that the proposal is consistent with the intent of the Court, in granting development consent and requiring an additional assessment of the impacts of extracting Stages 5 and 6. The Department has assessed the environmental, social and economic impacts of the proposed modification and is satisfied that the proposal's impacts would be of a minor nature, and would be appropriately managed by existing, modified and/or updated conditions of consent.

The quarry represents a significant regional source of hard rock material which is nearing the end of its approved operational life. The proposed modification would allow continued operation of the quarry and supply of construction aggregates. It would maximise resource recovery at the site without significantly increasing the environmental impacts of the operation. The Department is therefore satisfied that the proposed modification is in the public interest and should be approved, subject to conditions.

8. RECOMMENDATION

It is **RECOMMENDED** that the Executive Director, Resource Assessments and Compliance, as delegate for the Minister for Planning:

- **considers** the findings and recommendations of this report;
- **determines** that the proposed modification is within the scope of section 75W of the EP&A Act;
- **approves** the modification application LEC Consent No. 10639 of 2005 (MOD 3), subject to conditions; and
- **signs** the attached Notice of Modification to the development consent (see **Appendix D**).


Howard Reed
Director
Resource Assessments
31.5.17

 7/6/17
Oliver Holm
Executive Director
Resource Assessments and Compliance

APPENDIX A: ENVIRONMENTAL ASSESSMENT

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7947

APPENDIX B: SUBMISSIONS

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7947

APPENDIX C: RESPONSE TO SUBMISSIONS

See: http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7947

APPENDIX D: NOTICE OF MODIFICATION

APPENDIX E: CONSOLIDATED CONSENT
