Albion Park Quarry

Environmental Management Strategy

SSD 10369

Version 1 Revision 2

Issued – March 2024

CLEARY BROS

ACKNOWLEDGEMENT

Cleary Bros acknowledge and pay our respects to the Traditional Custodians of the lands in NSW and Australia on which our projects are located. We value the knowledge, advice and involvement of the Elders and extended Aboriginal community that contribute to our Projects and extend our respect to all Aboriginal and Torres Strait Islander peoples.

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Document Control

Version	Date	Reason	Prepared	Approved
V1 R1	11/3/24	New document prepared for SSD10369	M Hammond	
V1 R2	26/3/24	Updated following comments from DPE	M Hammond	DPE

Glossary

Acronym	Description
2020/8871	Approval under the EPBC Act for the Stage 7 development
AQMP	Air Quality Monitoring Program
BEMEP	Bushfire Emergency Management and Evacuation Plan
BiMP	Biodiversity Management Plan
BlMP	Blast Management Plan
CCC	Community Consultative Committee
CDCCEEW	Commonwealth Department of Climate Change, Energy, the Environment, and Water
DPE	Department of Planning and Environment
EMP	Emergency Management Plan
EMS	Environmental Management Strategy
EPA	NSW Environmental Protection Authority
EPL	Environmental Protection Licence
HHMP	Historic Heritage Management Plan
mAHD	Metres Australian Height Datum
MEG	NSW Government Mining, Exploration, and Geoscience
NDCCEEW	NSW Department of Climate Change, Energy, the Environment, and Water
PIRMP	Pollution Incident Response (Management) Plan
RMP	Rehabilitation Management Plan
RS	Rehabilitation Strategy
SCC	Shellharbour City Council
SSD	State Significant Development
SSD10369	Approval under the EP&A Act for the Stage 7 development
NMP	Noise Monitoring Program
WAL	Water Access Licence
WMP	Water Management Plan

1. Introduction

1.1 Background

Cleary Bros Albion Park Quarry is located at 81 East West Road, Croom, approximately 4 kilometres west of Shellharbour City in the Shellharbour Local Government Area (**Figure 1**). The quarry extracts from the latite and volcanic breccia hard rock resource, which is processed into a range of high-quality aggregates, armour rock, and pavement products for use in the Illawarra-Shoalhaven and Greater Sydney Regions. Development Consent SSD10369, approved by the Minister of Planning and Public Spaces on the 29 September 2023, allows Cleary Bros to extract up to 900,000 tonnes of hard rock a year from the resource, which is transported by road to the market. Three other operational quarries are present in this area, as shown in Figure 1. The approved Quarry operations are fully described in the publicly available documents on Cleary Bros website (www.clearybros.com.au/albion-park/).

The Environmental Management Strategy (EMS) is a dynamic document which will be updated as required over the life of quarry operations until the completion of the Project. The EMS will be implemented throughout the life of the Albion Park Quarry.

1.1 Overview of Operations

Initial Quarry operations on the Albion Park property commenced in 1964 with a blue metal quarry and associated crushing plant on land currently identified as Lot 420 DP 1252087 (**Figure 2**). The existing fixed processing plant, office, workshop, product stockpiles and ancillary infrastructure remain on this Lot largely within the footprint of the initial extraction area (Pit 1).

In 1977, extraction operations commenced within the adjacent Lot 421 DP 1252087 (Pit 2), which remained the focus of extractive operations between 1977 and 2007. In 2006, a third extraction operation on nearby Lot 1 DP 858245 (Pit 3) was approved encompassing six stages of extraction (**Figure 3**). Extraction from Pit 3 commenced in 2008 from Stages 1 to 4 and Stages 5 and 6 were activated in 2017.

The Stage 7 extraction area (**Figure 3**) is contiguous with the Stages 1-6 area and represents a continuation of quarrying of the hard rock resource. Extraction is undertaken in a staged manner commencing with the removal of services, fences, buildings and internal stone walls after which vegetation, topsoil, and subsoil are removed. The weathered rock (overburden) is then removed using an excavator to extract as much of the friable overburden as possible until the rock becomes competent.

The underlying hard rock is then drilled and blasted in accordance with the Mine Plan. Blasted material is generally processed near the blast face using a primary crusher and screening unit to remove lower grade scalps. The processed rock is then loaded on to large off-highway trucks and hauled to the fixed processing plant adjacent to in the Sales Area. Here further crushing and screening produces a range of aggregate and roadbase products to meet market demand which are stockpiled in the Sales Area. Some blasted material is also further screened on the floor of the excavation area to meet bespoke product requirements, subject to customer demand. The scalps are also hauled to the Sales Area where they are sold as a lower grade roadbase. Cleary Bros and customer road-going trucks are loaded with quarry products in the Sales Area, where they proceed over the quarry weighbridge and enter the public road network via the signalised intersection with the East West Link.

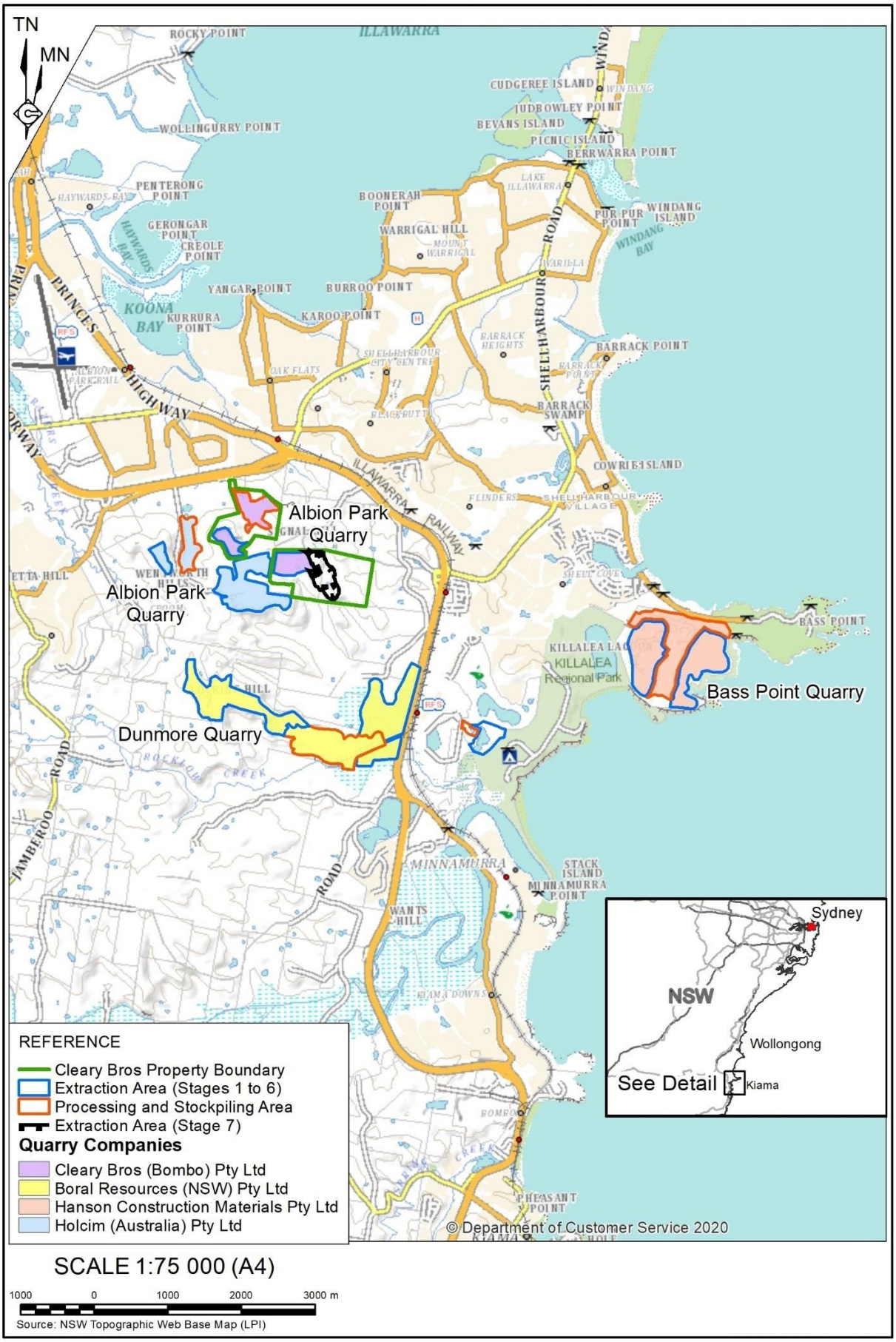


Figure 1 – Locality Plan

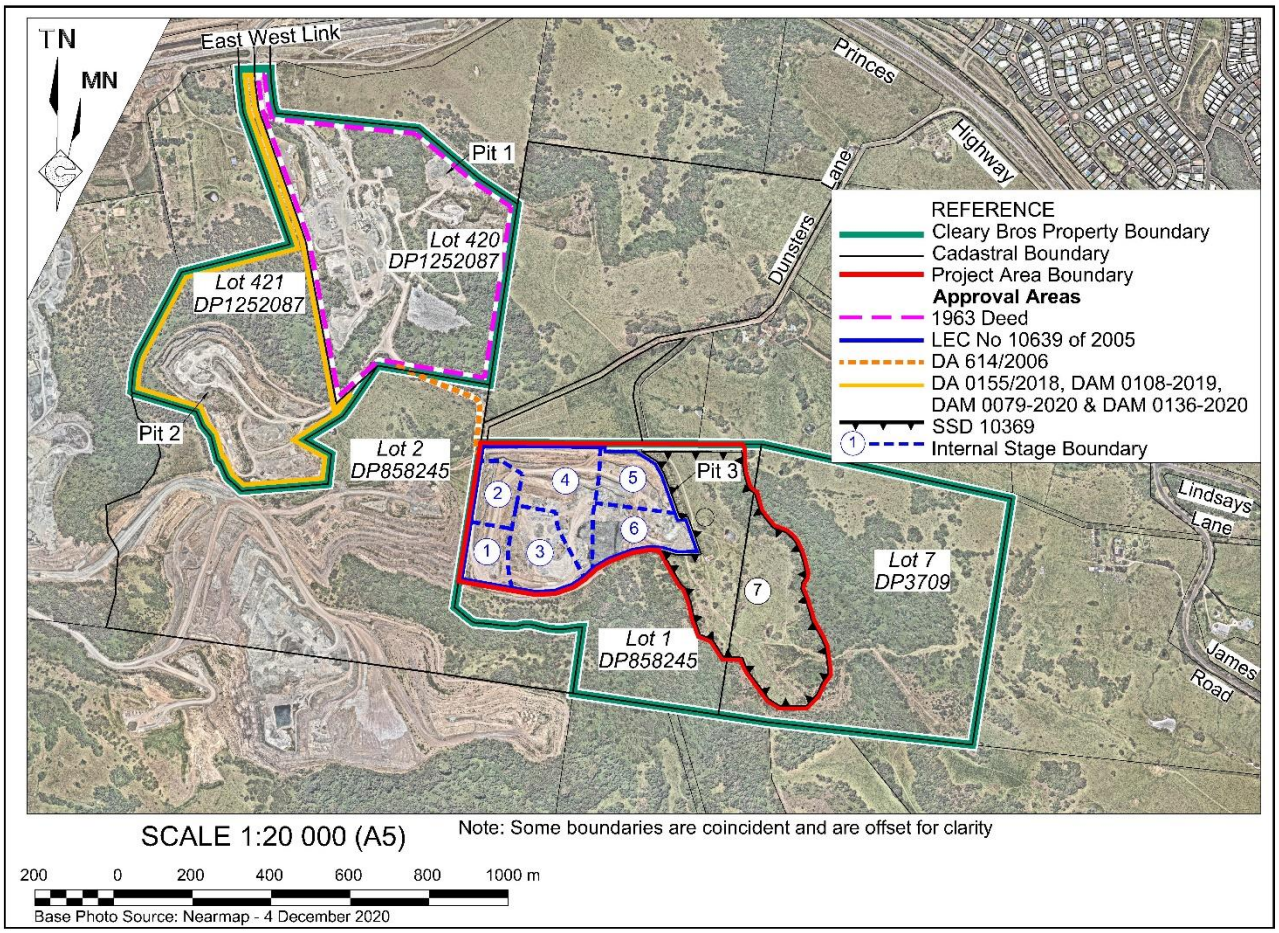


Figure 2 – Albion Park Quarry Layout and Approvals

1.2 Scope and Objectives

The EMS forms part of Cleary Bros ISO14001:2015 certified Health, Safety, Environment and Quality (HSEQ) Management System. This certification and the HSEQ Management System operate across the Cleary Bros business. This EMS is tailored to the requirements of the Albion Park Quarry, integrating the environmental management plans and monitoring programs which are required under the various approvals of the quarry.

This EMS applies to all quarrying and related activities undertaken at the Albion Park Quarry including extraction, processing, stockpiling, maintenance activities, and the transportation of quarry products up to the entrance to the public road network.

The Cleary Bros Albion Park property includes a number of activities not directly related to quarrying and to which this EMS doesn't apply, including:

- agricultural activities on the property;
- management of native vegetation and biodiversity values (other than quarrying-related impacts);
- concrete batching activities;
- maintenance activities unrelated to quarrying (eg. maintenance of road-going vehicles); and
- allocations and truck fleet movements.

These activities are separately managed under Cleary Bros HSEQ Management System.

This EMS has been prepared to meet the requirements of condition D1 of SSD10369, which requires Cleary Bros to prepare an Environmental Management Strategy for the Stage 7 project.

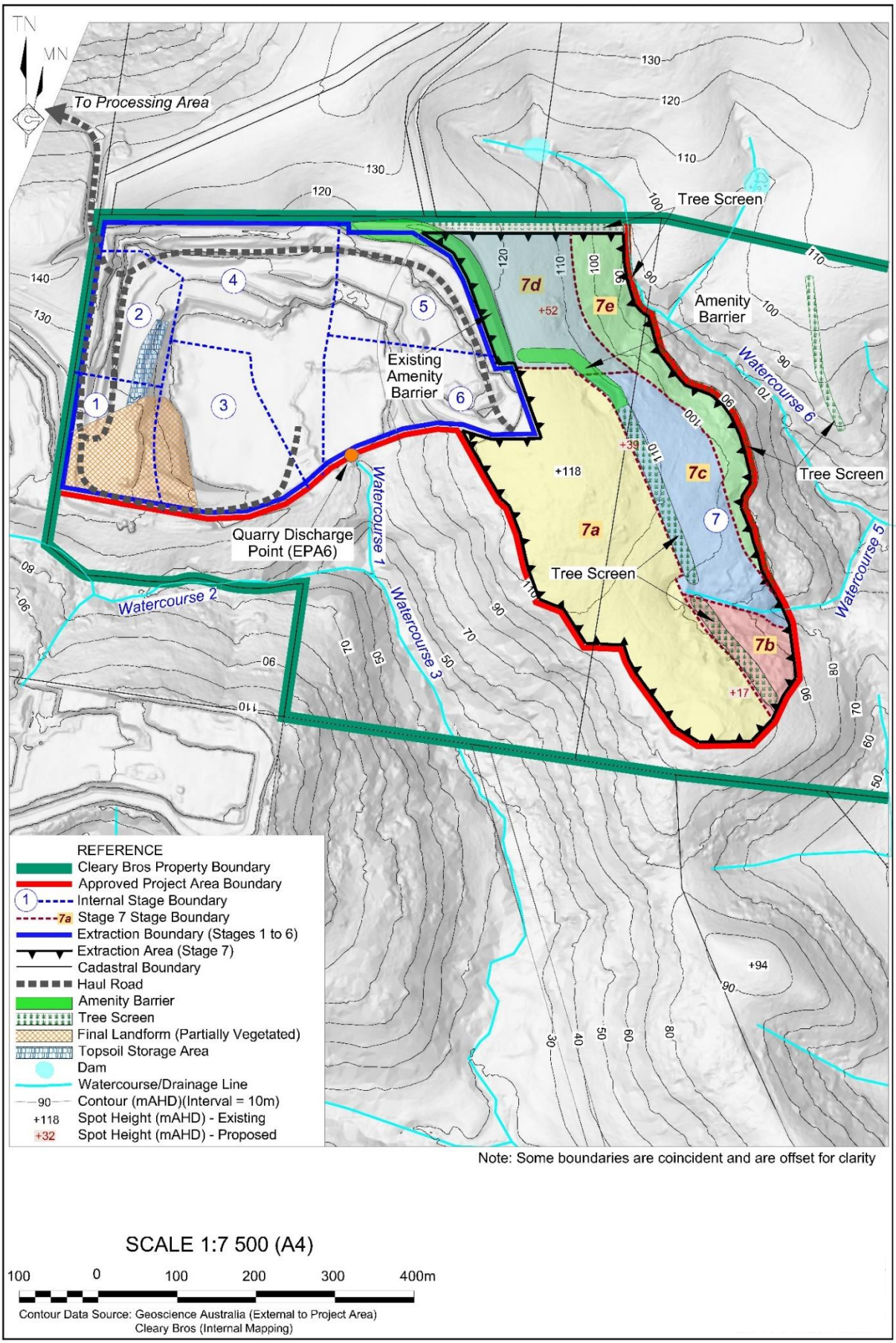


Figure 3 – Stage 7 Layout

The EMS will be submitted to and approved by the Planning Secretary prior to commencing quarrying activities in the Stage 7 extraction area.

The EMS is structured around the Plan-Do-Check-Review framework and Continual Improvement objectives outlined in ISO14001:2015.

The EMS relates to extraction from the Stages 1-6 and Stage 7a areas only. The EMS will be updated prior to commencement of quarrying activities in Stages 7b to 7e.

1.3 Responsibility for Implementation

The General Manager Quarries is responsible for the implementation of this EMS and providing the necessary resources as required. The responsibilities of other roles in the preparation, implementation, and maintenance of this EMS are described in Section 4.1.

1.4 Document Structure

The EMS has been prepared to generally align with the ISO14001:2015 framework, with some tailoring to better reflect the nature of the operations and also to meet the requirements of SSD10369.

Table 1 identifies the conditional requirements of the EMS under SSD 10369 and where they are addressed in this Strategy.

Table 1 – Development Consent Conditions (SSD 10369) – EMS

Requirement	EMS Section
Provide the strategic framework for environmental management of the development	This Strategy
Provide an overview of other approvals and legislation that regulate the development	3.1
Set out the role, responsibility, authority, and accountability of all key personnel involved in the environmental management of the development	4.1
Set out the procedures (including timeframes) to be implemented to: • keep the local community and relevant agencies informed about the operation and environmental performance of the development	4.3
• receive record, handle, and respond to complaints;	4.3.5
• resolve any disputes that may arise during the course of the development;	4.3.6
• respond to any non-compliance and any incident; and	6.4
• respond to emergencies;	5.13
Include an environmental risk assessment and a description of the measures that will be implemented to manage the identified risks, including commitments in the document(s) listed in condition A2(c). The environmental risk assessment must: • consider the environmental factors assessed in the EIS and any other environmental risks identified by the Applicant	3.3 Appendix 3
• include the mitigation measures identified in the EIS and any other mitigation measure required to manage the risks identified by the environmental risk assessment;	Appendix 3
Include a process to review the environmental risk assessment annually and determine whether the measures implemented to manage the risks identified are effective;	3.3.3

Requirement	EMS Section
Include an adaptive management process to be implemented if the review of the risk assessment indicates that a measure implemented is not effective in managing the identified risk(s) and a process to update the strategy in accordance with condition D5 and/or condition D7;	6.4.3
Include references to any strategies, plans and programs approved under the conditions of this consent	2.4
Include a clear plan depicting all the monitoring to be carried out under the conditions of this consent.	6.2

2. Context for Environmental Management

2.1 Overview

The Cleary Bros HSEQ Management System covers all operational parts of the business. Cleary Bros is a privately-owned business principally based in the Illawarra and South Coast regions that has developed over its first 100 years into one of the largest independent diversified quarrying, concrete and construction businesses in New South Wales. Cleary Bros operations are diverse and include:

Concrete Supply: four fixed concrete batching plants located at Bomaderry, Albion Park, Coniston and Bombo, and a fleet of agitator trucks, which supply ready mixed concrete to a wide-ranging market from major commercial projects to smaller scale domestic pours.

Construction: civil engineering, project management and estimating services. Works carried out by the construction division include all facets of earthworks and civil construction including bridge and road construction. The division is accredited under the Office of Federal Safety Commission scheme. The construction division manages projects on behalf of the NSW Government, local councils, Tier 1 construction companies and small private investors and are regularly audited by the Office of Federal Safety Commission, Roads and Maritime Services, NSW Public Works and other interested parties on specific projects.

Plant Hire: wet and dry hire of over 75 items of plant including dozers, graders, loaders, compactors, excavators, scrapers, rollers, water carts rigid and articulated dump trucks. Plant is hired out to large construction projects, mines and Cleary Bros internal construction projects.

Maintenance: three maintenance workshops located at Port Kembla, Albion Park and Bombo which provide a range of maintenance and breakdown services to Cleary Bros owned and operated mobile plant, heavy vehicle, light vehicle fleets and fixed plant. On occasion this division provides maintenance services to external clients.

Quarries: two quarrying sites at Albion Park and Gerroa. The Albion Park Quarry produces aggregates for concrete, road materials and engineering purposes from blasting rock through to crushing and screening operations, which is then stockpiled ready for delivery to customers. The Gerroa Quarry produces washed sand largely for the concrete market from a natural sand resource. Both of Cleary Bros quarries work under an Environment Protection Authority (EPA) Licence and development consent to operate.

Transport: includes a heavy vehicle fleet of prime movers, truck and dog tippers, floats, cement (powder) tankers, rock and rigid body tippers. The fleet is accredited under TruckSafe, and the National Heavy Vehicle Accreditation Scheme for Maintenance, Mass and Basic Fatigue Management.

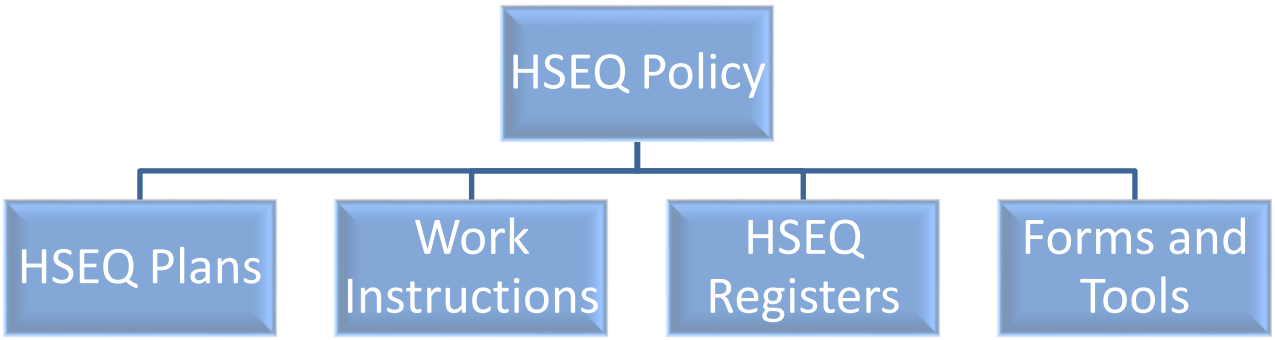
Farm: a small cattle breeding operation based at Berry.

These Divisions are supported by sales and development, commercial and finance teams.

2.2 Cleary Bros HSEQ Management System

The HSEQ Management Plan is guided by Cleary Bros **HSEQ Policy**, which is the commitment of Cleary Bros senior leadership to conduct all operations in compliance with relevant environmental licences and regulations, to identify and assess hazards to the environment and control them as part of a total risk management process, and strive to minimise the impact of the operations on the environment. It provides the company's commitment to be a valued corporate citizen in the communities in which we operate.

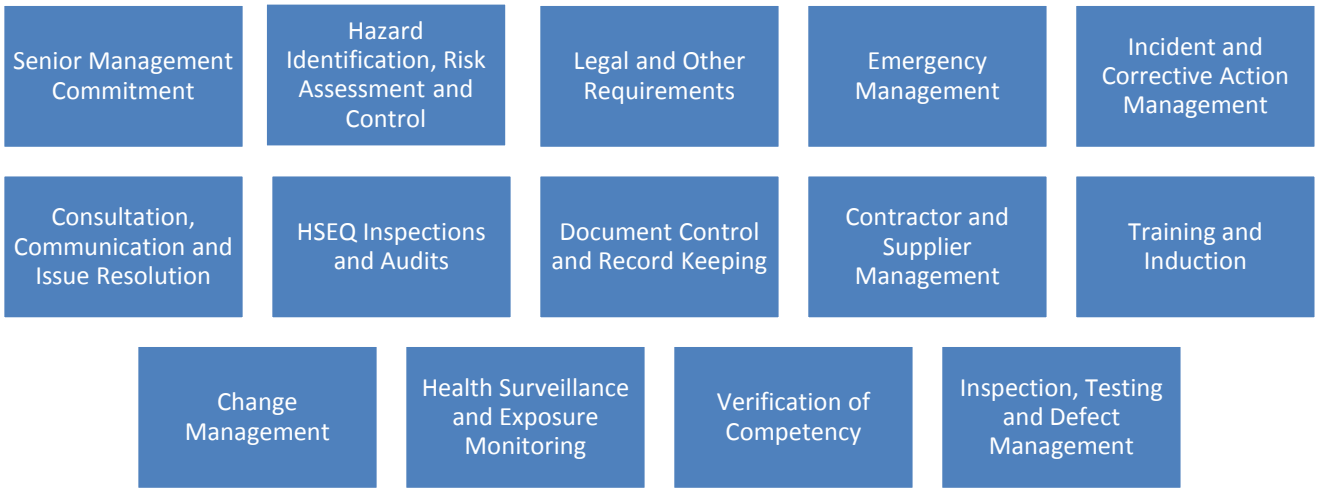
To achieve the commitments outlined in the **HSEQ Policy**, the policy is supported by a series of HSEQ plans, work instructions, HSEQ registers, and forms and tools. This allows the HSEQ system to be flexible to meet the needs of the business which are very diverse in nature.



HSEQ Plans have been developed for the Quarry and Construction divisions, while a Chain of Responsibility Plan applies to truck fleet management across multiple divisions.

Work instructions are operating procedures that can be separated into two groups:

System Work Instructions – focus on a system requirement and are applicable to all Divisions across Cleary Bros. There are currently 14 system work instructions.



Risk Work Instructions - provide information on how to manage a specific hazard or risk. These may be applicable to the entire business or a certain division which will be detailed in the scope of the work instruction.

Each work instruction contains the following information:

- **Purpose:** Explains what the work instruction is for.
- **Scope:** Describes the activity or area of Cleary Bros the Work instruction is applicable for. Some may be applicable for the entire company whilst other work instructions may be applicable for a specific division. This is not included in system work instructions as they are applicable to the whole business.
- **Process**: Details the steps to be undertaken to manage the hazard or implement the activity.
- **Definitions/Abbreviation:** Provides a range of definitions/abbreviations for the work instruction.
- **References:** Details the legislation and other requirements relevant to the work instruction.

- **Responsibilities:** Outlines who is responsible for what tasks or steps within the process.
- **Verification:** Details the documents or forms that are to be used to document and record the work instruction activities. This is to be used for monitoring or audit purposes.

HSEQ Registers include Company Based Registers and Divisional Based Registers.

Company Based Registers have been developed to manage all overarching system activities and include:

- **Legal and Other Requirements Register**
- **Incident Register**
- **Action Register**
- **Document Register**

Division Based Registers apply to each division and maintain the following in an integrated workbook for each division:

- Risk Register
- Employee Register
- Contractor Register
- Incident Register
- Induction Registers
- Key Performance Indicators

HSEQ forms and tools such as checklists, have been developed to assist managers and workers in implementing the HSEQ system at the workplace. They can be found in the **HSEQ System Forms and Tools Folder** in the **HSEQ System** server and some specific forms can be found in the **iAuditor** (Safety Culture) online system.

Most HSEQ system documentation can be found in the **HSEQ System** server which all Cleary Bros computer users can access. Some documentation, such as the **Incident Register**, are accessible to authorised persons only to preserve confidentiality, while **Division Based Registers** are accessible to persons within the Division only.

2.3 Senior Management Commitment

Everyone, at all levels of Cleary Bros, must demonstrate their commitment to minimising environmental and community impacts. The leadership of senior managers is particularly important as they have the authority to delegate required actions and decide on priorities, and do much to shape the culture that prevails in their area of responsibility. Cleary Bros **Senior Management Commitment Work Instruction** sets out the expectations and obligations of senior managers when implementing the HSEQ Management System, which in relation to this EMS includes the Quarry Manager (General Manager Quarries) and Cleary Bros CEO.

2.4 Alignment with Other Plans

This EMS outlines the overarching strategy of which the other environmental management plans form a part of at the Albion Park Quarry. **Figure 4** illustrates the strategic relationship, and inter-relationship, of this EMS to the other key environmental management requirements at the Albion Park Quarry under SSD10369.

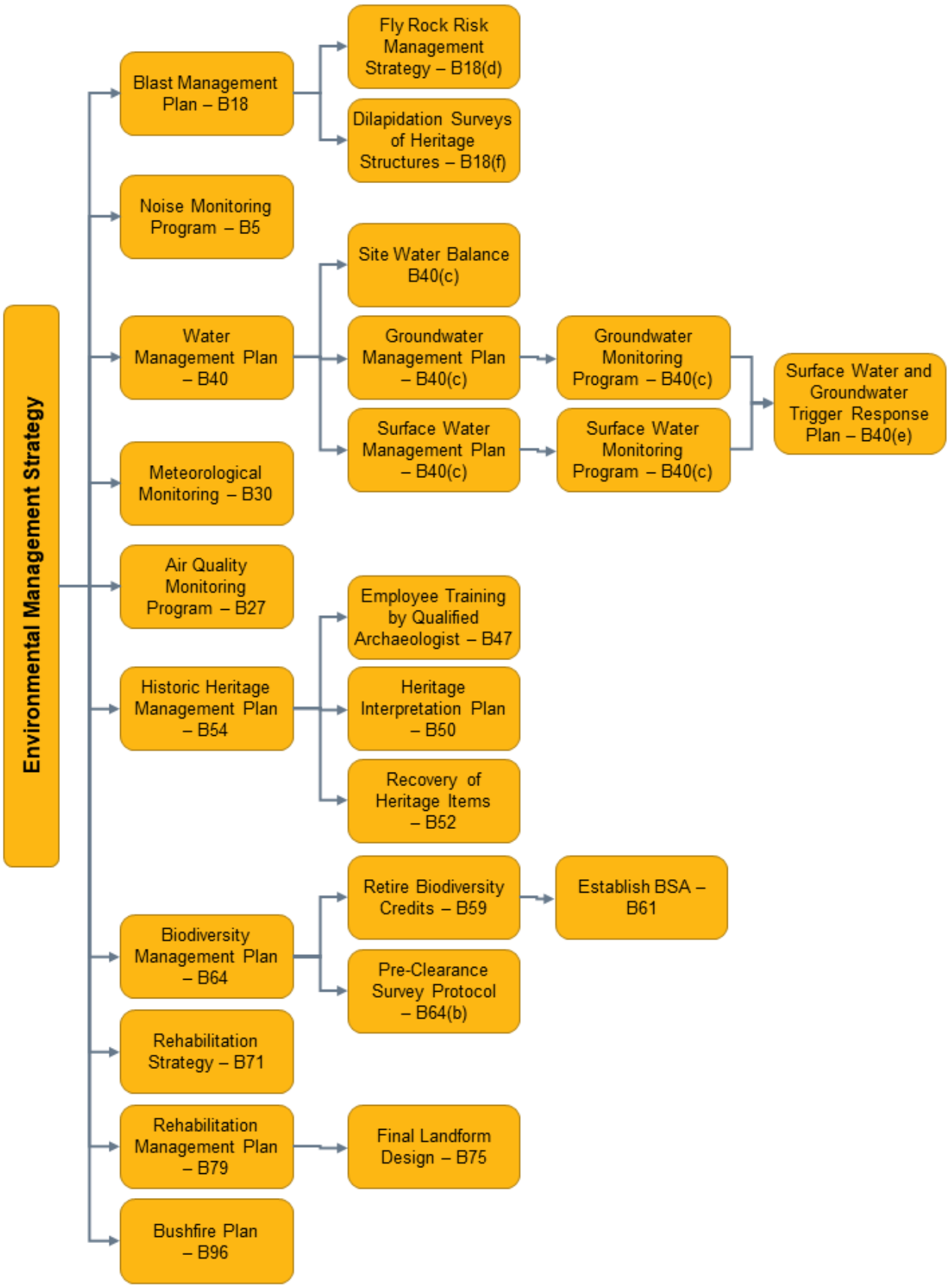


Figure 4 – Key Environmental Management Documents

3. Planning

The success of the EMS requires detailed understanding of the regulatory requirements, community expectations, and corporate obligations, and requires planning to identify measures that will achieve these objectives. This section outlines the planning aspects of the EMS.

The environmental requirements or obligations of the Albion Park Quarry consist of the statutory requirements in **Section 3.1** and the corporate requirements in **Section 3.2.**

3.1 Statutory Requirements

3.1.1 Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Under the EPBC Act, approval from the Minister for the Environment is required for any action that would result in a significant impact on Matters of National Environmental Significance (MNES). EPBC approval (2020-8871) was sought and granted on 28 November 2023 for the impact to MNES, including *Illawarra-Shoalhaven Subtropical Rainforest of the Sydney Basin Bioregion* and *Illawarra Zieria*. The EPBC approval includes conditions relating to the implementation of a **Biodiversity Management Plan**, as well as requirements around notifications, reporting, and auditing.

3.1.2 Environmental Planning and Assessment Act 1979 (EP&A Act)

Stage 7 of the Albion Park Quarry is approved as a State Significant Development under the EP&A Act. SSD10369 includes a range of conditions permitting this development, including the preparation and implementation of this EMS. SSD10369 was approved by the Minister of Planning and Public Spaces on 29 September 2023. SSD10369 requires the extraction of hard rock resources:

- in compliance with the conditions of SSD10369;
- in accordance with all written directions of the Planning Secretary;
- generally in accordance with the EIS; and
- generally in accordance with the Development Layout (refer Figure 3).

The conditions of SSD10369 and directions of the Planning Secretary prevail over the EIS and Development Layout. Quarrying will not commence in the Stage 7 area until this EMS has been submitted to and approved by the Planning Secretary.

Cleary Bros also holds other approved Development Consents under the EP&A Act as follows:

- DAM0136-2020 – Modification to Consent DAM0079/2020 (and previously DAM0108/2019, DA0155/2018) for the operation of the Signal Hill quarry and various other activities on Lot 421 DP1252087, most recently approved by Shellharbour City Council on 29 October 2020.
- DA614/2006 – Construction of a haul road to link the current extraction area to the processing plant on Lot 2 DP858245, approved by Shellharbour City Council on 10 May 2007.
- DA 10639/2005 – State Significant Development approved by the Land and Environmental Court for the operation of the Stages 1 to 6 extraction area. This consent has been superseded by SSD10369, and will be surrendered by 14 March 2025. Prior to its surrender, where there are inconsistencies between this consent and SSD10369, the requirements of SSD10369 prevail.

The operations will need to be able to demonstrate compliance against the current development consents listed above, under the provisions of the EP&A Act.

3.1.3 Local Government Act 1919 (LG Act)

Cleary Bros has approval under the LG Act from Shellharbour City Council (previously Municipal Council) to operate a blue metal quarry on Lot 420 DP1252087. This approval covers the storage area (Pit 1), processing plant and stockpile areas.

3.1.4 Protection of Environment Operations Act 1997

The Albion Park Quarry is a scheduled activity under Schedule 1 of the POEO Act which requires Cleary Bros to hold an Environmental Protection Licence (EPL). Cleary Bros holds EPL299 which applies to the active and historical quarrying areas, as well as covering the area of other industrial activities on the site. The EPL is issued for the scheduled activities of crushing, grinding, separation, and extractive activities for tonnages greater than 500,000 tonnes and up 2 million tonnes per annum.

3.1.5 Water Management Act 2000 (WM Act)

3.1.5.1 Water Sharing Plan

The WM Act is intended to ensure that water resources are conserved and properly managed for sustainable use, benefiting both present and future generations. Water sharing plans (WSP) prepared in accordance with the WM Act include rules for protecting the environment and administrating water licencing and trading.

Cleary Bros holds three Water Access Licences (WAL41971, WAL44507, WAL44508) permitting the extraction of groundwater under the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2023* from the *Sydney Basin South Groundwater Source*. These licences permit Cleary Bros to extract and use up to 125 ML annually, which includes groundwater intercepted by the quarry excavation, which holds works approval 10WA122753. The Water Licences include requirements around record keeping and reporting.

3.1.5.2 Harvestable Rights

Harvestable rights provisions under the WM Act, and excluded works provisions of the Water Management (General) Regulation 2018 (WM Reg) provides a framework for the capture and use of water without requiring a water supply work or water use approval, or a water access licence. The surface water dams at the Albion Park Quarry are consistent with these provisions. A review of harvestable rights provisions would be required in the event of any changes to water storage arrangements on the site.

3.1.6 Biodiversity Conservation Act 2016 (BC Act)

The BC Act aims is 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. Cleary Bros have prepared a Biodiversity Development Assessment Report (BDAR) for the quarry under the BC Act, which permits the clearing of limited areas of endangered ecological communities and species, subject to the offsetting of impacts and implementation of other mitigation measures.

Cleary Bros will also establish a Biodiversity Stewardship Area (BSA) under the BC Act, which will permanently protect endangered ecological communities and species on land adjacent to the approved extraction area. This development and implementation of the BSA is outside of the scope of the EMS, however indirect impacts associated with the quarry on land within the BSA are considered in the EMS.

3.1.7 Other Legislation

3.1.7.1 Contaminated Land Act 1997

The Contaminated Land Act involves the regulation of significantly contaminated land. Cleary Bros is required to notify the EPA in the event land at the Albion Park Quarry becomes significantly contaminated, to the extent that the contamination has or may cause harm to plant or animal life, when considering the nature

and concentration of the substance. The Albion Park Quarry is not currently registered as significantly contaminated land.

3.1.7.2 National Greenhouse and Energy Reporting Act 2007

The National Greenhouse and Energy Reporting Act 2007 (NGER Act) provides a single national framework for the reporting and dissemination of information about the greenhouse gas emissions, greenhouse gas projects, and energy use and production of corporations. It makes registration and reporting mandatory for corporations whose energy production, energy use or greenhouse gas emissions meet specified thresholds.

Cleary Bros doesn't currently trigger the thresholds at either the facility or company level, however this will continue to be reviewed annually, and Cleary will register to report if either threshold is exceeded.

3.1.7.3 National Parks and Wildlife Act 1974

The NPW Act is the primary piece of legislation for the protection of Aboriginal cultural heritage in New South Wales. Under Section 86 of the NPW Act, a person must not harm or desecrate an Aboriginal object or place. In cases where harm to Aboriginal objects or places cannot be avoided, an Aboriginal Heritage Impact Permit (AHIP) may be sought under Section 90 of the Act. An AHIP is not required for State Significant Projects, however would be required for any impacts to an Aboriginal object or place outside of the area approved by SSD10369.

3.1.7.4 Water Act 1912

The Water Act is no longer relevant to the Albion Park Quarry. Refer to the Water Management Act 2000.

3.2 Corporate Requirements

As described in the HSEQ Policy, Cleary Bros is committed to minimising our impact on the environment, and strives to be a valued corporate citizen in the communities in which we operate. Cleary Bros is also developing a corporate Sustainability Strategy which will drive improvements to the stewardship of our limited natural resources. These corporate requirements reflect the triple-bottom line approach to our business centred on sustainable resource use, and our desire to ensure we are progressing towards a low-carbon economy.

3.3 Aspects and Impacts

The **Hazard Identification, Risk Assessment and Control (HIRAC) Work Instruction** details the processes to identify the environmental risks for the quarry, assess their significance and risk level, and to identify risk control measures to reduce these risks to as low as reasonably practicable. The work instruction also describes how these risks will be reviewed over time. The following process describes the **Environmental Risk Assessment** (ERA) that has been developed for the Albion Park Quarry, which forms part of Cleary Bros broader **Risk Register**. The ERA is included as **Appendix C** to this EMS.

3.3.1 Risk Identification and Assessment

The HSEQ Management System for the Albion Park Quarry is a mature system, which has maintained ISO14001 accreditation for over 25 years. The environmental risks are generally well understood for the site, with refinements over the years in response to incidents and changing corporate, regulatory, and community requirements. Following the approval of SSD10369, the **Risk Register** for the Albion Park Quarry was reviewed by a team consisting of Cleary Bros Environmental Officer, Quarry Manager, and an environmental consultant from RW Corkery and Co, in line with the SSD10369 and the EIS associated with SSD10369 including the commitments made by Cleary Bros.

A number of new risks were added to the **Risk Register** and the risk rating determined, while some of the previously identified risks recorded changes to their risk rating.

3.3.2 Risk Control

The risk control measures were updated in line with the commitments made as part of the EIS for SSD10369 as well as the controls adopted in the various management plans, strategies, and monitoring programs for the quarry. The risk ratings were subsequently updated by the Quarry Manager and Environmental Officer taking into consideration the implementation of the control measures. A final review of the risk ratings was undertaken to determine whether the assessed risk was low or as low as reasonable practicable, and additional control measures added to ensure all aspects met this criteria. The finalised **Environmental Risk Assessment** was then extracted from the **Risk Register** as **Appendix C**.

3.3.3 Risk Review

In line with the **HIRAC Work Instruction**, the **ERA** will be reviewed biannually as part of the Management Review process (refer **Section 2.3**). In addition, the **ERA** will be reviewed annually as part of the preparation of the Annual Review (refer **Section 6.6**). The review will involve the Environmental Officer reviewing the environmental performance of the Albion Park Quarry since the last Management Review or Annual Review, by examining internal audit reports and the Annual Review report against the compliance criteria and objectives and targets outlined in the EMS.

This review will identify one of four categories for each environmental aspect:

	Finding	Action
1	Environmental impact does not meet requirements, and breaches one or more development consent criteria or licence conditions	Implement adaptive management process (refer **Section 6.4.3**).
2	Environmental impact does not meet requirements, however no breach of a development consent or licence	Review potential additional control measures that could be implemented to meet requirement(s). Update ERA and EMS to include additional control measure(s) and implement.
3	Environmental impact in line with requirements, but there are practicable opportunities to further reduce risk level	Update ERA and EMS to include additional control measure(s) and implement.
4	Environmental impact in line with requirements, and either low risk or not practicable to further reduce risk level	No action required - continue to implement EMS

3.4 Objectives and Targets

The Albion Park Quarry involves a significant alteration to the natural landform to produce hard rock products that meet the requirements of the community. While acknowledging some impacts are inevitable, Cleary Bros will operate the Albion Park quarry in such a way as to minimise harm to the environment and community. **Table 2** presents the objectives and performance criteria of the EMS, in line with Cleary Bros' commitment to minimise harm.

Table 2 – Objectives and Targets (Performance Criteria)

Aspect	Objective	Performance Criteria
Compliance	Maintain compliance with all regulatory requirements	Nil non-compliances with requirements of EPL299, development consents, 2020-8871, and WAL conditions
Air Quality	Comply with the air quality criteria in Table 5 of SSD10369	Incremental 24-hour PM_{10} and $PM_{2.5}$ at A1 ≤ 50 µg/m^3 and ≤ 25 µg/m^3 respectively. Annual average PM_{10}, $PM_{2.5}$, and TSP at A1 ≤ 25 µg/m^3, ≤ 8 µg/m^3 and ≤ 90 µg/m^3 respectively.
Biodiversity	Achieve an overall improvement in biodiversity on the site	Biodiversity Stewardship Agreement established Biodiversity credits retired prior to impacts Vegetation monitoring of buffer zones show no significant weed threat, or improvements where there is an existing weed threat.
Blasting	Comply with the blasting criteria within Table 3 of SSD10369	Blast emissions at residences: • Air overpressure ≤ 115 dB(Lin) • Vibration ≤ 5mm/s
	Ensure safety of persons and property	Vibration at property boundary ≤ 20mm/s Air overpressure at boundary ≤ 135 dB(Lin) No visible dust or blast fume beyond boundary No flyrock beyond area predicted by Flyrock Model No damage to public infrastructure
Heritage	Share the Belmont's story with the community	Heritage Interpretation Plan accessible to community on Cleary Bros' and Shellharbour Museum's website
	Retain physical links to the Belmont	Community members with a link to the Belmont have an opportunity to retain items of interest from the house Dry stone walls are reconstructed in their historical style in a publicly accessible location
	Minimise visual and blasting impacts on The Hill Complex	Blast emissions at B1 meet blasting criteria Vegetation screen established along northern boundary within 2 years of commencing Stage 7 Stage 7a western boundary profile consistent with final landform design.
Noise	Comply with the noise criteria within Table 2 of SSD10369	Noise levels at R5 attributable to quarrying ≤ 42 dB(A)

Aspect	Objective	Performance Criteria
Rehabilitation	Areas are non-polluting	No contaminated material imported and applied to land
	The final landform is stable for the long-term and does not pose a safety risk or a risk of environmental harm	No evidence of significant active erosion or landform instability (e.g. mass movement) that would require moderate or significant maintenance is observed Geotechnical assessment determines that the retained extraction area walls are not likely to actively erode or 'slip' to an extent requiring substantial remedial earthworks Safety bunds and rock fall protection (catch berms and bunds) installed and effective
	Final landform is safe, non-polluting, stable, meets the intended post-quarrying landuse, and integrated into the surrounding landforms.	Water quality in sediment basins meets discharge criteria without treatment Rehabilitated highwalls and fill areas stable with no significant rockfalls or erosion gullies Maintenance requirements of final landform commensurate with surrounding rural land
	Rehabilitated native vegetation consistent with surrounding ecosystems	Vegetation composition commensurate with reference sites
Water	All discharges comply with EPL299 limits	pH between 6.5 and 8.5 Turbidity ≤ 32.2 NTU (EPL6 only) TSS ≤ 50 mg/L (EPL4 only)
	No impact to surface water resources	Water quality at monitoring sites WC1, WC2, WC4: • pH between 6.5 and 8.0 • Turbidity ≤ 26 NTU OR TSS ≤ 37 mg/L • TDS ≤ 842 mg/L • Oil and Grease ≤ 10 mg/L
	No unexpected impacts to groundwater resources	Water levels in monitoring bores consistent with water modelling (refer Table 21 of WMP) No quarrying related impacts to spring-fed dams

4. Support

4.1 Roles and Responsibilities

Overall responsibility for environmental management and performance of the Albion Park Quarry is placed on the Quarry Manager. The Quarry Manager will be accountable for ensuring appropriate resources and training is made available to ensure compliance with the statutory requirements and the objectives of the EMS.

Cleary Bros Environmental Officer will provide support to the Quarry Manager in the development and implementation of the EMS. They will be responsible for coordinating the monitoring, risk review, reporting, and auditing provisions of the EMS. This role will also take the lead and be the primary contact with government agencies and community relations as well as coordinating environmental training.

Quarry Supervisors will be responsible for overseeing the implementation of the environmental management measures, as well as undertaking daily inspections of quarry activities. The Quarry Supervisor will be the first point of contact in responding to environmental incidents that occur on site and will coordinate resources to respond to them. Supervisors will also lead pre-start meetings daily on aspects of the operation that might have specific environmental impacts on that day.

Quarry employees and contractors will be responsible implementing the environmental management measures in their work. They will be provided with the relevant training for their role, and will be empowered to stop or modify their work if the environmental impact of the activity is not in accordance with the EMS.

Table 3 – Roles and Responsibilities under the EMS

Roles	Responsibilities
Chief Executive Officer	Accountable for providing strategic direction regarding environmental policy. Responsible for independently reviewing indicators of environmental performance, reviewing compliance with EMS objectives and approvals.
General Manager Quarries	Accountable for the overall environmental performance of the Quarry, including the outcomes of the Plan. Responsible for independently reviewing indicators of environmental performance, reviewing compliance with applicable laws, regulations, licences and approvals. Accountable for ensuring all contractors, sub-contractors and service personnel are appropriately qualified and/or licenced to undertake their work. Accountable for providing suitable resources to enable the implementation of the EMS. Accountable for implementing the immediate response to any environmental incidents.
Environmental Officer	Accountable for coordinating monitoring activities in accordance with the EMS. Accountable for reviewing and analysing all monitoring data. Accountable for meeting all internal and external reporting requirements. Responsible for responding to all incidents and complaints. Responsible for ensuring all documentation required under this EMS is maintained. Responsible for ensuring the workforce is aware of relevant risks and management and mitigation measures, including any additional corrective and/or preventative measures that are applicable to their roles. Accountable for ensuring all external communications required by the EMS are undertaken, including notifying the relevant regulatory authority(ies) in the event of an incident or non-compliance. Accountable for independently reviewing indicators of environmental performance, confirming compliance with applicable laws, regulations, licences and approvals. Responsible for reviewing the effectiveness of this EMS, and updating it as required.

Roles	Responsibilities
Quarry Supervisor	Responsible for implementing the environmental management measures in this EMS. Responsible for reviewing weather forecasts and planning quarry activities accordingly with consideration of noise and dust emissions. Accountable for undertaking daily inspections of quarry operations and adjusting activities as required throughout the shift in responsible to site observations and real time monitoring data. Responsible for ensuring all contractors, sub-contractors and service personnel are appropriately qualified and/or licenced to undertake their work. Responsible for implementing the immediate response to any environmental incidents.
Operational Staff and Contractors	Undertake all environmental training and awareness induction as directed. Follow directions provided by the Environmental Officer, Quarry Supervisors and Quarry Manager. Show due care not to cause environmental harm. Stop or modify task within scope of training in response to emerging environmental concerns. Notify the Quarry Manager / Quarry Supervisor in the event of an environmental concern, incident or unexpected find.

4.2 Environmental Training and Awareness

The **Training and Induction Work Instruction** describes the processes to be implemented to ensure all workers at the Albion Park Quarry understand their obligations and how they can impact environmental performance at the quarry. All employees and contractors (and their subcontractors) working at the Albion Park Quarry will complete the Albion Park Quarry Site Induction prior to commencing works. Environmental awareness training is also undertaken at least annually for all quarry workers. The induction and refresher training will ensure all workers remain aware of the requirements of the EMS and undertake their activities in accordance with the EMS. In addition, all topsoil stripping activities will be supervised by an employee who has been trained by a qualified archaeologist (in partnership with registered Aboriginals parties) to recognise potential Aboriginal objects.

The **Consultation, Communication and Issue Resolution Work Instruction** describes how Cleary Bros shares relevant information with our employees and contractors outside of formal training sessions. This includes daily pre-start meetings for the Albion Park Quarry, where relevant information will be shared for the upcoming shift, and learnings from previous days shared. The pre-start meetings also provide the opportunity for targeted toolbox talks to be delivered on topical issues.

The **Verification of Competency Work Instruction** describes how Cleary Bros will ensure employees and contractors are appropriately qualified and competent to operate mobile equipment and fixed plant on our sites, such that all equipment is operated in a proper and efficient manner.

The **Mobile Plant Management Work Instruction** describes processes around the induction and minimum requirements for mobile equipment, including earthmoving equipment utilised at the Albion Park Quarry, to minimise the risk to the health and safety of works and to the environment. It includes processes around the risk assessment and induction of new items of equipment introduced to the site, and the maintenance of equipment to ensure all equipment is maintained in a proper and efficient condition.

4.3 Stakeholder Communication and Engagement

The **Consultation, Communication and Issue Resolution Work Instruction** also describes how Cleary Bros will communicate with external stakeholders including government agencies and the community.

4.3.1 Government Stakeholders

Cleary Bros maintains open and frequent dialogue with a number of government agencies. Regulatory authorities such as the Department of Planning and Environment, Shellharbour City Council, the Environment

Protection Authority, and Commonwealth Department of Climate Change, Energy, the Environment and Water will be informed of key operational activities in addition to the annual reporting required through Annual Returns, Annual Reviews and publishing of environmental monitoring data on Cleary Bros website. Other government agencies for which communications will be maintained as required include the Biodiversity Conservation Division, the Department of Climate Change, Energy, the Environment and Water (formerly DPE Water), and Heritage NSW.

4.3.2 Community Relations

Cleary Bros have actively engaged with the local community over many years. Ongoing communication and engagement with the community will include:

- Continued representation on the Community Consultation Committee;
- Regular updates on quarry progress on Cleary Bros social media accounts;
- Active participation in local community events;
- Continued operation of a website with up to date management plans and environmental monitoring results;
- Facilitation of site inspections and one on one consultations where requested;
- Active engagement with key regulators, government and non-government organisations;
- Maintenance of a community complaints line; and
- Actively managing and resolving community issues as they arise

The Quarry Manager or Environmental Advisor will be available to respond to any stakeholder enquiry or complaint. Signage at the Quarry entrance provides relevant contact details for general enquiries and community complaints.

Copies of all approvals, management plans, licences, strategies, monitoring results, complaints summaries, and annual reports are all readily available on Cleary Bros website.

Overall, these management measures facilitate the effective communication of environmental management activities with the community.

4.3.3 Community Consultative Committee (CCC)

A CCC has been established for many years to inform interested members of the local community of quarry development, operations and environmental performance. It continues to operate in accordance with the Department's *Community Consultative Committee* Guidelines.

The agenda of the CCC meetings includes updates on the progress of the project, recent environmental performance, any development or approval matters, and includes regular site visits of operations. Members are encouraged to raise any matters that they may wish know more information about at the regular meetings. Minutes of the meetings are published to the website and provided to the CCC representatives to share with their relevant stakeholders.

4.3.4 Access to Information

Cleary Bros will maintain a website for the Albion Park Quarry with the following information available to members of the public:

- A summary of the current stage and progress of the development;
- the EIS for SSD10369 including supporting information;
- all current statutory approvals for the Stage 7 area;
- all strategies, plans and programs required under SSD10369;
- any strategy, plan, or program developed in accordance with the EIS or the conditions of SSD10369;

- a map showing each of Stages 7a through 7e;
- minutes of CCC meetings;
- recent environmental monitoring results undertaken in line with the Environmental Monitoring Program (refer **Section 6.2**), and reporting as required by the strategies and plans developed for SSD10369;
- contact details to enquire about the development or to make a complaint;
- a complaints register, which will be updated monthly;
- the latest five Annuals Reviews for the Project; and
- audit reports prepared as part of any Independent Environmental Audit of the development and Cleary Bros' response to the recommendations in any audit report.

Environmental records including monitoring data, reports and minutes of CCC meetings will be retained on the website for a minimum of five years.

4.3.5 Community Complaints

The telephone number for emergency calls or for use by the public when making complaints is:

02 4275 1000

The number will be made known to the public by:

- publication on the Cleary Bros website;
- inclusion on a sign at the property entrance; and
- direct advice to councils, EPA and any persons who contact the company regarding a complaint by mail or using existing phone numbers.

The telephone number directs the caller to the Cleary Bros switchboard, where the caller will be transferred to the appropriate person to manage the caller's requests or concerns. Out of hours complaints will go to a message bank service which can be played back and the complainant contacted for further details.

When a complaint is received by Cleary Bros, details will be recorded using the **Community Complaint Form**. A summary of the complaint will be recorded in the **Complaints Register**, which will be uploaded to Cleary Bros website. Detailed records of any complaint received will be available to representatives of DPE or the EPA on request, as well as available for audit purposes. Every complaint will be investigated as far as practicable, and a response provided to the complainant.

The following procedure will be followed in the event a complaint is received:

i. The procedure for investigating complaints and responding will be explained to the complainant at the time the complaint is recorded.
ii. If the complaint is received by staff while an incident is claimed to be occurring, the location of the incident will be visited, immediately if practicable, to verify and record details.
iii. If the complaint is received after the incident when the grievance is no longer occurring, or if it is not practical to visit the location, the complainant will be asked for more details.
iv. A record will be made of the company's activities at the location of the incident during the period leading up to the time of the incident.
v. If the matter relates to dust, noise or blasting, the wind strength and direction will be obtained from the weather station data for the period leading up to the incident.
vi. The complainant will be contacted within one working day of the complaint being lodged to provide details of the investigations to date and other action taken in response to the complaint. Further feedback will be provided as required.

vii. The **Community Complaint Form** will be completed to summarise all actions taken to investigate the complaint including:
   - time, date and location of incident;
   - nature of the incident;
   - name and address of complainant (if provided);
   - name of the person conducting the investigation;
   - activities at the location during the hour preceding the incident;
   - average wind strength and direction during hour preceding a noise or dust incident;
   - any observations as to the possible cause of the incident;
   - summary of information given to complainant in follow up call.

viii. Anonymous complaints will be recorded and investigated but in the absence of contact details, a personal response will usually not be possible.

4.3.6 Dispute Resolution

Cleary Bros will always endeavour to resolve disputes with neighbours and members of the local community without the need for third party intervention. However, in the event that a matter cannot be resolved directly with Cleary Bros, landowners have the ability to initiate the Independent Review process outlined in Part B Schedule C6 to C8 of SSD10369. In the event that a community complaint is unable to be resolved to the satisfaction of the complainant, the stakeholder will be advised of the process to undertake an independent review of the impacts of the development in line with this condition. The decision made by the DPE once this process is followed will be final.

4.3.7 Reporting

Table 4 provides a summary of reporting requirements under the EMS.

Table 4 – Reporting Requirements of the EMS

Item	Description and Content	Format, Timing & Distribution
Monthly Review	Internal review by the Environmental Officer of all environmental monitoring data and production tracking against criteria, review of maintenance and reporting requirements.	Monthly report using **Environmental Monitoring HSEQ Form** Quarry Manager, Quarry Supervisors
Annual Review	Annual report generally in line with the NSW Government's Annual Review Guideline (Oct 2015), reviewing the progress of all activities under SSD10369, DA10639/2005 (prior to surrender), and DA614/2006 for the financial year, covering the requirements listed in **Section 6.6**.	Annual written report sent by 30 September each year to DPE, SCC, EPA, NDCCEEW Water, and CDCCEEW
Production Data	Quarry production data for the financial year, as per MEG's reporting tool.	To MEG annually by 31 October each year via Resources Regulator portal.
Annual Return	Environmental monitoring and performance data for EPL299 for the period 30 September to 29 September, using the EPA's reporting tool.	To EPA annually by 28 November each year via eConnect EPA portal

Item	Description and Content	Format, Timing & Distribution
Independent Audit Reports	Audit report in line with the NSW Government's Independent Audit Post Approval Requirements (May 2020), as per the process described in **Section 6.3.3**.	Written report completed before 14 March 2025, and then every 3 years, to DPE, CDCCEEW, CCC
Non-Conformance Report	Ad-hoc report using the **Incident Investigation Form**. Refer **Section 6.4.1**.	Written report within 7 days of identification of NC, to DPE, EPA, or other agency as relevant.
Incident Report	Ad-hoc report using the **Incident Investigation Form**. Refer **Section 6.4.1**.	Immediate notification required as per **Section 6.4.1**. Written report within 7 days of identification of incident, to DPE, EPA, or other agency as relevant.

4.4 Document Control

The **Document Control and Record Keeping Work Instruction** describes how Cleary Bros will ensure accuracy, consistency, and currency of all documents and records and associated with the HSEQ Management System, as well as storage, archival, and disposal of records.

Controlled versions of the EMS, management plans and strategies, and all forms required under this EMS will be maintained on the HSEQ System server, which is accessible to all computer users. A hard copy of the EMS and supporting management plans and strategies will also be available in the Quarry Manager's office.

Any revisions to this EMS and associated documents will be communicated to relevant internal and external stakeholders with all obsolete hard copies to be destroyed.

5. Operation

This section summarises the control measures and processes that will be implemented at the Albion Park Quarry to meet the objectives of this EMS. Cleary Bros will implement all reasonable and feasible measures to minimise harm to the environment throughout the operation of the Albion Park Quarry. Where a management plan has been prepared in relation to an environmental aspect, a summary of the management measures is provided.

5.1 General Requirements

5.1.1 Limits to Extraction

The boundary of the Stage 7 area and internal stage boundaries was pegged by a registered surveyor before commencing quarrying activities in this area. A copy of the survey plan is shown as **Figure 5** and has been provided to the DPE. The boundaries will be clearly and permanently marked at all times in a manner that is obvious to operating staff and inspecting officers. Audit reports should verify that the boundaries remain clearly marked and that extraction remains within the boundaries.

Quarrying activities in the Stage 7 area will not extract deeper than 15 mAHD. The construction of sumps below this level may be undertaken with written approval from the DPE.

5.1.1 Notification of Commencement

The DPE were notified on 9 October 2023 that development under SSD10369 would be commencing on 24 October 2023. The DPE were notified on 28 February 2024 that quarrying would commence in Stage 7a (being first extraction from Stage 7) from 14 March 2024. Cleary Bros will notify the DPE at least two weeks prior to quarrying activities commencing in each subsequent substage (7b through 7e). Where further sub-staging is implemented, Cleary Bros will notify the DPE at least two weeks prior to commencing quarrying activities in each subsequent substage.

Stage 7d will not be commenced until the tree screen along the northern boundary of the Stage 7 area (refer **Section 5.10**) provides an effective screening height of 10 metres above ground level.

5.1.2 Period of Operation

Extractive activities can be undertaken under SSD10369 until 30 years after the date of commencement of quarrying activities, which will be 14 March 2054. Rehabilitation activities are permitted to continue beyond this date.

The access road consent currently permits use until 21 February 2036, with use for rehabilitation permitted for a further five years.

Quarrying and processing activities on the remainder of the site have no completion date, and may be continued for perpetuity.

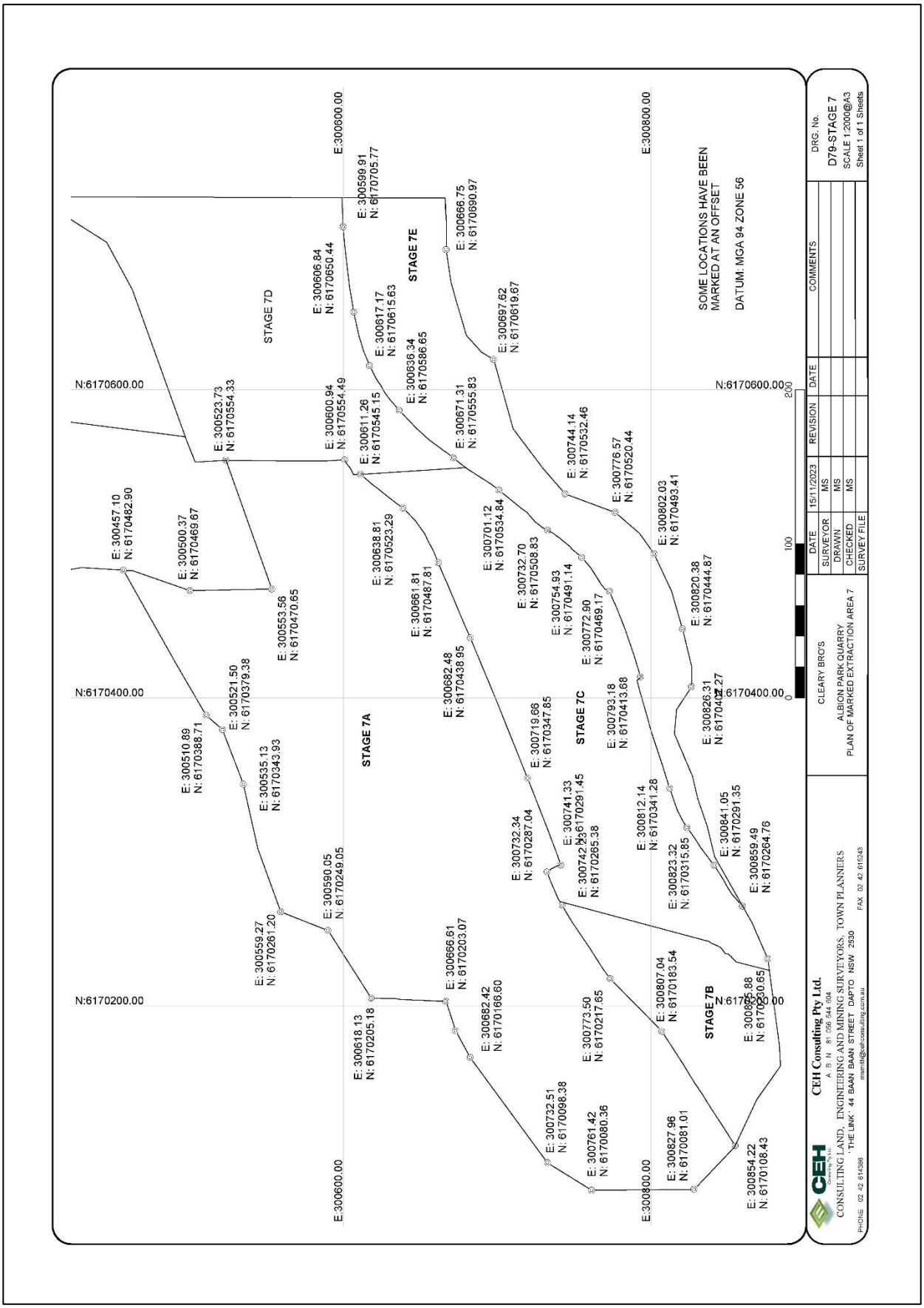


Figure 5 – Survey Plan of Stage 7 area

5.1.3 Hours of Operation

Permissible hours of operation are summarised in **Table 5**. No activity is permitted outside of these hours, with the exception of maintenance activities inaudible at the nearest residence.

Table 5 – Hours of Operation

Area	Activity	Permitted Operating Hours
Lot 1 DP858245 **Lot 7 DP3709**	Quarrying activities	7 am to 6 pm Monday to Friday 7 am to 1 pm Saturdays within Stages 1 to 6 7 am to 1 pm on a maximum of 16 Saturdays per calendar year within Stage 7
	Blasting	9 am to 5 pm Monday to Friday
	Excluded activities[1]	24 hours / 7 days
Lot 420 DP1252087	Quarrying activities	7 am to 5:30 pm Monday to Friday 7 am to 1 pm Saturday
	Blasting	8:30 am to 5 pm Monday to Friday
	Excluded activities[1]	24 hours / 7 days
Lot 421 DP1252087	All quarrying and ancillary activities	24 hours / 7 days

[1] Excluded activities include delivery or dispatch of materials as requested by NSW Police or other public authorities for safety reasons, and emergency work to avoid the loss of lives, property and/or to prevent environmental harm. In each case Cleary Bros will notify the DPE (or SCC) and any affected residents prior to undertaking the activities, or as soon as is practical thereafter.

5.1.4 Production and Import Limits

Production of quarry products from the Stage 7 extraction area is limited to a maximum of 900,000 tonnes in any financial year. Quarry production for the financial year will be reported in the Annual Review as virgin quarry material transported from the site. Up to 100,000 tonnes of VENM/ENM may be imported into the Stage 7 area each financial years for rehabilitation activities. This will be tracked as material imports and reported in the Annual Review. Up to 100,000 tonnes of VENM may also be transported into Lot 421, DP1252087 (Pit 2 area) and processed to manufacture roadbase products.

Additional VENM/ENM and other suitable materials may be imported into Lot 420, DP1252087 (Pit 1) for the rehabilitation of this area in line with the **Pit 1 Quarry Rehabilitation Management Plan**.

5.2 Initial Quarry Extraction and Rehabilitation

The environmental risk associated with the initial disturbance and upper bench extraction works have been assessed as high for a number of environmental aspects. The following controls are essential in ensuring the environmental impacts associated with the Albion Park Quarry are consistent with the statutory requirements and as low as reasonably practicable.

- Permit to Disturb process
- Upper bench rehabilitation

5.2.1 Permit to Disturb

The **Permit to Disturb Form** is to be utilised for disturbance works on the natural surface, including vegetation clearing and topsoil stripping. This is to ensure all requirements have been met prior to undertaking these tasks, and that they are undertaken in line with the EMS and the statutory requirements. The **Permit to Disturb Form** is to be completed by the Environmental Officer and approved by the Quarry Manager, and will be reviewed and signed by each operator prior to undertaking surface disturbance works. The Permit to Disturb Form will be updated as required to ensure compliance with this EMS, but will include:

- Fencing
- Erosion and sediment controls
- Biodiversity credits
- Vegetation clearing protocols
- Cultural heritage requirements
- Topsoil stripping and stockpiling
- Final landform considerations

The Permit to Disturb will not consider any day to day operational matters such as noise and air quality constraints.

5.2.1 Stage 7a Western Boundary Profile

The excavation faces along the western boundary of the Stage 7a area will be visible in later years of the quarry, so it is critical that rehabilitation is successful in this area. To achieve this a wide-benched profile will be established along the visible upper benches as shown in Figure 6. Lower and non-visible benches will consist of higher faces with narrower benches, with all benches (wide and narrow) revegetated with native species consistent with the surrounding vegetation communities. The **Rehabilitation Management Plan** describes the processes that are to be followed over the next five years to achieve successful rehabilitation outcomes on the final landform. This includes the following considerations.

- Soil stripping and stockpiling, including the special treatment of soils containing a native vegetation seedbank.
- Blast design and extraction requirements for the final landform construction
- Progressive rehabilitation of benches before extraction of rock below bench
- Import and storage of VENM and ENM for rehabilitation
- Creation of vegetation screens and amenity bunds
- Maintenance and monitoring of rehabilitated areas

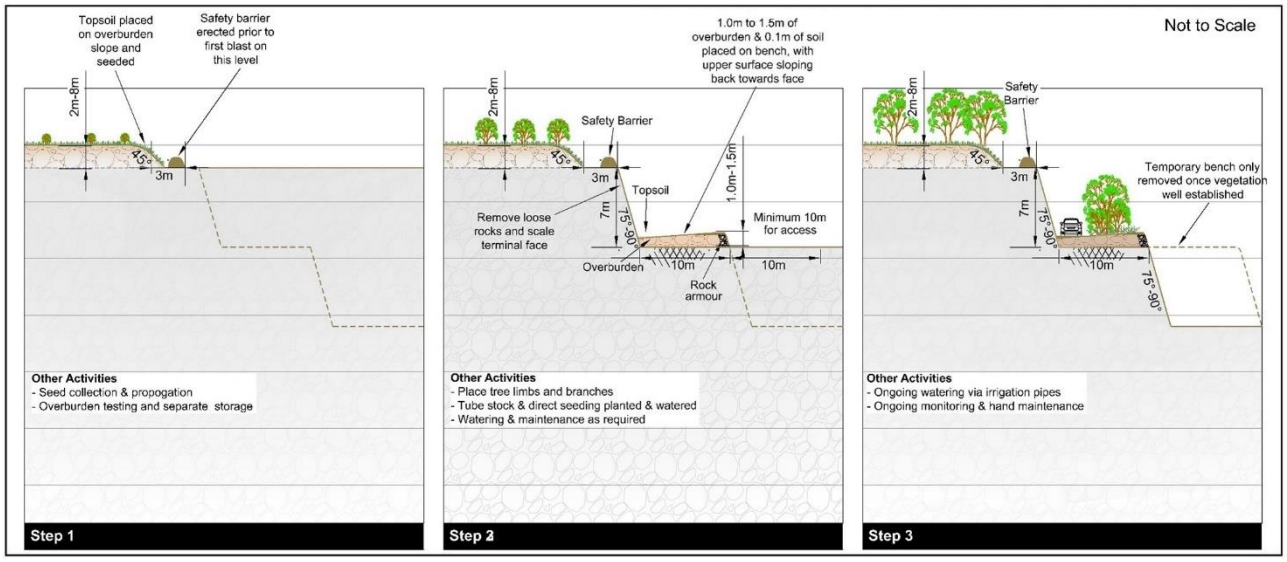


Figure 6 – Visible Bench Rehabilitation Configuration

5.3 Air Quality

5.3.1 Air Quality Criteria and Requirements

The Air Quality Criteria for the Albion Park Quarry are listed in **Table 6**, and are applicable for any residence on privately owned land that is not subject to an agreement permitting exceedance of this criteria.

Table 6 – Air Quality Criteria

Pollutant	Averaging Period	Criterion
Particulate matter < 10 µm (PM10)	Annual	[a, c] 25 µg / m^3
Particulate matter < 10 µm (PM10)	24-hour	[b] 50 µg / m^3
Particulate matter < 2.5 µm (PM10)	Annual	[a, c] 8 µg / m^3
Particulate matter < 2.5 µm (PM10)	24-hour	[b] 25 µg / m^3
Total suspended particulates (TSP)	Annual	[a, c] 90 µg / m^3

Notes: *[a] Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).*

[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, fire incidents or any other activity agreed by the Planning Secretary.

Cleary Bros must implement all reasonable and feasible mitigation and management measures to ensure the Albion Park Quarry does not exceed the above criteria.

In addition, Cleary Bros must minimise odour, fume, and particulate matter (including PM10 and PM2.5) emissions, any visible off-site air pollution, and minimise the extent of potential dust generating surfaces exposed at any given point in time.

Other requirements include:

- ensure that all 'non-road' mobile diesel equipment used in undertaking the development includes reasonable and feasible diesel emissions reduction technology;
- operate a comprehensive air quality management system that uses a combination of predictive meteorological forecasting and real-time air quality monitoring data to guide the day-to-day planning of quarrying operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent;
- implement all reasonable steps to coordinate the air quality management system with the air quality management system at nearby quarries to minimise cumulative air quality impacts;
- minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see Note c to **Table 6** above);
- assess meteorological and air quality monitoring data daily and modify operations on the site to ensure compliance with the relevant conditions of this consent;
- record daily adaptive management measures implemented on the site, including how operations were modified or stopped to comply with the air quality criteria, and make these records available at the request of the DPE or the EPA;
- No offensive odours are to be emitted from the site; and
- Implement all reasonable and feasible mitigation and management measures to improve the energy efficiency and to reduce greenhouse gas emissions.

5.3.2 Management Measures

Design Features

The following design features will be implemented to minimise particulate matter emissions at the Albion Park Quarry.

- All traffic entering and leaving the site will use the sealed entrance road off the East West Link.
- The access road will be sealed from the site entrance to the entrance of the material stockpiling area.
- A vehicle wheel wash is constructed at the exit of the unsealed area and all vehicles leaving the site are directed over the vehicle wheel wash.
- Posted speed limits on site are no greater than 30 km/h.
- Misting sprays are installed at key transfer points of the processing plants.
- Haul roads will be designed to reduce gradients as far as practicable.
- All non-road diesel equipment used at the Quarry will include reasonable and feasible emissions reduction technology as available.

Management Procedures

The following operating protocols will be implemented at the Albion Park Quarry.

- Turn off all vehicles and plant when not in use, where practicable.
- Ensure that all vehicles and plant are regularly serviced (including the optimisation of tyre pressures) in line with manufacturer recommendations to ensure efficient operation.
- Larger capacity trucks will be prioritised where practicable to reduce the number of truck movements.
- All roads will be maintained in good condition.
- All trucks leaving the site are to cover their loads prior to entering the public road network.
- A street sweeper will be used regularly to recover material tracked along entrance road.
- Haul roads will be wet at a rate of 2L/m^2/hr subject to the prevailing meteorological conditions.
- Tip heights of haul trucks and loading equipment will be minimised where practicable.
- Dust filters will be used on the drill rig to limit dust generation.

- Soil stripping will be limited to those areas required for extraction over the next 12 months.
- Soil stripping will not be undertaken when wind speed from the western or southern quadrants exceeds 6 metres/second, or when wind from any quadrant exceeds 12 m/s, unless the soil moisture conditions allow stripping without any visible dust generation.
- Soil stockpiles will be stabilised using either a cover crop or sealing spray within 28 days of completion to reduce the potential for dust generation.
- Areas disturbed by quarrying activities will be progressively rehabilitated. Completed areas of the quarry excavation will be rehabilitated as soon as reasonably practicable once they are no longer required for in-pit operations such as processing activities, material stockpiling, and access roads.

The Quarry Supervisor will undertake daily inspections of quarry operations, with the inspection recorded using the **APQ Daily Inspection Checklist** developed in **iAuditor**. The inspection will include a review of weather conditions for the day, with particular reference to adverse weather events such as strong westerly winds or a strong southerly change. The Quarry Supervisor will also record any additional measures implemented on the day to ensure the air quality criteria are met. The completed checklists will be available for inspection by auditors.

In the event adverse weather events are forecast, Quarry Supervisor to implement pre-emptive measures including:

- Reviewing the location of any equipment operating in exposed areas;
- Postponing soil and overburden stripping operations;
- Increasing watering of haul roads; and
- Watering the surface of any fresh stockpiles significantly exposed to the adverse weather.

The Quarry Manager will maintain regular communication with management from the adjacent Holcim Quarry regarding the outcomes of the air quality monitoring network, to minimise the cumulative impacts of the two sites on local air quality.

Real-time particulate monitors will be operated on the site incorporating a Trigger Action Response Plan (TARP) (**Section 5.3.3**), with activities relocated, modified and/or halted as detailed in the TARP.

5.3.3 Trigger Action Response Plan

The **Air Quality Monitoring Program** included as **Appendix D** will be implemented. The real time particulate monitors will be utilised as part of the Trigger Action Response Plan (TARP) detailed in **Table 7**. The Down Wind Increment (DWI) will be calculated using background data from particulate monitor that is not downwind of the Albion Park Quarry, or otherwise the Albion Park South Air Quality Monitoring Station operated by DPE (https://www.airquality.nsw.gov.au/illawarra/albion-park-south).

Table 7 – TARP Hierarchy of Management Response

Action Level	10-min average PM_{10} concentration ($\mu g/m^3$)	Summary of Management Response
None	DWI < 100 $\mu g/m^3$	Continue operations with normal management measures in place. Monitor Downwind particulate concentrations for any increases.
A	≥100 $\mu g/m^3$ DWI < 200 $\mu g/m^3$	Inspect current quarry activities and identify source of any excess dust. Implement the following additional controls as appropriate and practicable: • Haul road ○ Increase rate of watering, especially of any identified hot spot areas.

Action Level	10-min average PM_{10} concentration (µg/m³)	Summary of Management Response
		○ Reduce travel speed. ○ Consider the use of hygroscopic salts on minimise emissions. Note this will not be able to implemented as an immediate action, but may be appropriate in the event of recurring triggers associated with the haul road. • Material loading ○ Wet down material stockpiles. ○ Reduce drop heights. ○ Relocate load face or reorientate equipment to improve shielding from wind. • Drilling ○ Ensure dust suppression equipment effective. ○ Reorientate drill rig or relocate to an area with improved shielding from wind. • Processing plant ○ Review operation of dust suppression sprays. ○ Reorientate or relocate mobile crushing equipment to improve shielding from wind. ○ Dampen feed material if dust generation still elevated. ○ Wet down product stockpiles. • Entrance road ○ Sweep road with street sweeper. ○ Wet down access road if continued dust generation. ○ Reduce travel speed. • Soil and overburden stripping ○ Reorientate or relocate stripping equipment. ○ Wet down soil or overburden. Monitor the response in Downwind particulate concentrations.
B	DWI ≥ 200 µg/m³	Progressively cease higher risk operations until Downwind particulate concentrations <100 µg/m³.

5.3.4 Preventing Offensive Odours

With the exception of blast fume, which is managed in accordance with the **Blast Management Plan** (refer **Section 5.5**), there are no activities which are likely to generate significant offensive odours on the site. Nevertheless, Cleary Bros will ensure that no offensive odours are emitted from the site. Similarly, no burning or waste or other materials will be undertaken on the site.

5.3.5 Minimising Greenhouse Gas Emissions

An inventory of greenhouse gas emissions associated with the Albion Park Quarry will be undertaken to determine a baseline from which to assess performance. Based on the findings of the inventory, a GHG reduction program will be developed to identify targeted opportunities for greenhouse gas emissions reductions and a timeframe for their implementation. The GHG reduction program will then be implemented in accordance with timeline provided. This will be reviewed as part of the Annual Review, and updated as required in line with continuous improvement.

5.4 Biodiversity

A **Biodiversity Management Plan** has been prepared in accordance with the requirements of SSD10369 and describes processes in relation to

- Vegetation clearing protocols including pre-clearing inspections
- Retirement of biodiversity credits
- Dewatering of farm dams ahead of quarrying
- Vehicle and equipment hygiene, particularly preventing the spread of weed seeds and other pathogens on to and off the site. This must be reviewed prior to any equipment entering non-road areas of the quarry (and complete the **Mobile Plant Induction Form),** and leaving the quarry from non-road areas
- Treatment of topsoil from weed-free areas of native vegetation and areas with higher density stands of *Zieria granulata*.
- Management of injured fauna
- What to do if a native animal is encountered in the work area (stop activity and refer to Plan)

The Permit to Disturb process (Section 5.2.1) includes a review of the matters required to be considered under the **Biodiversity Management Plan**.

5.5 Blasting

A **Blast Management Plan** has been prepared in accordance with the requirements of SSD10369 and describes processes in relation to:

- Stakeholder notifications
- Managing blast emissions on persons and property including
    - Vibration and air overpressure
    - Blast Fume
    - Flyrock
    - Dust emissions
- Minimising impacts to The Hill Complex structures
- Property inspections and investigations

The **Blast Management Plan** is to be used in conjunction with the blasting contractors work procedures and the **Drill and Blast Checklist**.

5.6 Cultural Heritage

5.6.1 Aboriginal Cultural Heritage

Within the Stage 7 area, there is a moderate potential for flaked stone artefacts scatters and isolated artifacts, and a low potential for other types of Aboriginal sites. There is also the potential for quarry workers to impact cultural heritage values outside of the excavation footprint, in carrying out ancillary activities associated with quarrying (such as installation of monitoring equipment). All quarry workers have completed environmental awareness training (refer **Section 4.2**), which includes the process to follow in the event of an unexpected find. Most quarry workers have also undertaken training on recognising potential Aboriginal objects, which was delivered by an archaeologist in partnership with representatives of the Illawarra Local Aboriginal Land Council. All topsoil stripping works and ground disturbance works outside of the excavation footprint will be supervised by an employee who was undertaken this training.

The **Permit to Disturb Form** will be completed prior to any surface disturbance and soil stripping works, to ensure there is no unexpected impacts to Aboriginal objects outside of the approved quarry footprint.

In the event suspected human remains are identified during soil stripping or other activities the following steps will be taken:

- Quarry worker stops all activity in the vicinity of the remains.
- Quarry worker notifies Supervisor or Quarry Manager of unexpected find.
- Quarry Supervisor / Manager establishes a 10 metre exclusion zone around the remains with temporary fencing or barricading.
- Quarry Supervisor / Manager notifies NSW Police and NSW Heritage (131 555) as soon as practicable providing any available details of the remains and their location.
- Quarry Supervisor / Manager will support any investigations undertaken by NSW Police or NSW Heritage.
- Environmental Officer will notify DPE of the unexpected find, and of any advice provided by NSW Police or NSW Heritage.
- Work within the barricaded exclusion zone will not recommence until approved by DPE.
- Where the remains are outside of the excavation footprint, no further work will occur in the vicinity of the remains.

In the event a suspected Aboriginal object is identified during soil stripping or other activities the following steps will be taken:

- Quarry worker stops all activity in the vicinity of the object.
- Quarry worker notifies Supervisor or Quarry Manager of unexpected find.
- Quarry Supervisor / Manager establishes a 10 metre exclusion zone around the remains with temporary fencing or barricading.
- Environmental Officer will engage a suitably qualified archaeologist to assess the object as soon as practicable.
- The archaeologist will review the existing control measures and provides recommendations on how to proceed.
- Cleary Bros will then seek approval from the DPE to implement the recommendations from the archaeologist.
- Once approved by the DPE, Cleary Bros will implement the recommendations and continue operations in line with the recommendations.
- Where the object is outside of the excavation footprint, no further work will occur in the vicinity of the object.

5.6.2 Historic Heritage

The Albion Park Quarry is located in the Dunmore Hills, which includes several of local historic heritage significance. The Stage 7 development will involve a direct impact to one item of heritage significance, and indirect impacts to others. A range of initiatives will be implemented as described to maintain the heritage values of the landscape as detailed in the **Historic Heritage Management Plan**.

Prior to disturbing any areas of cultural heritage significance, including the Belmont homestead, the ground of the former Dairy and Bails, and the remaining dry stone walls, the management measures detailed in the **Historic Heritage Management Plan** must be undertaken. The locations of these structures are shown as

areas of Moderate and High archaeological potential in Figure 7.

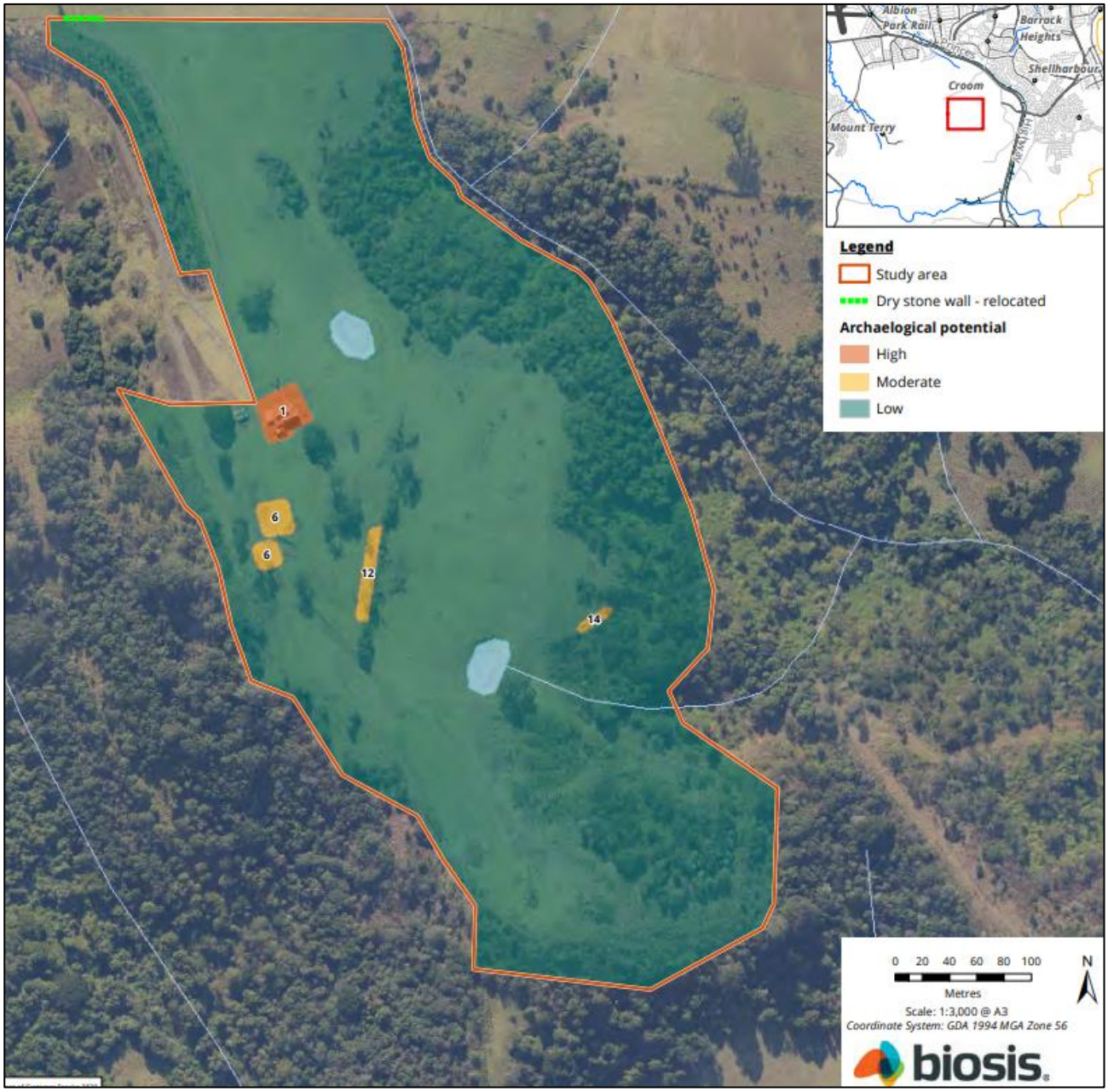


Figure 7 – Areas of Historic Heritage value

Unexpected Finds

Where previously unidentified heritage objects are identified during clearing or soil stripping works, an exclusion area will be established for 10 metres around the find. A qualified archaeologist will be engaged to assess the nature, extent, and significance of the item, and provide recommendations for management where the item is assessed as significant. Cleary Bros will consult with the NSW Heritage Council, and Shellharbour Council regarding the proposed management measures, and seek endorsement from DPE prior to undertaking any works in the exclusion area.

5.7 Noise Management

5.7.1 Noise Criteria and Requirements

The Noise Criteria for the Albion Park Quarry are listed in **Table 8**, and are applicable for any residence on privately owned land that is not subject to an agreement permitting exceedance of this criteria.

Table 8 – Noise Criteria

Residence	Criteria LAeq (15 min) dB(A)
[1]**R1 The Cottage, 195 Dunsters Lane**	49
[1]**R2 The Hill, 195 Dunsters Lane**	46
[1]**R3 Approved Residence, 195 Dunsters Lane**	48
R4 St Ives, 2 James Road **R6 Kurrawong, 126 James Road** **R7 138 Dunsters Lane** **R8 125 Dunsters Lane** **R9 Rosemont, 35 James Road** **R10 Gravella, 144 James Road** **R11 183 James Road**	40
R5 Port Santo, 42 James Road	42

Note: *[1] Agreement currently in place with owner of residence. Noise criteria do not apply.*

Noise generated by the development must be monitored and measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the *NSW Noise Policy for Industry (EPA, 2017)*. The noise enhancing meteorological conditions determined by monitoring at the meteorological station required under condition B30 and as defined in Part D of the *NSW Noise Policy for Industry (EPA, 2017)* apply to the noise criteria in **Table 8**.

Cleary Bros must implement all reasonable and feasible mitigation and management measures to minimise noise from quarrying operations, including low frequency noise and other audible characteristics, and the noise impacts of the development during noise-enhancing meteorological conditions, when the noise criteria do not apply.

Other requirements include:

- install and use noise attenuation kits on surface operating equipment undertaking quarrying operations in the approved disturbance area, including dozers and drill rigs, to reduce the sound power level of each piece of equipment, unless otherwise agreed by the Planning Secretary;
- implement acoustic screening of drill rig(s) operating within 10 metres AHD of the pre-quarrying surface within the approved disturbance area to minimise the transmission of noise to any privately-owned residence, unless otherwise agreed by the Planning Secretary;
- position the mobile crushing and screening plant operating within the approved disturbance area to achieve maximum topographic protection from any privately-owned residence;
- operate the secondary mobile crushing screening plant on the pit floor;

- fit all trucks and mobile plant operating within the approved disturbance area with broad-spectrum reversing alarms;
- operate a comprehensive noise management system that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide day to day planning of quarrying operations and implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this consent, unless otherwise agreed by the Planning Secretary;
- assess the real-time noise monitoring data daily and modify or stop quarrying operations on the site to ensure compliance with the relevant conditions of this consent, unless otherwise agreed by the Planning Secretary;
- record daily adaptive management measures implemented on the site, including how quarrying operations were modified or stopped to comply with the noise criteria in Table 8, and make these records available at the request of the DPE or the EPA;
- carry out attended noise monitoring on two separate occasions each financial year (unless otherwise agreed by the Planning Secretary) to determine whether the development is complying with the relevant conditions of this consent; and
- ensure that attended noise monitoring includes a range of quarrying operations, including during the nominated short-term activities, unless those activities are not undertaken during the financial year.

5.7.2 Management Measures

Design Features

The following design features will be implemented to minimise noise emissions at the Albion Park Quarry.

- Extraction operations will progress from Stage 7a through to 7e to maximise acoustic shielding of the active extraction area from the nearest residences, particularly when quarrying closest to the nearest residences.
- An amenity barrier will be constructed along the northern boundary of Stage 7a within the first two years of extraction within Stage 7, to provide acoustic screening to activities within this area.
- The existing amenity barrier will be retained until extraction within Stage 7d commences.
- Ramps will be designed where practicable with gradients not exceeding 1:10 (V:H) and will be located within the quarry excavation predominantly against the northern and eastern sides of the excavation.
- All mobile equipment, including dozers and drill rigs, would be fitted with standard noise suppression equipment such as engine cowling and mufflers as fitted by the original equipment manufacturer.
- Equipment will be fitted with broadband reversing alarms only. High-frequency alarms will not be used.

Management Procedures

The following operating protocols will be implemented at the Albion Park Quarry.

- Turn off all vehicles and plant when not in use, where practicable.
- Ensure that all vehicles and plant are regularly serviced in line with manufacturer recommendations to ensure efficient operation.
- Larger capacity trucks will be prioritised where practicable to reduce the number of truck movements.
- All roads will be maintained in good condition.
- Maximise the use of extraction faces to attenuate noise from the mobile equipment operating within the extraction area.

- Position mobile crushing and screening plants in locations that achieve maximum topographic protection from residences to the north and east.
- Operate secondary crushing equipment on the floor of the excavation area only.
- Verify noise levels at the nearest sensitive receiver on a monthly basis when undertaking stripping activities or drilling on uppermost bench.
- Verify noise levels at the nearest sensitive receiver within the first 3 days of operating primary processing equipment on the uppermost bench.
- Operate a real-time noise monitor near to the closest sensitive receptor with automatic alerting where pre-defined triggers are exceeded.
- Undertake attended monitoring on a biannual basis, including once during the winter months, and once when short-term activities are undertaken (if they are being undertaken in that year).
- Prioritise stripping works during favourable weather conditions (eg. NE wind) where practicable.
- Where practicable, when operating the drill rig on the uppermost bench (within 10m of original surface) or within line of sight of residence, utilise shielding (mobile noise barrier) to reduce noise transmission.
- Prioritise drilling works on two uppermost benches during favourable weather conditions (eg. NE wind) where practicable.
- At times when weather conditions are likely to enhance noise transmission to north and east (light westerly or southerly winds, or calm winter mornings where a temperature inversion may be present), avoid soil stripping, drilling or other noisy activities within 10m of the original surface, as far as reasonably practicable.
- Noise attenuation equipment installed on all dozers and the drill rig will be audited within 6 months of commencing quarrying operations in the Stage 7 area to ensure standard hush kits are fitted. Where a hush kit is not fitted, it will be fitted on its next routine service, pending availability of the hush kit.
- All haul trucks will be audited within 6 months of commencing quarrying operations in the Stage 7 area to ensure standard noise suppression equipment such as engine cowling and mufflers are installed. Where the audit identifies that this equipment is not present, the haul truck will not be used until such time as the standard noise suppression equipment is installed.

The Quarry Supervisor is responsible for adjusting operations on a day to day basis to minimise noise emissions from the site. This includes:

- Review weather forecast for next day, and adjust planned works accordingly. Noise enhancing conditions which may require adjustments to planned activities include temperature inversion conditions (look for calm morning during the cooler months of the year), and light westerly or southerly winds (up to 10km/h).
- During forecast noise enhancing conditions, surface activities should not be scheduled, or otherwise planned for later in day once the temperature inversion breaks down. This includes soil and overburden stripping activities, and other activities including drilling within 10 metres of the original surface.
- Undertake daily inspections of quarry operations, with the inspection recorded using the **APQ Daily Inspection Checklist** developed in **iAuditor**. The inspection will include a review of weather conditions for the day, with particular reference to observed noise enhancing conditions. The Quarry Supervisor will also record any additional measures implemented on the day to ensure the noise criteria are met. The completed checklists will be available for inspection by auditors.
- Review triggers generated under the TARP, investigate the cause, and adjust quarry activities to ensure noise contributions from the quarry are reduced to below the trigger level (refer following Section).

A real-time noise monitor will be operated adjacent incorporating a Trigger Action Response Plan (TARP) (**Section 5.7.3**), with activities relocated, modified and/or halted as detailed in the TARP.

5.7.3 Trigger Action Response Plan

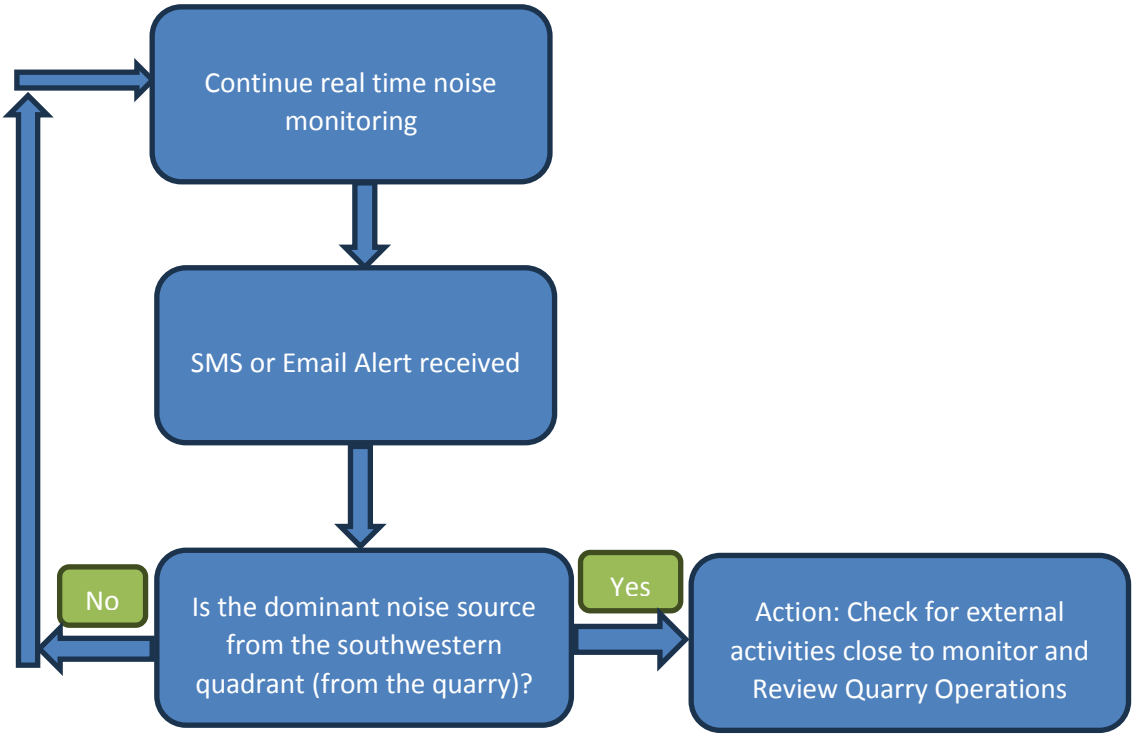
The **Noise Monitoring Program** included as **Appendix E** will be implemented. The real time noise monitor will be utilised as part of the Trigger Action Response Plan (TARP) detailed in **Table 9**. The noise trigger levels will be established in the first month of quarrying activity in the Stage 7 area as described in the Noise Monitoring Program.

Table 9 –Noise Response Trigger Levels

Current operational area	Target noise level for trigger at N1 (R1)	Trigger Level $L_{Aeq\ (15\text{-}min)}$ at R1
Stage 7a	48	To be determined
Stage 7b	41	To be determined
Stage 7c / 7d / 7e	55	To be determined

In the event the noise response trigger level is exceeded or a noise complaint is received, the Quarry Supervisor will respond as shown in **Figure 8**. The adequacy of these interim response trigger levels will be reviewed as part of the preparation of the Annual Review.

Figure 8 – Noise Response Flow Chart



In the event the flow process described in **Figure 8** determines an action is required, the audio feed from the monitor representing the peak noise event will be reviewed to identify any external influences causing the trigger. The monitor is located on an active agricultural enterprise, and as such there is the potential for background noise to generate alerts at times unrelated to quarrying activities. The directional capability of the noise monitor will reduce the number of these false alerts, however they cannot be avoided altogether. Where activities outside of the Project are likely the dominant noise sauce at the monitor, this will be noted and no further action will be taken.

Where it is determined that background noise is not the cause of the trigger, the quarry operations will be inspected to determine the likely source of elevated noise. This will also include a review of noise generation at the adjacent Holcim quarry. If the principle noise source likely causing the trigger exceedance is from the Holcim quarry, activities within the Project Area will still be reviewed to ensure Cleary Bros is not materially contributing to the trigger exceedance. Where the source is likely attributable to a single item of plant, the Quarry Supervisor will consider the following hierarchical actions that can be applied to reduce noise emissions from the site and implement as appropriate:

- Screened – where the task can be easily moved, it will be relocated to a location that offers improved natural screening. Where it can't be moved easily, practical options to screen the equipment with natural or man-made features will be considered as the case may be.
- Maintained – where the item of plant is noisier than usual, the workshop will be commissioned to service the plant prior to its continued use.
- Delayed – where the activity can be delayed until more favourable weather conditions, such as wind blowing from the receivers to the source (such as the north easterly sea breeze). Or until such a time as other activities have ceased so that cumulative noise levels are reduced.
- Changed – where the activity can be practically undertaken in a different manner, or with alternative equipment with lower noise generation, this will be considered.
- Stopped – where all of the above options have been exhausted, the activity will be stopped to ensure the operational noise criteria are not exceeded.

Where the inspection does not identify a single item of plant which is likely causing the elevated noise levels, the Quarry Supervisor will utilise the same hierarchy as above on all activities within the quarry as may be appropriate, until such a time as noise levels reduce below the trigger level.

In the event further trigger exceedances are generated by the real time noise monitor attributable to Cleary Bros activities, the Quarry Supervisor will continue to adjust quarry activities in line with the above hierarchy. The Quarry Supervisor will record the actions taken in response to any trigger generation.

5.8 Surface Water

The **Water Management Plan** has been prepared in accordance with the requirements of SSD10369, and to comply with the performance measures identified in Condition B33 of SSD10396, EPL299 and the WAL's. The management measures relevant to surface water are summarised below.

Diversion of clean water and retention of sediment-laden water

The surface water draining from clean water catchments (undisturbed by quarrying and associated activities) will be diverted away from the quarry excavation as far as reasonably practicable. Water draining from all parts of the quarry excavation will be retained within the quarry excavation, reporting to one of two sumps in the base of the excavation.

Figure 9 shows the water management features that will be utilised while quarrying within Stage 7a. Subsequent plans are shown in the **Water Management Plan** and will be included in the EMS as quarrying progresses into those areas. These features include:

- Use of the amenity bund or an isolation bund to direct water runoff within areas disturbed through soil and overburden stripping into the quarry pit until these areas become internally draining.
- Installation of sediment fencing on the downslope side of all amenity and isolation bunds until they are effectively stabilised.
- Accumulated water in the sumps will be treated if required, and discharged by pumping to a stabilised discharge point feeding the nearest watercourse only after testing to confirm the water quality meets the following characteristics:

    - pH between 6.5 and 8.5 pH units
    - Turbidity < 32.2 NTU
- Water quality will be tested daily, with pumping discontinued if the water quality no longer meets the above criteria.
- Where the water quality doesn't meet the turbidity requirements, it will be allowed to continue to settle, or otherwise flocculated with gypsum, until the discharge criteria are met.
- Accumulated water will be discharged as soon as possible after rainfall, to retain natural flow dynamics as far as practicable, and to maintain available capacity in the sediment basins.
- Sediment and erosion controls will be checked following each significant rainfall event, and repaired or replaced as required.

Management of Riparian Corridors

The following measures will be implemented to protect riparian corridors:

- Undertake a baseline survey of Watercourses 5 and 6 in the vicinity of the Stage 7 area to understand the existing watercourse stability and riparian vegetation prior to commencement of Stage 7b.
- Prior to the commencement of Stage 7c, maintain a 10m undisturbed zone between the excavation area and associated isolation bunds from Watercourse 5.
- During Stage 7c, progressively develop from the head of Watercourse 5 moving downstream, to limit minimise impacts to the lower reaches.
- Ensure isolation bunds direct water from disturbed areas (excluding the runoff from the isolation bund) into the quarry excavation.
- Prior to the commencement of Stage 7e, undertake a high-resolution survey of the ground level along the Watercourse 6 corridor, and use this to determine the area inundated during a 1% AEP critical duration rainfall event (Flood Inundation Zone).
- Based on the high-resolution survey, determine the creek channel and Inner Riparian Zone, which is calculated as the zone 5 metres above the top of bank of the watercourse.
- Reduce quarry extent and resurvey if required to ensure disturbance boundary does not encroach over the flood inundation zone and inner riparian zone. Do not expand the approved quarry footprint if there is a gap between the approved area and these zones. Only a reduction in the extraction area is permitted.

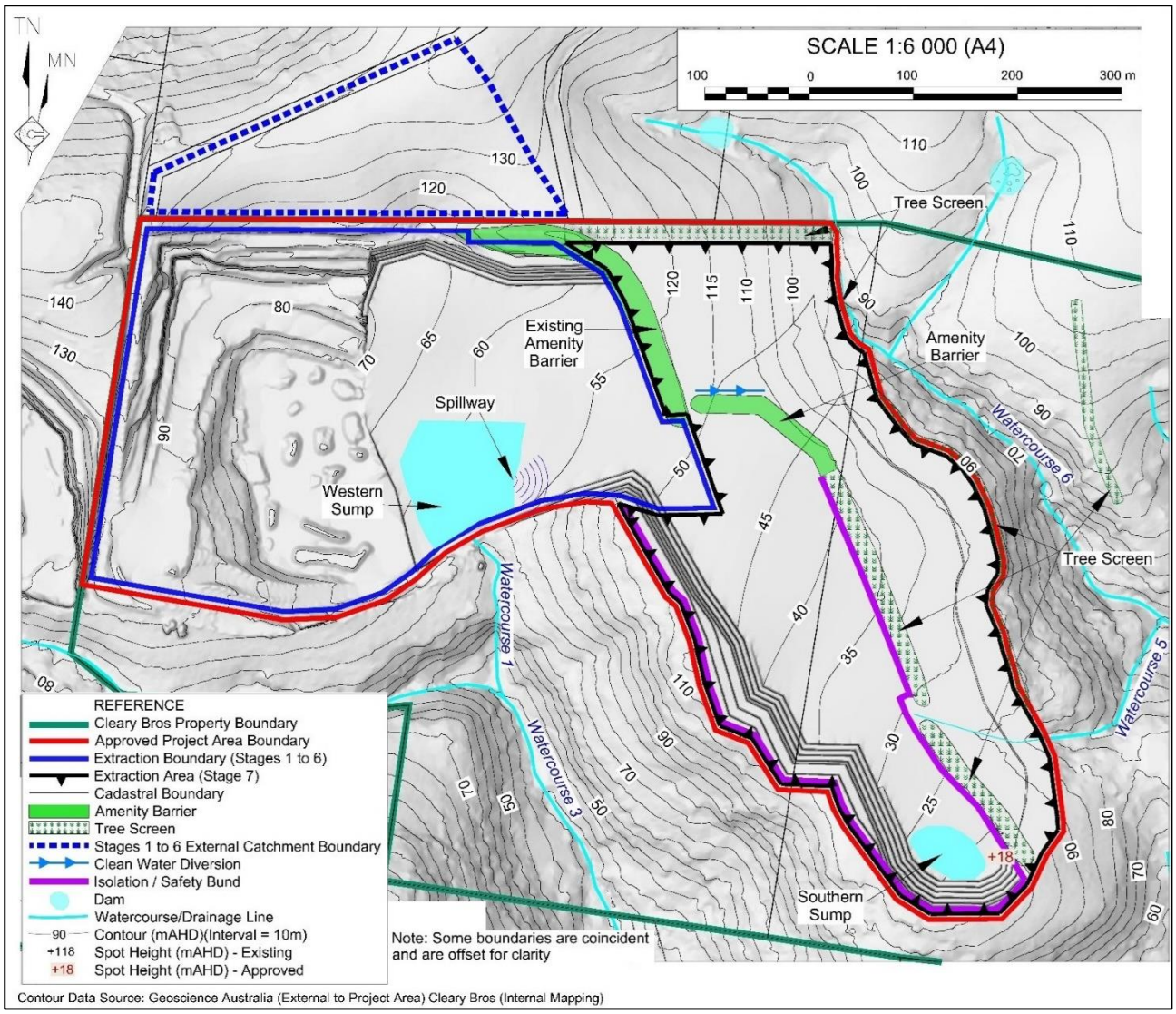


Figure 9 – Surface Water Catchments and Controls – Stage 7a

5.9 Groundwater

The Water Management Plan has been prepared in accordance with the requirements of SSD10369, and to comply with the performance measures identified in Condition B33 of SSD10396, EPL299 and the WAL's. The management measures relevant to groundwater are summarised below, and are designed protect groundwater quality, maintain the beneficial use of groundwater to users surrounding the quarry, and implement make-good provisions in the event groundwater impacts are greater than predicted.

Groundwater quality will be protected by:

- Storing hydrocarbons and chemicals in appropriately bunded storages in accordance with Australian Standard AS 1940 and Safety Data Sheet requirements.
- Implement spill response procedures, including training and standard practices for hydrocarbon and chemical spill control, containment and clean up, in the event of accidental spills or leaks.
- Maintain the **Pollution Incident Response Management Plan** for the Quarry, including associated protocols for communicating pollution incidents to potentially affected parties, throughout the quarry life.
- Ensure that all VENM/ENM accepted on site complies with the relevant requirements of the POEO (Waste) Regulation, is inspected on receipt and, if required, is tested to ensure compliance with the

relevant waste exemption order. In particular ensure that imported material is free of acid forming materials.

- Ensure that all overburden and VENM/ENM is placed within completed sections of the Extraction Area and that all water draining from that material flows to the Southern or Western Sumps.

Beneficial use of groundwater to surrounding users will be maintained by:

- Minimising impacts to groundwater quality by implementing the measures described above.
- Monitoring groundwater quality and level in accordance with the groundwater monitoring program (refer **Section 6.2**).

In the event that groundwater impacts are greater than predicted, make good provisions will include:

- Undertaking an investigation and advising the affected user of the results of the investigation.
- Identifying the extent of the impacts to the affected user.
- Undertaking make good provisions in consultation with the user, such as re-drilling an affected bore to provide suitable access to groundwater, re-drilling at a new location, or the provision of water from an alternate supply.
- Where an equivalent water supply cannot be provided, reasonable compensation will be provided, to the satisfaction of the DPE.
- The community complaints line will be maintained in the event groundwater users believe their supply has been adversely impacted by quarrying.

5.10 Visual Impact

The EIS for SSD10369 identified that quarrying activities would be visible at various receiver sites, predominantly to the north and east of the extraction area. To minimise impacts to the visual amenity of persons on public and private land from these areas, the following mitigation measures will be implemented.

Extraction Staging

Quarry progressively from Stage 7a through to Stage 7e, to maximise topographic shielding to receivers.

Amenity Barriers and Vegetation Screens

Construct an amenity barrier along the northern side of Stage 7a (refer **Figure 3**) within two years of commencing quarrying activities in Stage 7, utilising site-won overburden and topsoil material. Construct the barrier to a height of 5m and plant with native vegetation (refer to **Rehabilitation Strategy** for suitable species).

Plant vegetation screens within two years of commencing quarrying activities in Stage 7 in three locations as follows and indicated in **Figure 3**.

1. Along the northern boundary of Stage 7 between the property boundary and the extraction area.
2. Along the eastern extent of Stage 7a, from the end of the amenity barrier to the northern dam.
3. On the crest of the eastern spurline from the large fig tree to the remnant vegetation.

Each of the above vegetation screens will be constructed as a 5 metre wide planting zone as follows:

1. The grass in the planting zone will be sprayed with broad-spectrum herbicide to reduce competition.
2. A layer of mulch will be spread across the planting zone.
3. Tubestock will be planted within the mulched zone as arranged in **Figure 10**.
4. A mixture of tree, shrub, and groundcover will be utilised for each screen.
5. Species used in the vegetation screen are listed in the Rehabilitation Strategy, however specific targets for each screen are as follows:

a. The northern boundary screen (1. above) will include fast-growing tree species such as *Casuarina glauca* to attain a minimum of 10m height within 15 years.
b. The Stage 7a screen (2. above) will focus on fast growing native shrubs, to provide low bulk rather than height.
c. The eastern screen (3. above) will focus on tall-growing tree species rather than shrubs.

6. Drip irrigation will be installed for each tree screen where practicable, or otherwise watered as required until well established.
7. Vegetation screens will be checked monthly until established to ensure effective growth and seedling survival.
8. Infill planting will be undertaken where required to replace tubestock that do not survive.

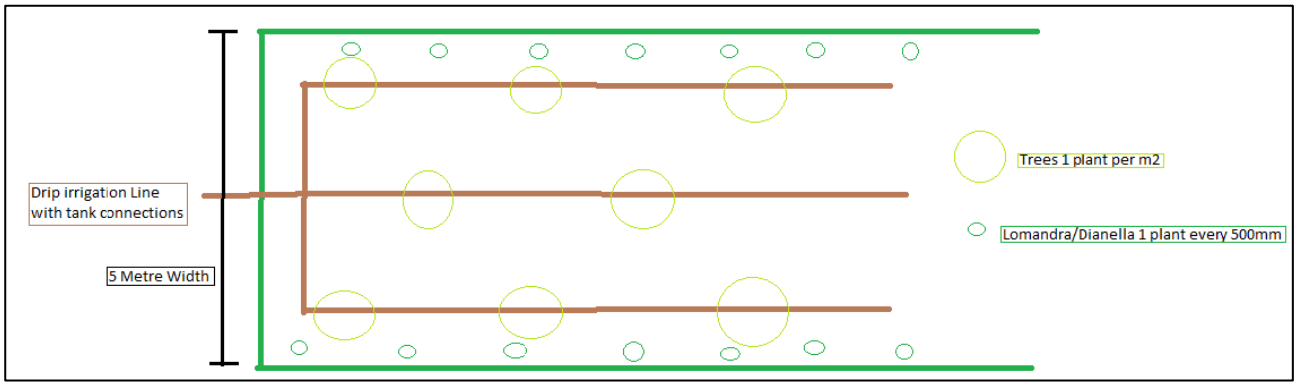


Figure 10 – Vegetation Screen Planting Layout

Existing vegetation screens will be maintained and improved where required in two locations as follows and indicated in **Figure 3**.

1. Along the eastern boundary of Stage 7a from the southern dam to the southern extent of extraction.
2. Along the eastern boundary of Stage 7e (full length).

Each of these areas consist of considerable native vegetation which provides an effective visual screen. However in parts of the eastern boundary of Stage 7e (2. above), weed growth (predominantly lantana) is preventing establishment of native vegetation. Within 4 years of the commencement of quarrying in Stage 7, those areas requiring improvement will be managed as follows.

1. Dominant weeds removed through mechanical or chemical control along the 5m wide zone designated as a vegetation screen.
2. Follow up weed control over a 12 month period to prevent re-emergence of weeds.
3. Tubestock will be planted within the designated zone as arranged in **Figure 10**. Species used in the vegetation screen will reflect those endemic to PCT1300, and listed in the Rehabilitation Strategy.
4. Tubestock will be watered as required until well established.
5. Tree screens will be checked monthly until established to ensure effective growth and seedling survival.
6. Infill planting will be undertaken where required to replace tubestock that don't survive.

Post-Quarrying Landform Design

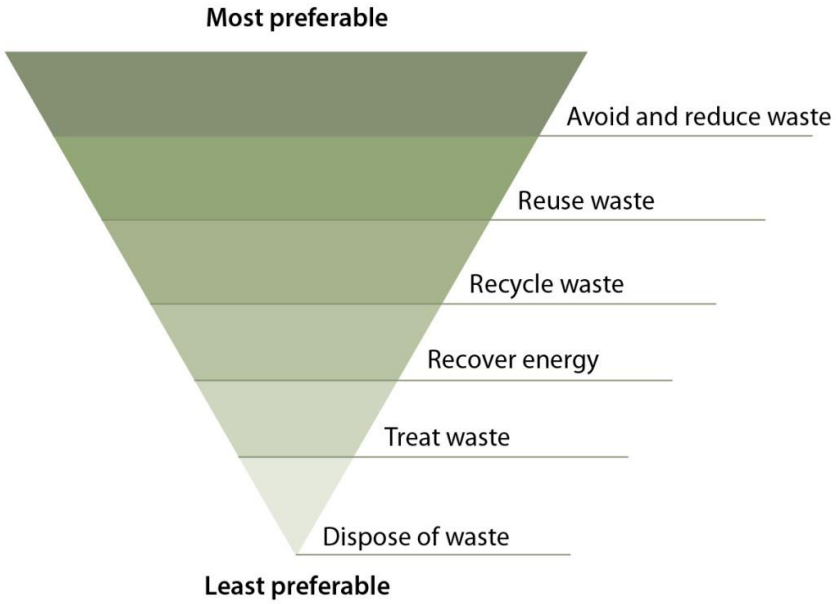
Parts of the upper western terminal face of Stage 7a, and upper northern terminal face of Stage 7d will be visible in later stages of the quarry or in the post-quarrying environment. Special treatment of these visible upper benches will be undertaken, as described in **Section 5.2** and the **Rehabilitation Strategy**.

Lighting

Do not use external lighting in the extraction area other than vehicle lights.

5.11 Waste Management

Cleary Bros aims to minimise the generation of waste and avoid the site becoming contaminated as a result of poor waste management practices. Waste generated on the site will be managed in accordance with the waste hierarchy. No waste material will be received at the Albion Park Quarry, with the exception of VENM and ENM materials, or other waste materials subject to a relevant Resource Recovery Order, and used in accordance with a valid Resource Recovery Exemption issued by the EPA. Any structures demolished on the site will be in accordance with *AS2601 The Demolition of Structures*.



The main waste streams and their waste management practices are summarised in **Table 10**.

Table 10 – Waste Streams and Management

Waste	Treatment	Waste Management
Waste Overburden	Reuse	Placed within the quarry for rehabilitation of final landform
Scrap metal offcuts	Recycle	Placed in scrap metal skip. Collected by metal recycler
Waste oil	Recycle	Collected in waste oil tank and collected by contractor for recycling at licenced treatment facility
Batteries	Recycle	Separated and collected by contractor for recycling at licenced facility
Oil filters (drained)	Recycle	Crushed and recycled as scrap metal
Cardboard	Recycle	Recovered for recycling at licenced facility
Plastic wastes	Dispose	Placed in general waste bin. Disposed of at licenced waste facility
Food waste and similar	Dispose	Placed in general waste bin. Disposed of at licenced waste facility
Sewage	Treatment	All buildings are connected to the Sydney Water sewage network with the exception of a single septic pit which is pumped out by a specialist contractor on a quarterly basis. No onsite treatment of sewage.

5.12 Hazardous Materials Management

All chemicals including dangerous goods will be managed in accordance with Cleary Bros **Hazardous Chemicals Management Work Instruction**. This includes storage, handling, and transport of dangerous goods in accordance with relevant standards such as *AS1940* (The storage and handling of flammable and combustible liquids), *AS1596* (The storage and handline of LP Gas), and the *Dangerous Goods Code*.

5.13 Emergency Preparedness and Response

5.13.1 Emergency Management Plan

Cleary Bros **Emergency Management Work Instruction** describes the framework for planning for and responding to emergency situations across the company. At the Albion Park Quarry an **Emergency Management Plan (EMP)** has been prepared in line with the Work Instruction and *AS3745 Planning for Emergencies in Facilities*. The **EMP** includes site specific information for site personnel in the event of an emergency situation, including:

- Site Information
- Site Emergency Personnel
- Alert System
- Emergency Contacts
- Emergency Equipment
- Site Emergency Procedures for the range of expected emergency situations
- Emergency Evacuation Plans

The **EMP** also describes the processes for training of personnel under the plan, testing of the plan, and revision of the plan. At the Albion Park Quarry, the **EMP** includes the **Pollution Incident Response Management Plan (PIRMP)** and **Bushfire Emergency Management and Evacuation Plan (BEMEP)**, which are subplans developed for specific purposes under this EMS.

5.13.2 Pollution Incident Response Management Plan

The **Pollution Incident Response Management Plan (PIRMP)** forms part of the **EMP**, and has been prepared for EPL299 in accordance with the EPA's *Guideline: Pollution Incident Response Management Plans* (2022). The **PIRMP** extracts the sections of the **EMP** relevant to pollution incidents, and combines this with the additional content required under the Guideline, into a simplified format for quick reference in the event of a pollution incident. The **PIRMP** consists of a two-page A3 laminated plan clearly displayed on the wall of the Quarry office, which can be easily removed to guide an emergency response. An abbreviated version of the **PIRMP** is also available on Cleary Bros website. The **PIRMP** is tested annually, and updated following each test or activation of the **PIRMP**.

5.13.3 Bushfire Emergency Management and Evacuation Plan

The **Bushfire Emergency Management and Evacuation Plan (BEMEP)** forms part of the EMP, and has been prepared to meet the requirements of SSD10369. It has been prepared in accordance with NSW Rural Fire Service publication *A guide to developing a Bush Fire Emergency Management and Evacuation Plan* (2014) utilising the template provided by RFS. The **BEMEP** includes 24-hour contact numbers of key personnel. It will be reviewed annually and a copy distributed to the Local Emergency Management Committee and Albion Park RFS office. The **BEMEP** is clearly displayed in the Quarry Office, with copies of the A3 maps associated with the plan also available in the weighbridge office at the entrance to the Quarry.

In accordance with the **EMP**, Cleary Bros will:

- Ensure Asset Protection Zones (firebreaks) are maintained and checked each Spring ahead of the bushfire risk season, consistent with the RFS publication *Planning for Bush Fire Protection* (2019).
- Ensure the emergency equipment are maintained and available to respond to an emergency situation, including fires. This includes ensuring a water cart is available and able to be manned in a reasonable time in the event of a fire threat.
- Assist the RFS and emergency services to the greatest extent practicable in the event of a fire on site.

6. Performance Evaluation and Improvement

The **Environmental Compliance Tracking Form** will be used to schedule and track completion of routine monitoring, inspections, and audits.

6.1 Calibration and Maintenance Schedule

Table 11 provides a summary of the calibration and maintenance requirements of Cleary Bros owned monitoring equipment. Servicing of these items will be scheduled through the **MEX** maintenance system. Equipment provided by contractors will be maintained in accordance with their internal procedures, which will be available for review by Cleary Bros. Other specialist equipment used by Cleary Bros personnel for short term use, such as noise loggers, will be hired from reputable suppliers with current calibration certificates.

Table 11 – Calibration and Maintenance Schedule

Equipment	What	Frequency	Who
Blast Monitor - permanent	Calibration	Annual (October)	Manufacturer
Blast Monitor – mobile	Calibration	Annual (November)	External provider
Real time noise monitor	Calibration	Annual	External provider
pH/EC meter	Calibration	Monthly	Environmental Officer
Turbidity meter	Calibration	Annual	Environmental Officer
Real time particulate monitors	Service & calibration	Annual (varied times)	Manufacturer
	Flow calibration	Quarterly	Environmental Officer
Weather station	Inspection	Quarterly	Environmental Officer
Weighbridge	Service & Calibration	Annual (September)	External contractor
	Service	Annual (March)	External contractor

6.2 Monitoring Program

Cleary Bros has developed and implemented an Environmental Monitoring Program that consolidates the statutory compliance requirements with the various development consents and EPL requirements. The Environmental Officer is responsible for ensuring all monitoring and reporting is completed.

Table 12 summarises all the regular monitoring requirements that are to be undertaken at the Albion Park Quarry. The monitoring locations referred to in the table are shown in **Figure 11**.

Table 12 – Environmental Monitoring Program

Type	Location	Frequency	Method / Analytes
Air Quality			
Real-time Air Quality Monitoring	A2 – Figtree Hill A3 – Pit 1 A4 – East boundary	Continuous	TSP, PM_{10} and $PM_{2.5}$

Type	Location	Frequency	Method / Analytes
High-Volume Air Sampler (HVAS)	A1 – Figtree Hill	One-day-in-six cycle	PM_{10}
Meteorological Monitoring	M1 - Stage 7d	Continuous	Automatic Weather Station (AWS) recording: • Rainfall • Temperature (2 m & 10m) • Wind speed & direction (10 m) • Sigma theta (10 m) • Solar Radiation
Biodiversity			
Monitoring Plots	15 sites 1, 2, 3, 4, 5, 6.1, 6.2, 8.1, 8.2, 8.3, 9, 10.1, 10.2, 12.1, 12.2	Annual	Refer Biodiversity Management Plan
Weed Control	Stage 7 area and buffer zone	Biannual	Refer Biodiversity Management Plan
Blasting			
Blast Emissions monitoring	B1 “The Cottage” AND B2 (east) OR B3 (southeast)	Each blast	Blast monitor measuring air overpressure (dBLin) and vibration (mm PVS)
Dilapidation Survey	Figtree Hill structures	Every 2 years	Refer Blast Management Plan
Heritage			
Archaeological Report	Belmont homestead Belmont former dairy and bails	Once during demolition / excavation	As per Archaeological Research Design (refer to HHMP).
Noise			
Real-time Noise Monitoring	N3 Extraction Area	24 hours a day, 7 days a week	LA_1, LA_{10}, L_{50}, LA_{90}, La_{eq} and La_{max} logged on a 15-minute, as well as the direction of the source of noise peaks. Refer Noise Monitoring Program
Noise Compliance Monitoring	N1 “The Cottage” N2 “Deer Farm” N3 Extraction Area	Biannual including once during “short term activities”	Refer Noise Monitoring Program
Short Term Noise Monitoring	N1 “The Cottage”	Monthly (when surface activities undertaken)	Refer Noise Monitoring Program

Type	Location	Frequency	Method / Analytes
Primary Crushing Equipment Monitoring	N1 “The Cottage”	Within 3 days of commencing processing on any uppermost bench.	Refer Noise Monitoring Program
Rehabilitation			
Rehabilitation Success	Areas which have been seeded / planted	2, 4, 6, 13, 26 weeks after seeding/planting Annually	Refer Rehabilitation Management Plan
Water			
Discharge monitoring	EPL6	Daily while discharging	pH, Turbidity Discharge volume
	EPL4 EPL7	Daily while Main Dam overflowing or discharging	pH Total Suspended Solids
Dam level	D1 D2#	Monthly	Record dam level using gauge
Surface water monitoring	WC1 WC2 WC3 WC4	Biannually	pH, Conductivity, Turbidity Oil and grease Total Dissolved Solids Major Ions (Ca, K, Mg, Na, Cl, SO_4)
Groundwater monitoring	MW1S, MW1D, MW2S, MW2D, MW4*, MW5*, MW6*, MW9S*, MW9D*, MW10S*, MW11*#, MW12*#	Biannual (Bore marked * have a logger installed and will record water level at 6-hour intervals)	Water level (mbgl) pH, Conductivity, Temperature, Redox Major Ions (Ca, K, Mg, Na, Cl, SO_4)
	Spring-fed dams (SFD1, SFD2)	Biannual	Photograph

 # not yet established

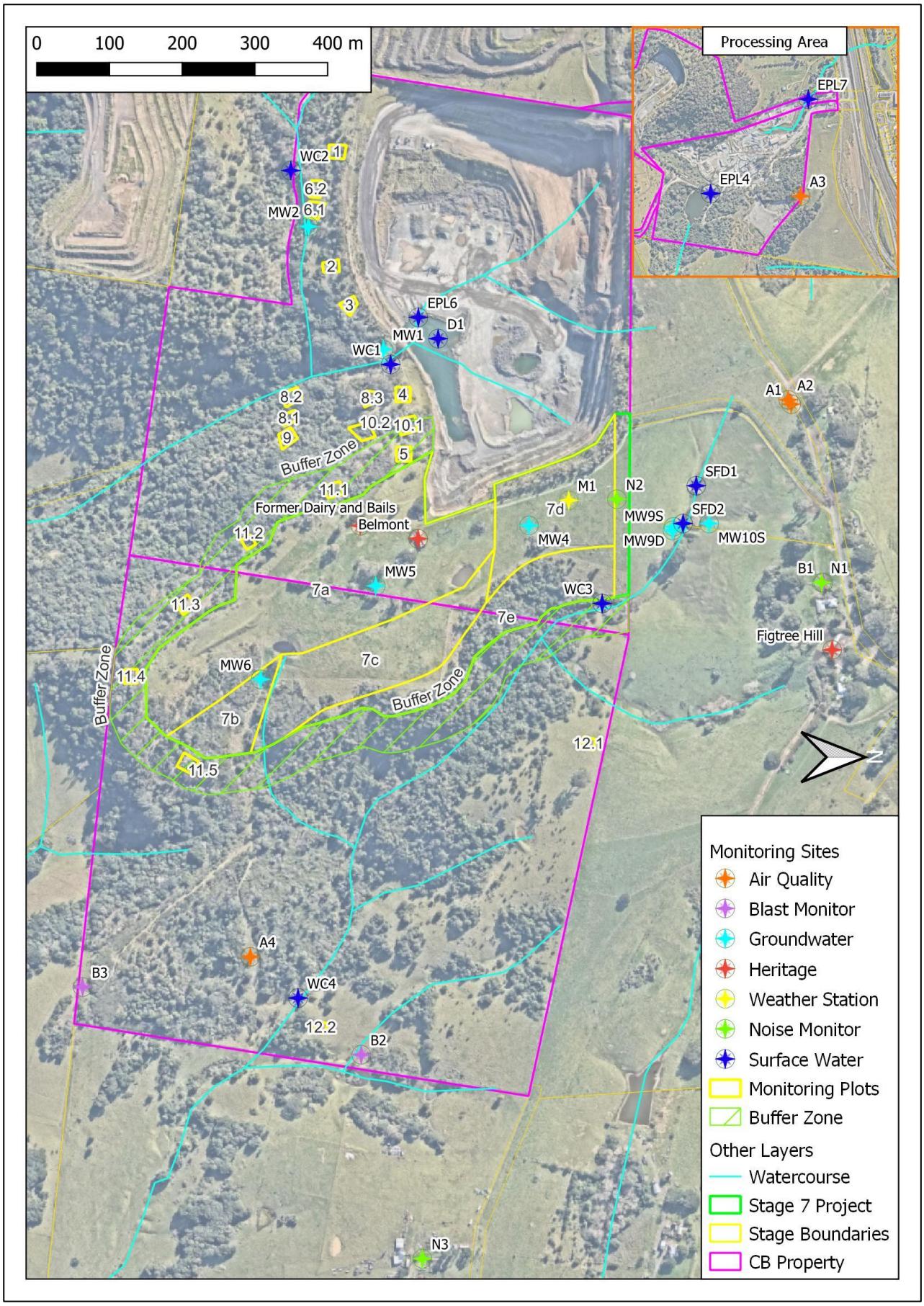


Figure 11 – Environmental Monitoring Locations

6.3 Inspections and Audits

The **HSEQ Inspections and Audits Work Instruction** outlines how Cleary Bros monitor performance of the HSEQ Management System. Inspections are used mostly by on-site personnel to review the effectiveness of environmental controls in meeting the objectives and targets, while audits are used mostly by off-site personnel to assess overall compliance with the statutory and other requirements.

6.3.1 Environmental Inspections

Environmental inspections are conducted on a regular basis as listed in **Table 13**.

Table 13 – Environmental Inspection Schedule

Inspection Type	Details of Inspection	Responsibility	Frequency
Pre-Start Inspections	Inspections on mobile plant, fixed plant and heavy vehicles to identify any defects that may impact on the operation of the plant/vehicle. Inspection checklists differ depending on type of plant and may be completed on paper based checklists or various devices. Any identified defects are entered as a work order to the plant maintenance management system **MEX**.	Operator/Driver	Daily (Prior to Operation or Shift)
Daily Inspections	To be completed using the **APQ Daily Inspection Checklist** developed in **iAuditor**. The inspection includes a visual inspection of all active areas of the quarry. It also includes a record of adaptive management measures undertaken to ensure compliance with noise and air quality criteria. Any actions from the inspection are added to the action register in **iAuditor**.	Quarry Supervisor	Daily
Monthly Inspections	To be completed using the **APQ Monthly Environmental Inspection Checklist** developed in **iAuditor**. The inspection includes a visual inspection of all areas of the quarry. Any actions from the inspection are added to the action register in **iAuditor**.	Environmental Officer	Monthly
Supervisor Walk and Talks	**Walk and Talk (iAuditor)** may include a task observation, HSEQ conversation or review of a specific site risk. A walk and talk must include a discussion with site workers.	Supervisor	Weekly

6.3.2 Internal Audits

The Environmental Officer will undertake a monthly review of environmental performance against the objectives and targets and legislative requirements of the project using the **Environmental Monitoring HSEQ Form**. This review will be distributed to the Quarry Manager and Supervisors. In the event the audit identifies

performance outside (or trending outside) the site objectives and targets, an action will be added to the action register in **iAuditor** to correct the performance.

6.3.3 External Audits

Cleary Bros will engage a third party independent environmental audit in accordance with Condition D11 of SSD 10369. The first audit will be undertaken prior to the 14 March 2025, and will be undertaken every three years thereafter. Cleary Bros will write to the Department seeking endorsement for the proposed auditor, who will then undertake the audit in accordance with the NSW Government's Independent Audit Post Approval Requirements (May 2020).

Following receipt of the audit report and in accordance with D12 of SSD 10369, Cleary Bros will review the audit report, and prepare a response which includes a timetable for the implementation of the recommendations of the audit report. The audit report and response will be submitted to the Planning Secretary (and any other relevant government agency that requests it) within 2 months of the site inspection associated with the audit, and upload each to Cleary Bros website (refer **Section 4.3.4**). Cleary Bros will implement the recommendations in line with the audit report and response.

The EMS and all management plans and strategies will be reviewed within 3 months of submission of an independent environmental audit report, and these will be updated within 6 weeks if improvements are identified. The updated strategy and/or plan will be submitted to the Planning Secretary for approval once updated.

6.4 Management of Incidents and Non-Compliances

Incident Reporting and Investigations will be undertaken in accordance with the **Incident and Corrective Action Management Work Instruction**. Conditions D8 and D9 of SSD10369 require Cleary Bros to notify DPE and any other relevant government agency of incidents or non-compliances with the conditions of the consent. Similar conditions are included in EPL299.

6.4.1 Incidents

An incident is an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance. Material harm is defined as

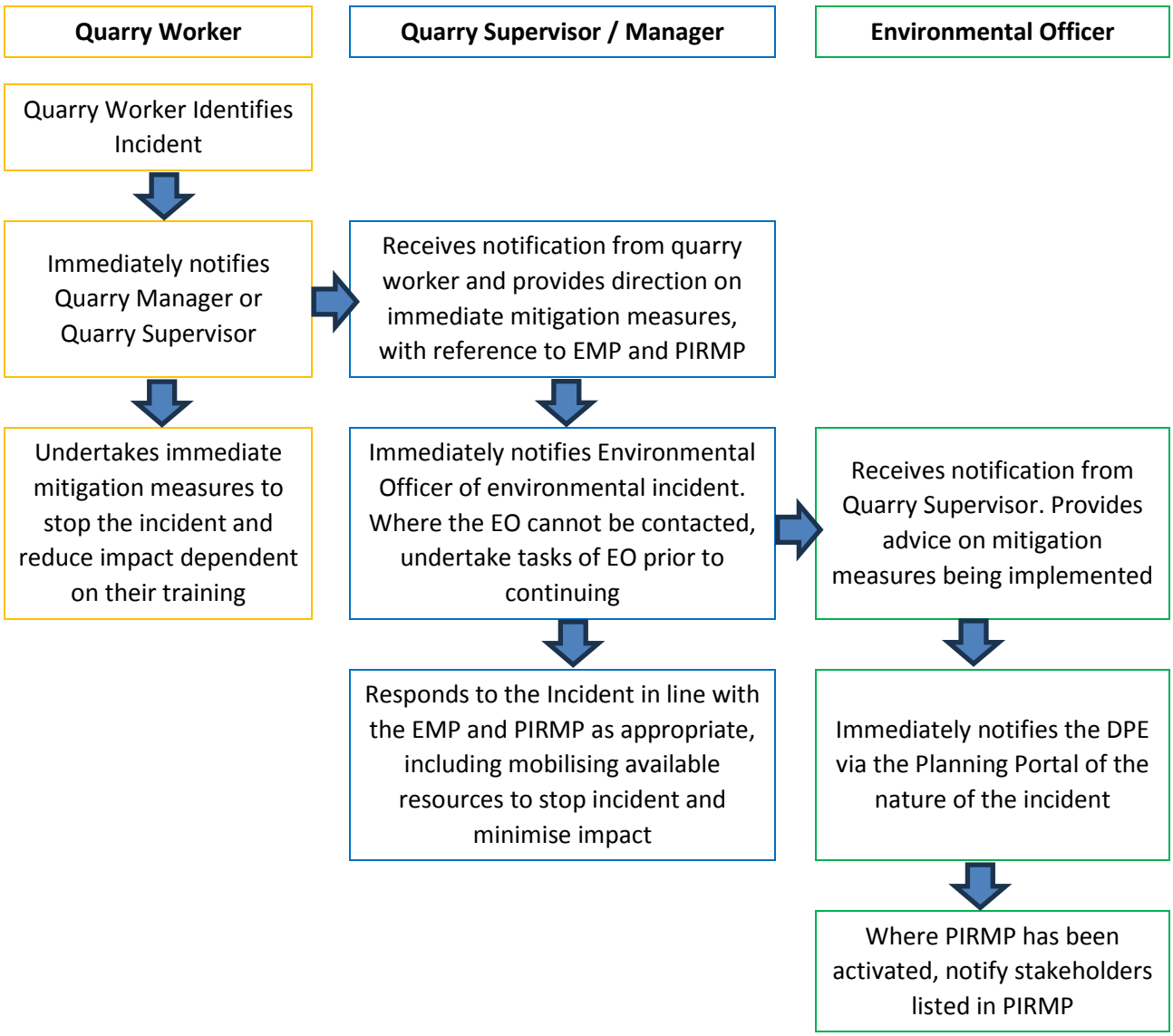
> "harm to the environment that:
>
> - involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial; or
> - results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment)

Material harm does not include "harm" that is authorised under statutory approvals.

It includes any breach of a condition of approval which has caused a material impact to persons, property, or the environment, such as the exceedance of water discharge criteria, a significant (material) hydrocarbon spill, or impacts to heritage items not consistent with the statutory approvals.

6.4.1.1 Process to follow in the event of an Environmental Incident

The following flowchart describes the actions to be undertaken by quarry personnel in the immediate response to an environmental incident.



Once the immediate response to the incident has been completed and no further impacts are anticipated, the Quarry Manager or Environmental Officer will be responsible for undertaking an investigation in line with the **Incident and Corrective Action Management Work Instruction**. The investigation will be documented using the **Incident Investigation Form**. An investigation report will be prepared by the Environmental Officer in line with the and Adaptive Management Process (**Section 6.4.3**), which will be reviewed by the Quarry Manager and submitted to the appropriate statutory authority(ies) (such as the EPA or DPE via the Planning Portal) within 7 days of the incident.

In the event of an exceedance of any noise, blasting, or air quality criteria (refer **Section 3.4**), Cleary Bros will notify any landowner (and tenants where relevant) who may have been subject to the exceedance within 7 days of becoming aware of the exceedance. Where the exceedance relates to an air quality criterion, the landowner will be provided with a copy of the fact sheet entitled "*Mine Dust and You*" (NSW Health, 2017).

The EMS and any relevant management plans or strategies will be reviewed within 3 months of any environmental incident, and these will be updated within 6 weeks if improvements are identified. For an environmental incident associated with SSD10369, the updated strategy and/or plan will be submitted to the Planning Secretary for approval once updated.

6.4.2 Non-compliance

A non-compliance is an occurrence, set of circumstances or development that is a breach of the statutory requirements. A non-compliance may include the breach of a condition of approval or exceedance of the site specific criteria where there is no direct impact to persons, property, or the environment, such as a exceedance of production limits, failure to implement part of a management plan, or submitting a report outside of the time specified in a regulatory requirement.

In the event of a non-compliance, the Quarry Manager or Environmental Officer will be responsible for undertaking an investigation in line with the **Incident and Corrective Action Management Work Instruction**. The investigation will be documented using the **Incident Investigation Form**. An investigation report will be prepared by the Environmental Officer in line with the Adaptive Management Process (**Section 6.4.3**), which will be reviewed by the Quarry Manager and submitted to the appropriate statutory authority(ies) (such as the EPA or DPE via the Planning Portal) within 7 days (of becoming aware of the non-conformance).

The EMS and any relevant management plans or strategies will be reviewed within 3 months of any environmental non-compliance, and these will be updated within 6 weeks if improvements are identified. For a non-compliance associated with SSD10369, the updated strategy and/or plan will be submitted to the Planning Secretary for approval once updated.

6.4.3 Adaptive Management Process

In the event of an exceedance of any criteria or performance measure of a regulatory requirement, the following process will be followed in line with the incident and non-compliance processes outlined in the previous sections.

1. All reasonable and feasible steps will be taken to ensure that the exceedance stops.
2. The non-compliance will be investigated to identify the cause of the exceedance, any reasonable and feasible options for remediation (where appropriate) and to determine appropriate control measures that can be introduced to prevent a recurrence.
3. An Investigation Report will be prepared summarising these findings and proposing a suitable course of action, and submitted to the relevant statutory authority (such as the DPE or EPA) within 7 days.
4. The proposed measures will be implemented in line with any direction from the relevant statutory authority.
5. The ERA and EMS will be reviewed and updated as appropriate.

6.5 Management Review

The **Senior Management Work Instruction** outlines the process for the biannual HSEQ Management Review, which provides a formal opportunity for the Quarry Manager and Environmental Officer to review the suitability, adequacy, and effectiveness of the EMS, and to identify opportunities for improvement. The **Environmental Risk Assessment** (**Section 3.1**) is reviewed for adequacy and effectiveness as part of the Management Review.

6.6 Annual Review and Review of EMS

The Environmental Officer will prepare the Annual Review for period of 1st July to 30th June by the 30th September each year. The Annual Review will be prepared in line with the NSW Government's Annual Review Guideline (Oct 2015). The Annual Review will:

a) describe the activities (including any rehabilitation) that were carried out in the previous year, and the activities that are proposed to be carried out over the next year;

b) include a comprehensive review of the monitoring results and complaints records of the Albion Park Quarry over the previous year, including a comparison of these results against the:
    i) the criteria listed in **Section 3.4**;
    ii) the environmental risk assessment (refer **Section 3.3**);
    iii) requirements of all environmental management plans and strategies for the quarry;
    iv) monitoring results from previous years; and
    v) relevant predictions from the EIS for SSD10369.
c) identify any non-compliance or incident which occurred in the previous year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence;
d) evaluate and report on:
    i) the effectiveness of the noise and air quality management systems; and
    ii) compliance with the performance measures, criteria, and operating conditions of SSD10369;
e) identify any trends in the monitoring data over the life of the quarry;
f) identify any discrepancies between the predicted and actual impacts of the quarry, and analyse the potential cause of any significant discrepancies; and
g) describe what measures will be implemented over the next year to improve the environmental performance of the development.

As part of the preparation of the Annual Review, the Environmental Risk Assessment will be reviewed, including the adequacy of the control strategies in place to manage these risks.

The Annual Review will be distributed as described in **Section 4.3.4** and **Table 4**.

The EMS and all management plans and strategies will be reviewed within 3 months of submission of an Annual Review, Independent Audit Report (**Section 6.3.3**), an incident or non-compliance report (**Section 6.4**), the approval of a modification to SSD10369, and each time quarrying commences in a new stage (eg. Stage 7b). If the review identifies that changes or improvements are required, these will be updated within 6 weeks and submitted to the Planning Secretary for approval.

7. Key Documents

SSD10369

EPL299

2020/8871

EIS for the Stage 7 Development (including Amendment Report and Response to RFI's

Appendix 1 – Mapping of EMS to the requirements of SSD10369

Administrative Conditions

Cond. No.	Summary of Requirement	EMS Reference
A1	Obligation to minimise Harm to the Environment	5
A2	Terms of Consent	3.1.2
A3	Planning Secretary may make directions	Noted
A4	Most recent document prevails in any inconsistency	3.1.2
A5 – A7	Stage 7 boundaries and extraction depth	5.1.1
A8	Period of consent	5.1.2
A9 – A10	Production and import limits	5.1.4
A11 – A12	Operating hours	5.1.3
A13 – A14	Notification of commencement	5.1.1
A15	Surrender of 10639/2005	3.1.2
A16	SSD10369 prevails over 10639/2005 in the event of ambiguity	3.1.2
A17	Community Consultative Committee	4.3.3
A18	Evidence of consultation	Noted
A19	Application of existing strategies, plans or programs	Noted
A20 – A22	Staging, combining and updating strategies, plans or programs	Noted, 1.2
A23	Payment of reasonable costs	Noted
A24	Protection of Public Infrastructure	Noted
A25	Demolition	5.10
A26	Operation of Plant and Equipment	5
A27	Compliance	4.2
A28	Applicability of guidelines	Noted
A29	Revision of guidelines	Noted
A30 – A31	Production data submitted to MEG annually	4.3.7

Specific Environmental Conditions

Cond. No.	Summary of Requirement	EMS Reference
B1	Noise Criteria	5.7.1
B2	Monitoring of noise in line with standards	6.2, Appendix 5
B3	Noise criteria do not apply if an agreement is in place	5.7.1
B4	Noise Operating Conditions	5.7.2
B5 – B6	Noise monitoring program	Appendix 5
B7 – B21	Blast management	BMP
B22	Odour	5.3.4
B23	Greenhouse Gas	5.3.5
B24	Air Quality criteria	5.3.1
B25	Air Quality criteria do not apply if an agreement is in place	5.3.1
B26	Air quality operating conditions	5.3.2, 5.3.3
B27 – B29	Air quality monitoring program	6.2, Appendix 4
B30	Meteorological monitoring	6.2

Cond. No.	Summary of Requirement	EMS Reference
B31 – B43	Water management	WMP
B44 – B47	Protection of Aboriginal cultural heritage	5.6.1
B48 – B57	Historic heritage management	HHMP
B58 – B67	Biodiversity management	BMP
B68 – B82	Rehabilitation of the site	RS, RMP
B83	Rehabilitation bond lodged	5.2
B84	Calculation of the rehabilitation bond	5.2
B85	Review of rehabilitation bond	5.2
B86	Release of rehabilitation bond	Noted
B87	Call in of rehabilitation bond	Noted
B88-B90	Final landform infrastructure bond	Not yet required
B91	Minimise visual and off-site lighting impacts	5.10
B92	Construction of tree screen	5.10
B93 – B94	Waste management	5.10
B95	Dangerous Goods	5.12
B96 – B98	Bushfire management	5.13.3

Additional Procedures

Cond. No.	Summary of Requirement	EMS Reference
C1 – C3	Additional mitigation upon request	Not currently applicable
C4 – C5	Landowner notification of exceedances	6.4.1
C6 – C8	Independent review at request of landowner	4.3.6

Environmental Management, Reporting, and Auditing

Cond. No.	Summary of Requirement	EMS Reference
D1	Environmental Management Strategy	This Strategy
D2 – D4	Environmental Management Strategy submission, approval, and implementation	1.2
D5	Adaptive Management	6.4.3
D6 – D7	Revision of Strategies, Plans, and Programs	6.6
D8 – D9	Incident and Non-Compliance reporting	6.4
D10	Annual Review	6.6
D11 – D12	Independent Environmental Audit	6.3.3
D13	Monitoring and environmental audits	Noted
D14	Monitoring at representative locations	Figure 11
D15	Access to Information	4.3.4

Appendix 2 – HSEQ Policy

Uncontrolled version. Current as at 26/3/2024.

HEALTH, SAFETY, ENVIRONMENT & QUALITY POLICY

Cleary Bros is a leading independent construction materials business principally based in the Greater Sydney, Illawarra and South Coast regions of New South Wales, operating in the quarrying, concrete and construction sectors. Founded in 1916 and remaining privately owned, Cleary Bros operates two major quarrying sites at Albion Park and Gerroa, partnering with a range of clients for delivery of civil projects.

OUR COMMITMENT

Cleary Bros is committed to doing the right thing by:

- **Our People**: We foster a safe and healthy working environment for employees, contractors and visitors, and promote safe behaviours to ensure our people return home safely to their families at the end of each working day.
- **Our Customers**: We aim to deliver efficient services and quality products that meet customer requirements.
- **Our Environment**: We conduct our operations in compliance with all relevant environmental licences and regulations. We identify and assess hazards to the environment and control them as part of a total risk management process, striving to minimise our impact on the environment.
- **Our Community**: We strive to be a valued corporate citizen in the communities in which we operate.

OUR FRAMEWORK

To meet our commitment Cleary Bros will:

- Develop and maintain a HSEQ Management framework that encourages ownership and safety leadership.
- Focus on risks that have the potential to cause harm to our people or the environment ensuring that every employee and contractor has the responsibility and authority to stop work if there is unacceptable risk of harm to people, communities, the environment or sites of cultural significance.
- Work to eliminate both physical and psychosocial hazards that could cause incidents, injuries or illnesses by requiring every employee and contractor working for us to comply with relevant legislation and the health and safety management standards and systems established to ensure the safety of the workforce.
- Enhance the skills and knowledge of our people through training and development to undertake their work in a safe and healthy manner.
- Consult, cooperate, and collaborate with our employees, contractors and key stakeholders to maintain a strong safety culture where everyone feels safe to speak up and is confident that their concerns will be heard and acted upon.
- Demonstrate sustainable business practices by considering the social, economic and environmental outcomes of our activities.
- Strive to continuously improve our performance by setting objectives which are transparently reported on and learnings shared with the whole business.

Cleary Bros acknowledges managing health, safety, environment and quality is a responsibility throughout the organisation. It takes a team effort, and we encourage all employees to work together to find solutions and learn from our experiences.

Steve Rogers

Steve Rogers
Chief Executive Officer, 28 February 2023

Appendix 3 – Environmental Risk Assessment

Likelihood Score

Key	Likelihood	Likelihood Description
5	**Almost Certain**	"A Very High Likelihood is present when any of the following are in place: 1. Almost certain to occur in the identified circumstances without any controls in place; and/or 2. The number and regularity of reported incidents / issues arising from this risk indicates a trend with regularity, expecting it to occur again with near-certainty; and/or 3. A quantified very high exposure to the risk without any controls in place"
4	**Likely**	"A High Likelihood is present when any of the following are in place: 1. Strong anecdotal evidence that it is likely to occur in the identified circumstances without any controls in place; and/or 2. The number and regularity of reported incidents / issues arising from this risk indicates a trend with regularity but not indicating a near-certainty of re-occurrence; and/or 3. A quantified high exposure to the risk without any controls in place"
3	**Possible**	"A Medium Likelihood is present when any of the following are in place: 1. May occur in the identified circumstances without any controls in place; and/or 2. The number and regularity of reported incidents / issues arising from this risk is infrequent and time to time; and/or 3. A quantified moderate exposure to the risk without any controls in place"
2	**Unlikely**	"A Low Likelihood is present when any of the following are in place: 1. Could occur at some time in the identified circumstances without any controls in place but not expected; and/or 2. There are one or two reported incidents / issues arising from this risk to date; and/or 3. A quantified low exposure to the risk without any controls in place"
1	**Rare**	"A Very Low Likelihood is for the following: 1. Highly unlikely to occur in the identified circumstances without any controls in place; and/or 2. No evidence of reported incidents / issues in the past; and/or 3. No quantified and known exposure to the risk without controls in place"

Consequence Score

Key	Consequence Ratings	Description
5	**Catastrophic**	Actual or with the Potential to cause fatality Major release impacting environment/atmosphere, irreversible damage Major level of property damage and/or destruction and /or financial loss >$2 million Dissatisfaction potential feedback and media/change in public perception
4	**Significant**	Actual or with the potential to cause permanent disabling Injury or Illness. Major release impacting environment/atmosphere major clean up required Major level of property damage or financial loss < $2 million Dissatisfaction potential feedback to change internal perception
3	**Moderate**	Lost time injury (LTI) or illness or suitable duties Moderate release impacting environment / atmosphere, clean up required Moderate level of property damage or financial loss >$200k Dissatisfaction potential negative/positive feedback
2	**Minor**	First aid assistance or medical treatment (MTI) Minor release impacting environment/atmosphere straight forward clean up Minor level of property damage or financial loss >$50k Potential negative/positive feedback
1	**Minimal**	No first aid treatment, Report Only Insignificant or no harm and / or impact on environment / atmosphere Very small level of property damage or financial loss >$10k Potential/perceived negative/positive feedback

Risk Matrix

Consequence Level	Likelihood				
	Almost Certain (5)	Likely (4)	Possible (3)	Unlikely (2)	Rare (1)
Catastrophic (5)	25	24	22	19	15
Significant (4)	23	21	18	14	10
Moderate (3)	20	17	13	9	6
Minor (2)	16	12	8	5	3
Minimal (1)	11	7	4	2	1

Risk Acceptability

Risk Rating	Action
Extremely High	STOP - reduce hazard as far as reasonably practicable and ensure approval by the General Manager is documented either in the risk assessment, register or SWMS. Level 1 and Level 2 Controls required for these risks.
High	STOP – reduce hazard as far as reasonably practicable and ensure approval by the General Manager is documented either in the risk assessment, register or SWMS. Level 1 and Level 2 Controls required for these risks.
Medium	PROCEED with stated controls and monitor
Low	PROCEED and monitor

Risk Register – Uncontrolled version. Extracted from Risk Register 11/3/2024. Related to risks associated with Stages 1-6 and 7a only.

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Removal of Belmont and ancillary structures	Loss of cultural heritage	Quarry Manager	Quarrying activities	Loss of heritage items relating to the "Belmont" residence and related structures above that predicted by the EIS.	Historic Heritage Management Plan provides controls to minimising impacts Archival Reporting prior to, during, and after demolition of Belmont Heritage Interpretation Plan prepared and shared with community via Council / Museum Community members provided opportunity to recover items from Belmont Archaeological excavation during Belmont demolition Unexpected finds process	Minor	Possible	8	Medium	Archaeological Excavation Report. Archival Report. Heritage Interpretation Plan provided to Museum.	

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Relocation of dry stone walls	Loss of cultural heritage	Quarry Manager	Quarrying activities	Loss of dry stone walls	Historic Heritage Management Plan provides controls to minimising impacts Dry stone walls reconstructed on property by experienced stone waller	Minor	Unlikely	5	Low	Photographic record in Annual Review	
Creation of vegetation screens	Screen establishment unsuccessful	Quarry Manager	Poor screen design Poor implementation	Quarry is visible to sensitive receivers Quarry cannot continue into Stage 7d	Design and implementation by experienced bush regenerator or rehabilitation practitioners Northern vegetation screen must be 10m high prior to stripping activities in Stage 7d	Minimal	Possible	4	Low	Inspection reports following planting as per RMP	
Vegetation Clearing	Fauna impacts	Quarry Manager	Clearing during breeding season Poor management of vegetation clearing	Injuries or death to native fauna	Implement clearing controls from Biodiversity Management Plan. Clearing activities to target Summer and Autumn months to limit breeding season.	Minor	Unlikely	5	Low	Letter from Ecologist following clearing	
Vegetation Clearing	Loss of biodiversity	Quarry Manager	Clearing boundaries not identified Workers not aware of role Biodiversity offsets not retired	Significant impacts upon habitat for terrestrial fauna species, threatened or rare native vegetation or vegetation communities and biodiversity values	Implement clearing controls from Biodiversity Management Plan. All clearing works undertaking in accordance with a Permit to Disturb issued by Environment Officer Biodiversity offsets secured and credits retired prior to clearing of any area.	Significant	Rare	10	Medium	Permit to Disturb closed out. Biodiversity credits retirement confirmation.	
Vegetation Clearing	Weed outbreak	Quarry Manager	Edge effects of quarry not appropriately managed	Weeds and/or pests impact biodiversity values of surrounding areas	Biodiversity Management Plan includes management of weeds and pests in edge areas Biannual inspections of buffer areas.	Moderate	Possible	13	Medium	Biannual inspection report	
Vegetation Clearing	Noise impacts	Quarry Manager	Poor maintenance of equipment Noise enhancing weather	Noise emissions exceeding the levels identified in the negotiated agreement with the owners of "Figtree Hill". Noise emissions impacting the amenity of other receivers.	Negotiated agreement and regular meetings with Figtree Hill Standard noise suppression installed on mobile plant Maintenance of equipment in line with OEM requirements Mobile equipment fitted with broadband reversing alarms Real time noise monitor and TARP Verification noise monitoring of short term activities Avoid stripping works during conditions conducive to temperature inversions (early winter mornings) Prioritise stripping works during Spring and summer where possible to utilise favourable winds Operations restricted 7am-6pm M-F & 7am-1pm Sat	Moderate	Possible	13	Medium	Noise verification monitoring. Attended monitoring reports. Site Supervisor daily logs.	Refer to TARP for additional controls

Risk Identification					Risk Management & Control	Risk Evaluation				Risk Treatment	
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Soil Stripping	Unexpected impacts to cultural heritage values	Quarry Manager	Unexpected finds Workers not trained on identifying artefacts	Loss of Aboriginal or European cultural heritage values and reduction of in situ archaeological record	Impact area inspected by archaeologist and RAP as part of EIS. Permit to Disturb issued by Environment Officer considers existing heritage values Workers undertaking clearing activities trained in artefact identification and the unexpected finds process. Archaeologist and RAP's involved in training program Archaeological excavation completed around known heritage features	Minor	Unlikely	5	Low	Training records Archaeological excavation report	
Soil Stripping	Loss of topsoil resource	Quarry Manager	Poor identification and segregation of soil and overburden during stripping Erosion and loss of materials from soil stockpiles	Inadequate soil available for rehabilitation purposes leading to less successful rehabilitation and increased rehabilitation costs and maintenance	Topsoil stripped and stockpiled as per Rehabilitation MP. Permit to Disturb issued by Environment Officer includes soil stripping location, required soil stripping depths, and soil stockpile location Topsoil reused immediately where opportunities permit.	Moderate	Unlikely	9	Medium	Permit to Disturb closed out. Topsoil stockpile inventory.	
Soil Stripping	Contamination of topsoil	Quarry Manager	Contamination or disturbance. Leaching and natural degradation	Degradation of soil in stockpiles leading to less successful rehabilitation and increased rehabilitation costs and maintenance	Topsoil stripped and stockpiled as per Rehabilitation MP. Topsoil stockpiles signposted and shaped to prevent vehicle access. Topsoil stockpiled no greater than 2 metres high. Topsoil reused as soon as opportunities permit.	Moderate	Possible	13	Medium	Topsoil stockpile inventory	
Soil Stripping	Noise impacts	Quarry Manager	Poor maintenance of equipment Noise enhancing weather	Noise emissions exceeding the levels identified in the negotiated agreement with the owners of "Figtree Hill". Noise emissions impacting the amenity of other receivers.	Negotiated agreement and regular meetings with Figtree Hill Standard noise suppression installed on mobile plant Maintenance of equipment in line with OEM requirements Mobile equipment fitted with broadband reversing alarms Real time noise monitor and TARP Verification noise monitoring of short term activities Avoid stripping works during conditions conducive to temperature inversions (early winter mornings) Prioritise stripping works during Spring and summer where possible to utilise favourable winds Daily inspections by Quarry Supervisor Operations restricted 7am-6pm M-F & 7am-1pm Sat	Moderate	Possible	13	Medium	Noise verification monitoring. Attended monitoring reports. Site Supervisor daily logs.	Audit noise attenuation equipment installed on all dozers Refer to TARP for additional controls

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Soil Stripping	Dust impacts	Quarry Manager	Windy days increasing movement of dust Dry material	Health impacts to occupants within the Figtree Hill residences. Health/amenity impacts on occupants of non-Project related residences.	Water cart used to wet down high-risk areas as required. Petrographic Analysis shows <1% silica Air quality monitoring program including real-time particulate monitors and TARP in place Daily inspections of activities by Quarry Supervisor Monitoring of forecasts for adverse weather Minimise soil stripping to areas required over next 12 months Adjust soil stripping activities to weather conditions Stabilise soil stockpiles within 28 days of completion	Minor	Possible	8	Medium	HVAS monitoring reports. Site Supervisor daily logs.	Refer to TARP for additional controls
Soil Stripping	Pollution of watercourses	Quarry Manager	Ineffective sediment control measures	Reduction in water quality in local watercourses within the Rocklow Creek catchment.	Erosion and Sediment Control Plan prepared and implemented. Permit to disturb process includes ESCP check Soil stockpiles to be located within excavation footprint as far as reasonably practicable. Stripped areas to be drained internally as soon as practicable.	Moderate	Possible	13	Medium	Permit to Disturb closed out. Surface water monitoring records.	
Creation of amenity barrier	Noise impacts	Quarry Manager	Poor maintenance of equipment Noise enhancing weather	Noise emissions exceeding the levels identified in the negotiated agreement with the owners of "Figtree Hill". Noise emissions impacting the amenity of other receivers.	Negotiated agreement and regular meetings with Figtree Hill Standard noise suppression installed on mobile plant Maintenance of equipment in line with OEM requirements Mobile equipment fitted with broadband reversing alarms Real time noise monitor and TARP Verification noise monitoring of short term activities Avoid stripping works during conditions conducive to temperature inversions (early winter mornings) Prioritise stripping works during Spring and summer where possible to utilise favourable winds Daily inspections by Quarry Supervisor Operations restricted 7am-6pm M-F & 7am-1pm Sat	Moderate	Possible	13	Medium	Noise verification monitoring. Attended monitoring reports. Site Supervisor daily logs.	Audit noise attenuation equipment installed on all dozers Refer to TARP for additional controls
Creation of amenity barrier	Dust impacts	Quarry Manager	Windy days increasing movement of dust Dry material	Health impacts to occupants within the Figtree Hill residences. Health/amenity impacts on occupants of non-Project related residences.	Water cart used to wet down high-risk areas as required. Petrographic Analysis shows <1% silica Air quality monitoring program including real-time particulate monitors and TARP in place Daily inspections of activities by Quarry Supervisor Monitoring of forecasts for adverse weather Avoid amenity bund construction during unfavourable weather. Stop during adverse weather	Minor	Possible	8	Medium	HVAS monitoring reports. Site Supervisor daily logs.	Refer to TARP for additional controls

Risk Identification					Risk Management & Control	Risk Evaluation				Risk Treatment	
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Creation of amenity barrier	Visual amenity impacts	Quarry Manager	Poor sequencing and revegetation of bunds	Views from Figtree Hill degraded Views from private residences in Shell Cove and public roads degraded	If possible, amenity bund constructed in a single campaign at commencement of quarrying in Stage 7. Where not possible, bund constructed in discrete sections allowing for staged revegetation. Completed sections of bund to be spray-seeded with grass mix within one month of completion of section. Follow up seeding to be undertaken on areas not showing establishment within 3 months of treatment.	Minimal	Possible	4	Low	Inspection reports following seeding as per RMP	
Creation of amenity barrier	Pollution of watercourses	Quarry Manager	Ineffective sediment control measures Poor stabilisation of amenity barrier	Reduction in water quality in local watercourses within the Rocklow Creek catchment	Erosion and Sediment Control Plan prepared and implemented. Permit to disturb process includes ESCP check Amenity barrier to be stabilised and hydroseeded at earliest opportunity. Follow up treatment as required in line with Rehabilitation Management Plan Extensive grass buffer around amenity barrier to be retained	Minor	Unlikely	5	Low	Permit to Disturb closed out. Surface water monitoring records.	
Overburden Stripping	Noise impacts	Quarry Manager	Poor maintenance of equipment Noise enhancing weather	Noise emissions exceeding the levels identified in the negotiated agreement with the owners of "Figtree Hill". Noise emissions impacting the amenity of other receivers.	Negotiated agreement and regular meetings with Figtree Hill Standard noise suppression installed on mobile plant Maintenance of equipment in line with OEM requirements Mobile equipment fitted with broadband reversing alarms Real time noise monitor and TARP Verification noise monitoring of short term activities Avoid stripping works during conditions conducive to temperature inversions (early winter mornings) Prioritise stripping works during Spring and summer where possible to utilise favourable winds Daily inspections by Quarry Supervisor Operations restricted 7am-6pm M-F & 7am-1pm Sat	Moderate	Possible	13	Medium	Noise verification monitoring. Attended monitoring reports. Site Supervisor daily logs.	Audit noise attenuation equipment installed on all dozers Refer to TARP for additional controls
Overburden Stripping	Dust impacts	Quarry Manager	Windy days increasing movement of dust Dry material	Health impacts to occupants within the Figtree Hill residences. Health/amenity impacts on occupants of non-Project related residences.	Water cart used to wet down high-risk areas as required. Petrographic Analysis shows <1% silica Air quality monitoring program including real-time particulate monitors and TARP in place Daily inspections of activities by Quarry Supervisor Monitoring of forecasts for adverse weather Avoid amenity bund construction during unfavourable weather. Stop during adverse weather	Minor	Possible	8	Medium	HVAS monitoring reports. Site Supervisor daily logs.	Refer to TARP for additional controls

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Overburden Stripping	Pollution of watercourses	Quarry Manager	Ineffective sediment control measures	Reduction in water quality in local watercourses within the Rocklow Creek catchment.	Erosion and Sediment Control Plan prepared and implemented. All areas drain internally to quarry sumps	Minor	Rare	3	Low	Site Supervisor logs. Surface water monitoring records.	
Overburden Stripping	Visual amenity impacts	Quarry Manager	Quarrying activities	Reduction in visual amenity	Vegetation screens and bunds to be established at the earliest stage of the project. Site is distant from most receivers. Sequencing of stages will provide screening of most activities	Minor	Unlikely	5	Low	Annual Review - progress of screens and amenity bunds	
Drilling and Blasting	Noise impacts	Quarry Manager	Poor maintenance of equipment Noise enhancing weather	Noise emissions exceeding the levels identified in the negotiated agreement with the owners of "Figtree Hill".	Negotiated agreement and regular meetings with Figtree Hill Standard noise suppression installed on mobile plant Maintenance of equipment in line with OEM requirements Drill rig fitted with broadband reversing alarms Real time noise monitor and TARP Avoid drilling near surface during conditions conducive to temperature inversions (early winter mornings) Prioritise drilling on upper benches during favourable weather conditions Use noise barriers to limit noise where other controls are not effective Daily inspections by Quarry Supervisor Operations restricted 7am-6pm M-F & 7am-1pm Sat	Moderate	Unlikely	9	Medium	Noise verification monitoring. Attended monitoring reports. Site Supervisor daily logs.	Audit noise attenuation equipment installed on drill rig Refer to TARP for additional controls
Drilling and Blasting	Dust impacts	Quarry Manager	Dry ground Windy conditions increase movement of dust	Amenity impacts on occupants of non-Project related residences.	Surface of shot wet down by watercart prior to blast during dry conditions. Wind direction and strength reviewed prior to blasting to assess risk of dust transport Weather forecast reviewed when planning blasts - blasts rescheduled if strong winds forecast	Minimal	Possible	4	Low	HVAS monitoring reports. Site Supervisor daily logs.	
Drilling and Blasting	Blasting vibration or air overpressure damages structures	Quarry Manager	Inadequate design Noise enhancing weather	Blasting emissions damage structures or stock on surrounding properties	Maximum MIC calculated for each blast based on current site laws for nearest structures and boundary Blast design as per Blast Management PlanBlasting scheduled to avoid temperature inversions Holcim contacted prior to blasting to ensure no overlap Dilapidation surveys undertaken on Figtree Hill residences	Minor	Unlikely	5	Low	Blast monitoring reports	

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Drilling and Blasting	Blasting vibration or air overpressure causes amenity impacts	Quarry Manager	Inadequate design Noise enhancing weather	Blast emissions disturb amenity of surrounding residents	Maximum MIC calculated for each blast based on current site laws Blast design as per Blast Management Plan Blasting scheduled to avoid temperature inversions Holcim contacted prior to blasting to ensure no overlap Blast dates and results displayed on CB website Interested parties notified in advance of blasts	Minor	Likely	12	Medium	Blast monitoring reports	
Drilling and Blasting	Blast fume impacts persons	Quarry Manager	Improper selection of explosives Deterioration of explosives	Health impacts on occupants of surrounding residences.	Wet emulsion based products used Shots fired on day of loading to prevent deterioration Package products used if increased water risk	Moderate	Rare	6	Low	Drill and Blast Design form completed.	
Drilling and Blasting	Flyrock ejected outside of property boundary during blasting activities	Quarry Manager	Inadequate design Poor control of blast	Damage to privately owned residences, buildings, infrastructure or stock	Property/equipment/stock exclusion area to be 2 times flyrock envelope modelled using flyrock model (excluding fencing) Blast design to be modified if required to ensure exclusion area can be achieved. Exclusion area checked and sentries posted prior to blasting Blast design as per Blast Management PlanAny damage to structures including fencing to be repaired by CB in consultation with owner	Minor	Unlikely	5	Low	Drill and Blast Design form completed.	
Drilling and Blasting	Flyrock ejected outside of property boundary during blasting activities	Quarry Manager	Inadequate design Poor control of blast	Personal Injury	Personnel exclusion area to be 4 times flyrock envelope modelled using flyrock model. Blast design to be modified if required to ensure exclusion area can be achieved. Exclusion area checked and sentries posted prior to blasting Blast design as per Blast Management Plan	Significant	Rare	10	Medium	Drill and Blast Design form completed.	
Drilling and Blasting	Hazardous materials handling	Quarry Manager	Traffic incident	Potential for accident on site or off site	Transport undertaken by specialist blasting contractor	Moderate	Rare	6	Low	Contractor Register including licences	
Drilling and Blasting	Final landform not achievable	Quarry Manager	Drilling and blasting not in line with final landform	Failure of final benches. Visual amenity impacts to sensitive receivers	Blast design to incorporate final landform plan	Moderate	Unlikely	9	Medium	Permit to Disturb completed. Drill and Blast Design form completed.	

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Primary Processing - In Pit	Noise impacts	Quarry Manager	Poor maintenance of equipment Noise enhancing weather Configuration of excavation Excess drop heights	Noise emissions exceeding the levels identified in the negotiated agreement with the owners of "Figtree Hill". Noise emissions impacting the amenity of other receivers	Negotiated agreement and regular meetings with Figtree Hill Maintenance of equipment in line with OEM requirements Biannual attended monitoring of noise levels Real time noise monitor and TARP Pit design and equipment placement to maximise shielding of operations to sensitive receivers Loaders fitted with broadband reversing alarms Training of operators to minimise drop heights Operations restricted 7am-6pm M-F & 7am-1pm Sat	Moderate	Unlikely	9	Medium	Attended monitoring reports. Site Supervisor daily logs.	Audit noise attenuation equipment installed on loading equipment Refer to TARP for additional controls
Primary Processing - In Pit	Dust impacts	Quarry Manager	Dust generated from processing plant Windy days increasing movement of dust	Health impacts to occupants within the Figtree Hill residences. Health/amenity impacts on occupants of non-Project related residences.	Misting sprays used on crushing plants Petrographic Analysis shows <1% silica Air quality monitoring program including real-time particulate monitors and TARP in place Daily inspections of activities by Quarry Supervisor Monitoring of forecasts for adverse weather	Minor	Unlikely	5	Low	HVAS monitoring reports. Site Supervisor daily logs.	Refer to TARP for additional controls
Secondary Processing - in pit	Noise impacts	Quarry Manager	Poor maintenance of equipment Noise enhancing weather Configuration of excavation Excess drop heights	Noise emissions exceeding the levels identified in the negotiated agreement with the owners of "Figtree Hill". Noise emissions impacting the amenity of other receivers	Negotiated agreement and regular meetings with Figtree Hill Maintenance of equipment in line with OEM requirements Biannual attended monitoring of noise levels Real time noise monitor and TARP Pit design and equipment placement to maximise shielding of operations to sensitive receivers Secondary crushers to operate on pit floor only Training of operators to minimise drop heights Loaders fitted with broadband reversing alarms Operations restricted 7am-6pm M-F & 7am-1pm Sat	Moderate	Unlikely	9	Medium	Attended monitoring reports. Site Supervisor daily logs.	Audit noise attenuation equipment installed on loading equipment Refer to TARP for additional controls
Secondary Processing - in pit	Dust impacts	Quarry Manager	Dust generated from processing plant Windy days increasing movement of dust	Health impacts to occupants within the Figtree Hill residences. Health/amenity impacts on occupants of non-Project related residences.	Misting sprays used on crushing plants Petrographic Analysis shows <1% silica Air quality monitoring program including real-time particulate monitors and TARP in place Daily inspections of activities by Quarry Supervisor Monitoring of forecasts for adverse weather	Minor	Unlikely	5	Low	HVAS monitoring reports. Site Supervisor daily logs.	Refer to TARP for additional controls
Load haul trucks	Dust impacts	Quarry Manager	Dust generated when loading haul trucks Windy days increasing movement of dust	Health impacts to occupants within the Figtree Hill residences. Health/amenity impacts on occupants of non-Project related residences.	Water cart used to wet down high-risk areas as required. Petrographic Analysis shows <1% silica Air quality monitoring program including real-time particulate monitors and TARP in place Daily inspections of activities by Quarry Supervisor Monitoring of forecasts for adverse weather	Minor	Rare	3	Low	HVAS monitoring reports. Site Supervisor daily logs.	Refer to TARP for additional controls

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Haul material to processing area	Noise impacts	Quarry Manager	Poor maintenance of equipment and roads Noise enhancing weather Configuration of excavation	Noise emissions exceeding the levels identified in the negotiated agreement with the owners of "Figtree Hill". Noise emissions impacting the amenity of other receivers	Negotiated agreement and regular meetings with Figtree Hill Maintenance of equipment in line with OEM requirements. Regular grading of roads Biannual attended monitoring of noise levels Real time noise monitor and TARP Pit design to maximise shielding of operations to sensitive receivers Ramps designed to a gradient of no greater than 1:10 where practicable. Haul trucks fitted with broadband reversing alarms Prioritise larger capacity haul trucks Haul roads will be maintained in good condition Operations restricted 7am-6pm M-F & 7am-1pm Sat	Minor	Possible	8	Medium	Attended monitoring reports. Site Supervisor daily logs.	Audit noise attenuation equipment installed on haul trucks Refer to TARP for additional controls
Haul material to processing area	Dust impacts	Quarry Manager	Wheel generated dust Windy days increasing movement of dust	Health impacts to occupants within the Figtree Hill residences. Health/amenity impacts on occupants of non-Project related residences	Water cart used minimise dust generation Speed limit of 30km/h Use of large capacity haul trucks where possible to minimise number of trips Air quality monitoring program including real-time particulate monitors and TARP in place Daily inspections of activities by Quarry Supervisor Monitoring of forecasts for adverse weather	Minor	Possible	8	Medium	HVAS monitoring reports. Site Supervisor daily logs.	Refer to TARP for additional controls
Crushing in Processing Area	Noise impacts	Quarry Manager	Poor maintenance of equipment Noise enhancing weather	Noise emissions impacting the amenity of sensitive receivers	Maintenance of equipment in line with OEM requirements Noise bund constructed by TfNSW next to the Greenmeadows estate and sites design maximises topographic shielding to all sensitive receivers	Minimal	Rare	1	Low	Attended monitoring reports. Site Supervisor daily logs.	
Crushing in Processing Area	Dust impacts	Quarry Manager	Dust generated from processing plant Windy days increasing movement of dust	Health impacts to occupants within the Figtree Hill residences. Health/amenity impacts on occupants of non-Project related residences.	Misting sprays used on crushing plants Petrographic Analysis shows <1% silica Air quality monitoring program including real-time particulate monitors and TARP in place Daily inspections of activities by Quarry Supervisor Monitoring of forecasts for adverse weather	Minor	Unlikely	5	Low	HVAS monitoring reports. Site Supervisor daily logs.	Refer to TARP for additional controls
Stockpiling of material	Noise impacts	Quarry Manager	Poor maintenance of equipment Noise enhancing weather	Noise emissions impacting the amenity of sensitive receivers	Maintenance of equipment in line with OEM requirements Noise bund constructed by TfNSW next to the Greenmeadows estate and sites design maximises topographic shielding to all sensitive receivers	Minimal	Rare	1	Low	Attended monitoring reports. Site Supervisor daily logs.	

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Stockpiling of material	Dust impacts	Quarry Manager	Windy days increasing movement of dust	Health/amenity impacts on occupants of non-Project related residences	Misting sprays used on processing plants. Stockpiling area located in protected gully. Air quality monitoring program including real-time particulate monitors and TARP in place Daily inspections of activities by Quarry Supervisor Monitoring of forecasts for adverse weather	Minor	Unlikely	5	Low	HVAS monitoring reports. Site Supervisor daily logs.	Refer to TARP for additional controls
Stockpiling of material	Pollution of watercourses	Quarry Manager	Ineffective sediment control measures	Reduction in water quality in local watercourses within the Lake Illawarra catchment	Permanent sediment basin in processing area Sediment pits located at targeted locations Desilting of sediment basin included in MEX Riparian corridor maintained	Minor	Possible	8	Medium	Surface water monitoring records.	
Loading and transport of product	Noise impacts	Quarry Manager	Poor maintenance of equipment Noise enhancing weather	Noise emissions impacting the amenity of sensitive receivers	Maintenance of equipment in line with OEM requirements Noise bund constructed by TfNSW next to the Greenmeadows estate and sites design maximises topographic shielding to all sensitive receivers	Minimal	Rare	1	Low	Attended monitoring reports. Site Supervisor daily logs.	
Loading and transport of product	Dust impacts	Quarry Manager	Wheel generated dust Windy days increasing movement of dust	Health/amenity impacts on occupants of non-Project related residences	Access road sealed to the Sales Area Wheel wash for vehicles leaving Sales Area Road sweeper used to collect remaining sediment Air quality monitoring program including real-time particulate monitors and TARP in place Daily inspections of activities by Quarry Supervisor Monitoring of forecasts for adverse weather	Minor	Possible	8	Medium	HVAS monitoring reports. Site Supervisor daily logs.	Refer to TARP for additional controls
Water Discharges	Pollution of watercourses	Quarry Manager	Discharge of turbid water	Reduction in water quality in local watercourses	Water discharge form used to record and approve all discharges from quarry pit sumps in accordance with EPL conditions Site Supervisor trained in monitoring and discharge process	Minor	Unlikely	5	Low	APQ Turbidity and pH sample form. Quarry discharge log. Surface water monitoring records.	
Servicing of Equipment	Hydrocarbon contamination	Quarry Manager	Insufficient or ineffective bunding. Excessive uncontained spill	Contamination of land or water resources	Bulk hydrocarbons stored in accordance with AS1940 Regular inspection and testing of facility scheduled through MEX SEPA unit and high level alarms installed. Spill kits on all service trucks Workers trained to control, contain, clean-up spills PIRMP in place and tested annually	Moderate	Rare	6	Low	MEX records Site Supervisor logs	

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Servicing of Equipment	Waste generation	Quarry Manager	Ineffective waste segregation and management practices	Poor stewardship of resources	Recycling facilities available for waste oil, batteries, cardboard, and scrap metal	Minimal	Possible	4	Low	Waste collection receipts	
Import of material for rehabilitation	Pollution of watercourses	Quarry Manager	Ineffective sediment control measures	Reduction in water quality in local watercourses within the Rocklow Creek catchment.	Imported material to be placed inside quarry ESCP area only.	Minor	Rare	3	Low	Site Supervisor logs. Surface water monitoring records.	
Import of material for rehabilitation	Land contamination	Quarry Manager	Contaminated material brought to site	Failure of rehabilitation	Only VENM and ENM to be imported for rehabilitation purposes. Supplier to sign S93 notice confirming material characterisation. Each load to be checked for contamination. Loads only brought to site under allocations tracking.	Minor	Unlikely	5	Low	S93 forms. Freight2020 records.	
Creation of final landform	Final landform not achievable	Quarry Manager	Proposed final land use is no longer relevant at time of quarry closure Final landform is inaccessible for preferred land use Insufficient skills	Underutilisation of site once quarrying completed	Rehabilitation Strategy to be reviewed every five years to identify emerging opportunities Engagement of specialist consultants or contractors to address specific matters or tasks. Employment of a suitably qualified and experienced Environmental Officer. Responsibilities defined in RMP	Moderate	Rare	6	Low	Rehabilitation Strategy reviewed in last 5 years	Negotiation with neighbouring landholder to formalise permanent right of way from public road
Creation of final landform	Final landform not achievable	Quarry Manager	Highwall unstable	Underutilisation of site once quarrying completed	Geotechnical assessment and design by a qualified expert	Significant	Rare	10	Medium	Geotechnical review undertaken in past 5 years	
Creation of final landform	Final landform not achievable	Quarry Manager	Insufficient funding for rehabilitation	Underutilisation of site once quarrying completed Site presents a liability to future land users	Progressive rehabilitation. Lodgement of rehabilitation bond. Need to complete rehabilitation prior to sale or repurposing of land.	Moderate	Rare	6	Low	Current bond lodged	

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Creation of final landform	Visual amenity impacts	Quarry Manager	Quarrying activities	Reduction to heritage values for "The Hill Farm Complex" greater than preduced in the EIS	Quarry design sequenced to minimise amenity impacts to Figtree Hill property Vegetation screen to be planted on common property boundary - quarrying in Stage 7d not to commence until screen reaches 10m high Implementation of Rehabilitation Management Plan Rehabilitation of benches during extraction process Survey of terminal faces during construction.	Moderate	Unlikely	9	Medium	Inspection reports of vegetation screen (RMP). Annual Review includes current disturbance boundaries.	
Establishing growth medium of final landform	Growth medium not suitable	Quarry Manager	Poor retention of soil resources. Poor planning on rehabilitation domains	Reduction of the land and soil capability class within the Project Area	Permit to Disturb issued by Environment Officer includes required soil stripping depth Rehabilitation Management Plan identifies preferred rehabilitation domains Rehabilitation Management Plan specifies rehabilitation processes, including bench design, placement of overburden material, and revegetation activities Testing of soil resources prior to use, and amelioration and fertilisation where required to ensure appropriate growing conditions, in accordance with the nutrient and ameliorant application rate outlined in the RMP.	Moderate	Unlikely	9	Medium	Permit to Disturbs closed out. Topsoil inventory Test records of topsoil.	Import of additional topsoil material if required to ensure suitable growth medium
Revegetation	Target species do not establish	Quarry Manager	Insufficient maintenance of rehabilitated areas Encroachment from surrounding areas	Weeds and/or pests impede successful rehabilitation outcomes	Rehabilitation Management Plan developed in consultation with experienced bush regenerator. Implementation of RMP, including monitoring and trials Vehicle access to bench maintained until effective establishment.	Minor	Possible	8	Medium	Inspection reports following planting (RMP).	
Revegetation	Weed outbreak	Quarry Manager	Insufficient maintenance of rehabilitated areas Encroachment from surrounding areas	Weeds and/or pests impede successful rehabilitation outcomes	Rehabilitation Management Plan includes management of weeds, including an adaptive management program. Monitoring of rehab areas undertaken at regular intervals following seeding/planting.	Minor	Possible	8	Medium	Biannual inspection report	
Quarrying - General	Generation of excessive scope 1 Greenhouse Gas (GHG) emissions.	Quarry Manager	Inefficient operation of quarry Poorly maintained equipment with increased fuel burn Poorly designed and maintained roads	Climate change impacts from the Project, locally, regionally, and worldwide.	Use of large capacity haul trucks where possible to minimise number of trips and fuel burn Servicing of equipment in line with OEM requirements Grading and design of haul roads to minimise fuel burn Use of electrical power over diesel where possible	Minimal	Possible	4	Low	Quarry KPI tracking spreadsheet	Explore use of lower emission equipment at end of equipment life

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Quarrying - General	Excess scope 2 Greenhouse Gas (GHG) emissions.	Quarry Manager	Inefficient equipment Inefficient operation of equipment	Climate change impacts from the Project, locally, regionally, and worldwide.	Main processing plant connected to electricity grid Training of workers to consider energy use	Minimal	Likely	7	Low	Quarry KPI tracking spreadsheet	Site audit of energy usage to explore opportunities for improvement
Quarrying - General	Fire impacts people, property, and/or rainforest communities surrounding the site	Quarry Manager	Fire initiated on site	Off-site vegetation burnt and/or property or infrastructure damage or destruction	Quarry includes significant firebreaks Emergency Management Plan includes bushfire response procedures and equipment available Bushfire Management Plan prepared, printed and available to attending emergency services Bushfire Management Plan updated annually and sent to emergency services.	Minor	Unlikely	5	Low	Bushfire MP available and current. Record of distribution in last 12 months	
Quarrying - General	Fire impacts people, property, and/or rainforest communities surrounding the site	Quarry Manager	Bushfire initiated off site	On-site vegetation burnt and/or equipment damage or destruction	Quarry includes significant firebreaks Emergency Management Plan includes bushfire response procedures and equipment available Bushfire Management Plan prepared, printed and available to attending emergency services Bushfire Management Plan updated annually and sent to emergency services.	Minor	Unlikely	5	Low	Bushfire MP available and current. Record of distribution in last 12 months	
Quarrying - General	Visual amenity impacts	Quarry Manager	Quarrying activities	Views from Figtree Hill degraded greater than predicted	Quarry design sequenced to minimise visual impacts to the Figtree Hill property Vegetation screen to be planted on northern property boundary - quarrying in Stage 7d not to commence until screen reaches 10m high 10m wide upper benches on higher visibility benches to promote improved rehabilitation outcomes Rehabilitation of benches during extraction process	Moderate	Unlikely	9	Medium	Inspection reports of vegetation screen (RMP). Annual Review includes current disturbance boundaries.	
Quarrying - General	Visual amenity impacts	Quarry Manager	Quarrying activities	Views from private residences in Shell Cove and public roads degraded	Quarry design sequenced to allow early rehabilitation of visible benches Vegetation screens to be planted or encouraged in targeted areas. 10m wide upper benches on visible benches to promote improved rehabilitation outcomes Rehabilitation of benches during extraction process	Minor	Unlikely	5	Low	Inspection reports of vegetation screen (RMP). Annual Review includes current disturbance boundaries.	

Risk Identification					Risk Management & Control	Risk Evaluation					Risk Treatment
Activity	Risk Event	Risk Owner	Cause(s)	Impact Detail	Existing Control Detail	Severity	Likelihood	Risk Rating	Risk Classification	Verification	Additional Controls
Quarrying - General	Quarry operations impact groundwater availability	Quarry Manager	Modelling does not accurately reflect impact	Reduced groundwater levels and availability of groundwater for existing groundwater users Reduced baseflow contribution to local watercourses and spring-fed dams within the Rocklow Creek catchment	Water licences secured for modelled take of groundwater Groundwater monitoring program assesses groundwater levels around extraction area including spring-fed dams Make good provisions in the event groundwater impact exceeds that modelled	Minor	Unlikely	5	Low	Groundwater monitoring program	
Quarrying - General	Ancillary activities impact Aboriginal cultural heritage values outside of disturbance area	Quarry Manager	Unexpected finds Workers not trained on identifying artefacts	Loss of Aboriginal cultural heritage values and reduction of in situ archaeological record	All workers undertaking ground disturbance works to have undertaken or be supervised by someone who has undertaken unexpected finds training. Permit to Disturb issued by Environment Officer considers potential heritage values If a suspected Aboriginal object is identified, work in vicinity of find is to be stopped and an archaeologist consulted for further direction.	Minor	Rare	3	Low	Training records	

Appendix 4 – Air Quality Monitoring Program

Uncontrolled version. Current as at 26/3/2024

Albion Park Quarry

Air Quality Monitoring Program

SSD 10369

Version 1 Revision 2

Issued – February 2024

CLEARY BROS

ACKNOWLEDGEMENT

Cleary Bros acknowledge and pay our respects to the Traditional Custodians of the lands in NSW and Australia on which our projects are located. We value the knowledge, advice and involvement of the Elders and extended Aboriginal community that contribute to our Projects and extend our respect to all Aboriginal and Torres Strait Islander peoples.

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Document Control

Version	Date	Reason	Prepared	Reviewed/ Approved
V1	22/12/23	New monitoring program prepared for Stage 7 approval (SSD 10369)	Yang Liu	Mark Blake
V1 R2	29/2/24	Updated following consultation with EPA	Mark Hammond	Mark Hammond

1. Introduction

Cleary Bros operates a hard rock quarry and processing plant at Croom, near Albion Park in the City of Shellharbour. Under development consent SSD10369, Cleary Bros is permitted to extract up to 900,000 tonnes of quarry products per year from the Stage 7 area within Lot 1 of DP858245 and Lot 7 of DP3709. The quarry is bordered by a number of rural residences, higher density residential areas and other hard rock quarrying operations. Activities on the site include stripping of topsoil and overburden materials, blasting of the hard rock materials, initial processing and transportation to the fixed processing plant and sales area outside of the Project Area.

Conditions B27 and B28 of SSD10369 in relation to Air Quality Monitoring have been summarised in **Table 1**.

Table 1 Project Specific Air Quality Monitoring Conditions

Condition	Reference
B27. Prior to commencing quarrying operations in Stage 7 extraction area, the Applicant must prepare and implement an air quality monitoring program to identify whether the mitigation of dust emissions from the development is effective and to demonstrate compliance with the performance criteria listed in condition B24.	This Air Quality Monitoring Program.
B28. The air quality monitoring program must:	
(a) be prepared by a suitably qualified and experienced person/s endorsed by the Planning Secretary;	Section **1**
(b) be undertaken in accordance with the Approved Methods for Sampling and Analysis of Air Pollutants in NSW (EPA, 2022) and Ambient Air Monitoring Guidance Note (EPA, 2022);	Section **3.4**
(c) use air quality monitoring equipment approved by the Planning Secretary;	Section **3.4**
(d) use air quality monitors to collect data that can be used evaluate the performance of the development against the air quality criteria in this consent and guide day to day planning of quarrying operations;	Section **3.6**
(e) include a protocol for collecting and using air quality monitoring data to distinguish between the dust emissions of the development and the dust emissions of any neighbouring developments; and	Section **3.6**
(f) adequately support the air quality management system required by condition B26(c).	Section **3.4**

Cleary Bros also holds Environmental Protection Licence 299 (EPL299), which permits the extraction and processing of hard rock products, and includes the processing and stockpiling activities outside of the Project Area. EPL299 includes a requirement to implement a contemporary dust monitoring network utilising real time monitors with a trigger action response plan (TARP) which initiates a prompt operational response. As such, this Air Quality Monitoring Program has been prepared to also meet the requirements of EPL299.

The requirements of EPL299 are included in **Table 2.**

Table 2 Additional Air Quality Monitoring Conditions

Condition	Reference
1. By 30 June 2024, the licensee must implement a revised Air Quality Monitoring System approved by the EPA. The Air Quality Monitoring Program must incorporate:	This Air Quality Monitoring Program

Condition	Reference
(a) monitoring locations to account for varying wind directions and ensure the effective coverage and assessment of dust emissions from the premises and potential impacts to surrounding areas and receivers (nearby residents),	Section **3.2**
(b) contemporary real-time dust monitoring devices accounting for measuring PM10 and PM2.5,	Section **3.4**
(c) a comparison against the ambient air quality standard of 50 ug/m^3,	Section **3.7**
(d) a trigger action response plan which detects and prompts a specified immediate management response to elevated dust readings, with trigger levels based on best management practices and standards, and	Section **3.6**
(e) monitoring data reporting.	Section **3.7**

Cleary Bros will submit this Air Quality Monitoring Program (AQMP) to the EPA for approval prior to implementation. Once approved, the AQMP will be implemented prior to commencing quarrying in the Stage 7 area.

This monitoring program has been prepared by Yang Liu (ME Environmental 2006, UTS) Associate of VMS Pty Ltd, and reviewed by Mr Mark Blake (BE Mechanical (1st Class Hons) 1999, University of Sydney) Principal of VMS Pty Ltd. Mr Blake's appointment as principal author of this document was endorsed by the Planning Secretary on 14 November 2023.

Mr Mark Hammond (BEnvSc (hons)), Quality and Environment Manager with Cleary Bros, provided a range of information presented in this document, as well as updating the program following consultation with the EPA and approving the final version for release.

2. Project Requirements

Conditions B24 and B25 of SSD10369 state that:

B24. The Applicant must ensure that all reasonable and feasible mitigation and management measures are implemented so that particulate matter emissions generated by the development do not cause exceedances of the criteria in **Table 3** at any residence on privately-owned land.

Table 3 Air Quality Criteria

Pollutant	Averaging Period	Criterion
Particulate matter < 10 µm (PM_{10})	Annual	[a, c] 25 µg/m^3
	24 hour	[b] 50 µg/m^3
Particulate matter < 2.5 µm (PM_{10})	Annual	[a, c] 8 µg/m^3
	24 hour	[b] 25 µg/m^3
Total suspended particulate (TSP) matter	Annual	[a, c] 90 µg/m^3

Notes: [a] *Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).*

[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, fire incidents or any other activity agreed by the Planning Secretary.*

B25. The air quality criteria in **Table 3** do not apply if the Applicant has an agreement with the owner/s of the relevant residence or infrastructure to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.

Condition B26(c) of SSD10369 also describes the requirements of the Air Quality Monitoring Program as follows:

(c) operate a comprehensive air quality management system that uses a combination of predictive meteorological forecasting and real-time air quality monitoring data to guide the day-to-day planning of quarrying operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent.

3. Air Quality Monitoring Program

3.1 General Requirements

The AQMP is intended to provide for the contemporary measurement of particulate matter in real-time, which will allow quarry management to promptly respond if elevated dust levels are detected. The real-time network will be supported by a traditional (non-real time) particulate monitor which will be used to verify compliance with the air quality criteria.

Table 4 outlines the monitoring methods and locations of monitoring equipment to be installed to meet the requirements of SSD10369.

Table 4 Air Quality Monitoring Requirements

Monitoring Type	Monitoring Location	Monitoring Period	Monitoring Method	Purpose
Real-time Air Quality Monitoring	Near to "The Cottage" (Figtree Hill Residence) (RT1) Near the northern property boundary (adjacent to Pit 1) (RT2) Near the eastern boundary of Lot 7/3709 (RT3)	24 hours a day, 7 days a week	Measurement of TSP, PM_{10} and $PM_{2.5}$ using a real-time nephelometer (such as QAMS DMP7000).	Provide feedback into effectiveness of air quality control measures and support TARP
High-Volume Air Sampler (HVAS)	Near to "The Cottage" (Figtree Hill Residence)	One-day-in-six cycle	Measurement of PM10 in accordance with AM-18 and AS/NZ 3580.9.6.	assessing compliance with conditions of SSD10369
Meteorological Monitoring	Within the Stage 7d area	Continuous	Refer Section 3.5	Monitoring ambient weather conditions

The monitoring locations will conform to the requirements of AS 3580.1.1:2007 *Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment* and EPA AM-1, subject to local site constraints with any deviations from the standard noted in the siting documentation.

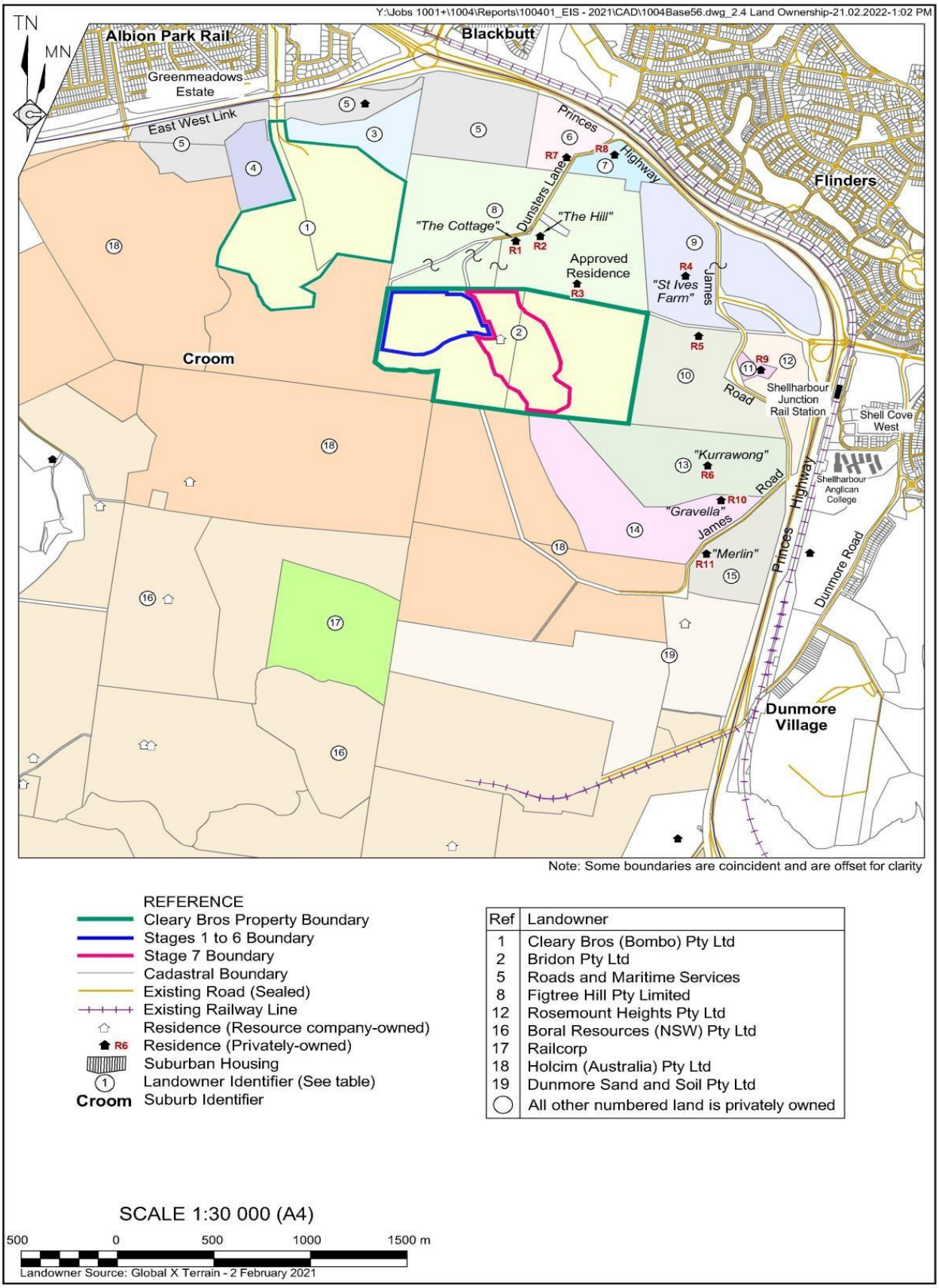
Cleary Bros will seek approval from the Planning Secretary for the use of the equipment listed in Table 4.

3.2 Air Quality Monitoring Locations

The aim of the proposed air quality monitoring network is to avoid exceedances of the air quality criteria at nearby sensitive receptors. A real-time monitoring program, combined with a TARP, will provide a proactive approach to minimising particulate matter offsite.

The Development site is surrounded by densely populated areas to the north, individual sensitive receptors and other particulate producing activities, as presented in **Figure 1**.

Figure 1 Receptors and Surrounding Particulate Producing Activities

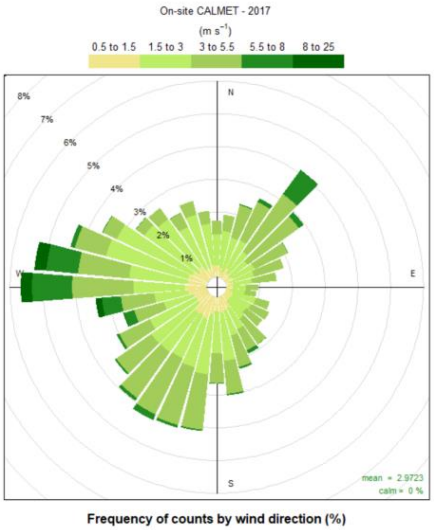


Reference: "Albion Park Quarry Extraction Area Stage 7 Extension - Air Quality Assessment" prepared by Northstar Aur Quality Pty Ltd dated February 2022.

The locations of the other three quarries in the local area (Hanson Bass Point Quarry, Holcim Albion Park Quarry and Boral Dunmore Quarry) adds a level of complexity in the determination of the incremental contribution from the Project to measured particulate concentrations in the area. However, careful placement of air quality monitors combined with the existing DPE-operated Illawarra air quality monitoring network would allow the upwind (the background, or non-Project impacted) concentration and Downwind (the cumulative, or Development [and other quarry] impacted) concentration to be measured and the incremental concentration (Development contribution) calculated from those values in defined wind vector ranges.

In accordance with the Air Quality Assessment for the Albion Park Quarry Extraction Area Stage 7 Extension Project prepared by Northstar Air Quality Lty Ltd (Northstar, 2022), a typical annual wind rose for the site is presented in **Figure 2**.

Figure 2 Annual Wind Rose for the Albion Park Quarry Meteorological Station



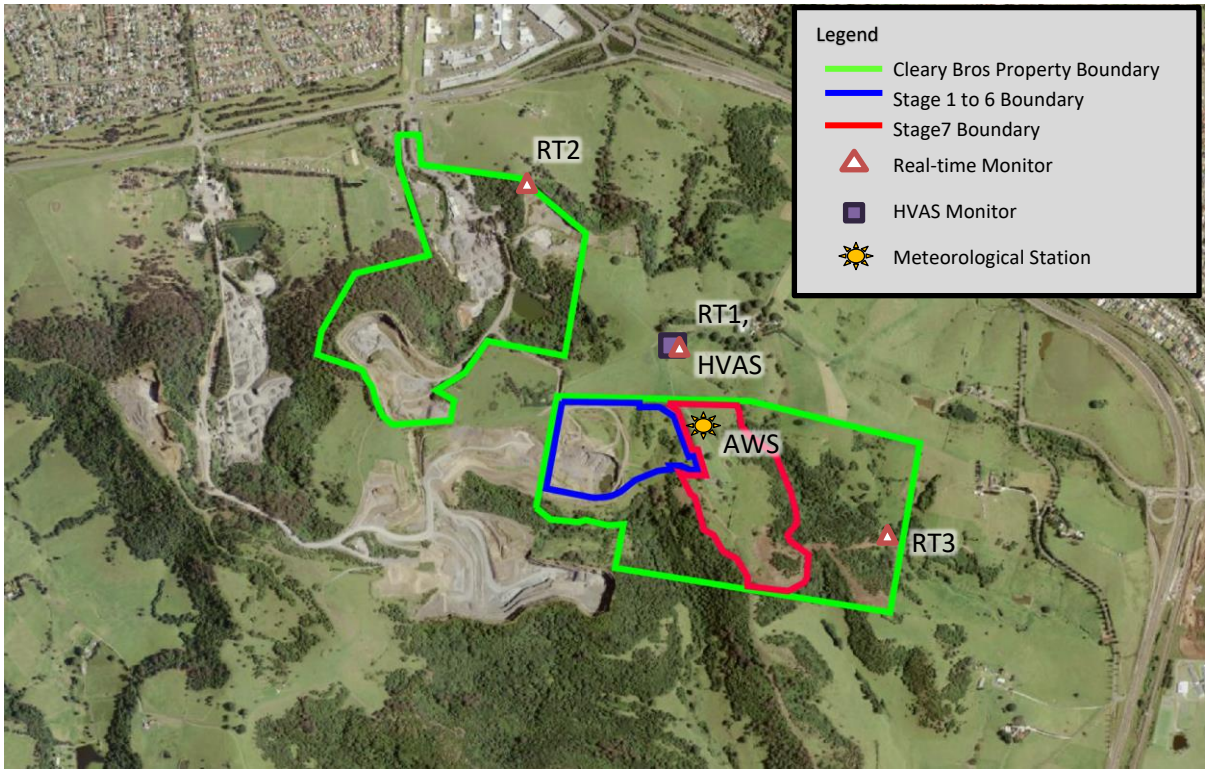
The dominant (i.e. most prevalent) wind directions are measured from the north-west through west to south south-west, and north-east. The strongest winds are measured during north-east and westerly winds.

From detailed examination of **Figure 1** and **Figure 2**, it is recommended that three real-time particulate monitoring locations would be required to enable the determination of upwind / downwind concentrations.

The particulate monitors will be required to be sited as far as possible in accordance with the broad requirements of Australian Standard (AS) 3580.1.1:2016 "*Methods for sampling and analysis of ambient air, Part 1.1: Guide to siting air monitoring equipment*", including requirements for height above ground, clear sky angle of 120°, unrestricted airflow, 20 m from trees, minimum distance from road traffic etc.

The approximate locations of the proposed monitoring stations are listed in Table 4 and presented in Figure 3. The real time particulate monitors (RT1, RT2, and RT3 are located between the closest sensitive receivers and the main areas of activity for the quarry (extraction area and processing area), and are best placed to examine the downwind impacts associated with quarrying activities. The HVAS is located at the nearest sensitive receiver, and is well placed to record downwind impacts at this site from extraction and processing activities. Cleary Bros will utilise data from the Albion Park South Air Quality Monitoring Station operated by DPE to ascertain the background air quality for the purposes of determining incremental impacts of the development. This monitor is located in Terry Reserve, Albion Park, approximately 3km west of the site, and is a suitable indicator of background air quality. In the event data is absent or incomplete from this station, Cleary Bros will utilise an average of the three Illawarra air quality monitoring stations operated by DPE for determining background air quality.

Figure 3 Air Quality and Meteorological Monitoring Locations



Note: Locations of monitoring equipment are approximate only.

3.3 Frequency

Real-time monitors will record data on a continuous basis, with output data logged on a 10-minute basis, summarising average TSP, PM_{10}, and $PM_{2.5}$ levels over the previous 10 minutes.

The HVAS will be monitor on a one-day-in-six cycle in accordance with AS/NZS 3580.9.6.

3.4 Monitoring Method

The real-time air quality monitors will include the following general specifications:

- Recording of 10-minute average statistical air quality data (including $PM_{2.5}$, PM_{10}, and TSP) based on the nephelometric method;
- Summary of the daily (24-hour) air quality data (including $PM_{2.5}$, PM_{10}, and TSP) based on the nephelometric method.

Each real-time air quality monitor will be set up to record TSP, PM_{10} and $PM_{2.5}$ levels 24 hours per day, 7 days per week. A graphical summary of TSP, PM_{10} and $PM_{2.5}$ levels will be prepared on a monthly basis for review by the Environmental Officer, together with the meteorological data recorded from the on-site meteorological station (refer to Section **3.5**).

The real-time air quality monitors will be calibrated annually in line with manufacturer requirements. The calibration process will necessarily require some downtime of each real-time air quality monitor, however this will be minimised as far as practical, in line with the manufacturers standard turn around times. The real-time air quality monitors will be used as an air quality management tool and not as a measure of compliance with the air quality criteria. The HVAS data will be used to assess the compliance of the Project against the air quality criteria presented in **Table 3**. Both the HVAS and real-time air quality monitors will be relocated to the proposed monitoring locations, as described in **Section 3.2,** within two months of the approval of the Environmental Management Strategy for SSD10369.

The HVAS will be monitor in line with the process described in AS/NZS 3580.9.6, with samples collected following each sample run (once every 6 days) and analysed for PM_{10} as a batch once per month.

3.5 Meteorological Monitoring

Condition B30 of SSD10369 requires that:

Prior to the commencement of quarrying operations in Stage 7 extraction area and for the life of the development, the Applicant must operate a suitable meteorological station in close proximity to the site that:

(a) complies with the requirements in the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007); and

(b) is capable of measuring meteorological conditions in accordance with the NSW Noise Policy for Industry (EPA, 2017),

unless a suitable alternative is approved by the Planning Secretary following consultation with the EPA.

Condition M4 of EPL 299 requires the data be collected by the automatic weather station (AWS) on a continuous basis. Cleary Bros has operated the AWS adjacent to the "Belmont" since 2008, however quarrying is proposed to intercept this site shortly after commencing in Stage 7. As such, the AWS will be relocated prior to the commencement of quarrying in Stage 7 to the location shown in Figure 3. The parameters required to be recorded from the on-site AWS are presented in **Table 5**.

Table 5 Meteorological Monitoring Parameters

Meteorological Monitoring Parameters	Units	Averaging Period
Rainfall	mm/hr	24 hour
Temperature at 2 metres	^oC	10 minute
Temperature at 10 metres	^oC	10 minute
Wind direction at 10 metres	degrees	10 minute
Wind speed at 10 metres	m/s	10 minute
Sigma theta at 10 metres	Degrees	10 minute
Solar Radiation	W/m^2	10 minute

Real-time meteorological data from the AWS will be made available to the Quarry Manager to assist in operational monitoring. The AWS is able to be configured to provide alerts to the Quarry Manager notifying of specific meteorological conditions.

The meteorological station will be installed and situated in compliance with AS 3580.14-2011 Method for sampling and analysis of ambient air - Meteorological monitoring for ambient air quality monitoring applications.

3.6 Trigger Action Response Plan (TARP) – Air Quality

An air quality Trigger Action Response Plan (TARP) and describes the actions to be taken in the event specific trigger levels are exceeded.

3.6.1 Air Quality Response Trigger Levels and Response

Results of the real-time air quality monitoring network can be used to provide a quantifiable estimation of the contribution of the quarry operations to those concentrations likely to be measured off-site during certain wind directions. Should resultant concentrations experienced at the real time monitoring stations indicate that an exceedance of the 24-hour PM_{10} or $PM_{2.5}$ criterion are likely, and that modification of activities at the quarry would assist in reducing the likelihood of that exceedance (or value), then a system

can be implemented to ensure that those modifications occur to achieve the preferred environmental outcome.

The Downwind Increment (DWI) will be calculated on any occasion where the 10 minute PM_{10} measurement of any monitor exceeds a total concentration of 100 µg/m^3. At this time the wind direction recorded by the AWS will be recorded and the following actions will be undertaken:

- Taking into account pre-specified wind-arcs (which will be determined after monitor installation), the DWI will be calculated;
- Where the calculated DWI is <100 µg/m^3, or wind directions are outside of the pre-specified wind-arcs (indicating a non-site particulate source), no Action level will be triggered and standard controls as per the AQMP will continue;
- Where the calculated DWI is ≥ 100 µg/m^3 (which suggests that the monitor is Downwind of the site, and impacts may be due to site activities), the cascade response as described in Section 4.4 will be employed.

The air quality response trigger levels (10-min average PM_{10} concentration) are shown in Table 6.

Should trigger level A or B outlined in Table 6 be reached, then a hierarchy of management and mitigation options would be initiated as detailed in Table 6. The options to be implemented will be based on an inspection of the site operations at the time and identified areas of dust generation.

The Quarry Manager will maintain a daily log of activities being performed on the site. The log would include the activity being performed and the general location of the activity. These variables would allow a management response to be initiated, and would provide options on how to deal with the triggering of any level. The log would also capture any adaptive management measures implemented, and how the operations were modified or stopped to comply with the air quality criteria.

The hierarchy of response would be (each level including continual monitoring of particulate concentrations):

- **Action Level A:** Review activities being performed and implement additional emission controls to those activities identified to be generating elevated dust emissions;
- **Action Level B:** Depending on the activities being performed, progressively decrease the rate of activity or cease the operations according to the level of risk associated with each option.

Table 6 indicates the management response for each trigger level.

Table 6 TARP Hierarchy of Management Response

Action Level	10-min average PM_{10} concentration (µg/m^3)	Summary of Management Response
None	DWI < 100 µg/m^3	Continue operations with normal management measures in place. Monitor Downwind particulate concentrations for any increases.

A	≥100 µg/m^3 DWI < 200 µg/m^3	Inspect current quarry activities and identify source of any excess dust. Implement the following additional controls as appropriate and practicable:
		• Haul road
		  ○ Increase rate of watering, especially of any identified hot spot areas.
		  ○ Reduce travel speed.
		  ○ Consider the use of hygroscopic salts on minimise emissions. Note this will not be able to implemented as an immediate action, but may be appropriate in the event of recurring triggers associated with the haul road.
		• Material loading

		○ Wet down material stockpiles. ○ Reduce drop heights. ○ Relocate load face or reorientate equipment to improve shielding from wind. • Drilling ○ Ensure dust suppression equipment effective. ○ Reorientate drill rig or relocate to an area with improved shielding from wind. • Processing plant ○ Review operation of dust suppression sprays. ○ Reorientate or relocate mobile crushing equipment to improve shielding from wind. ○ Dampen feed material if dust generation still elevated. ○ Wet down product stockpiles. • Entrance road ○ Sweep road with street sweeper. ○ Wet down access road if continued dust generation. ○ Reduce travel speed. • Soil and overburden stripping ○ Reorientate or relocate stripping equipment. ○ Wet down soil or overburden. Monitor the response in Downwind particulate concentrations.
B	DWI ≥ 200 µg/m^3	Progressively cease higher risk operations until Downwind particulate concentrations <100 µg/m^3.

3.6.2 Ongoing Assessment and Management

3.6.2.1 Proactive Response Procedure

The Quarry Manager will perform visual checks on a daily basis as to ensure that operations are relocated, modified and/or halted as required to ensure adverse air quality impacts are not realised at off-site sensitive receptor locations. The Environmental Officer will assess monitoring data and meteorological data on a monthly basis to verify the successful implementation of this plan. The real time monitors will be calibrated on an annual basis in accordance with manufacturer recommendations.

3.6.2.2 Non-Compliance Response Procedure

In the event that the real-time monitoring results indicates the potential exceedance of any of the following criteria at any monitoring site:

- Annual average PM_{10} and $PM_{2.5}$ concentration of 25 µg/m^3 and 8 µg/m^3 respectively; Incremental 24-hr PM_{10} and $PM_{2.5}$ concentration of 50 µg/m^3 and 25 µg/m^3 respectively; when determined in accordance with Downwind Increment Method described in this monitoring program;
- Annual average TSP concentration of 90 µg/m^3;

The following actions will be taken:

- The event will be investigated to determine possible emission sources including investigation into the prevailing wind conditions experienced at the time of the possible exceedance to identify the possible source of the particulate matter;
- Where the source is identified as Cleary Bros' Albion Park Quarry, additional controls will be implemented, or operational activities altered until a favourable outcome can be achieved;

- The Environmental Officer shall notify the Planning Secretary and EPA as soon as reasonably practicable after becoming aware of any potential exceedance of the relevant air quality criteria (taking into account relevant averaging periods for the relevant air quality criteria); and,
- Within 7 days of becoming aware of the exceedance, Cleary Bros will provide the Planning Secretary and EPA with a detailed report of the exceedance.

The detailed report will include the following:

a) the cause, time and duration of the event potential exceedance;
b) the concentration of PM_{10} measured at each monitoring point for the duration of the potential exceedance;
c) the name, address and business hours telephone number of the Quarry Manager and Environmental Officer of the Albion Park Quarry;
d) the name, address and business hours telephone number of other key personnel that were on the site during the potential exceedance;
e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and,
g) any other relevant matters.

3.7 Review and Reporting

The results of the air quality monitoring are to be included in the Annual Review. The Quarry Production Manager and Environmental Officer will examine dust monitoring results to confirm that the performance targets are being met. Should the results indicate a trend towards non-compliance on an annual average basis, dust control measures on the site will be enhanced. In the event that non-compliance with the real-time air quality criteria occurs, correlated with wind direction, the Quarry Production Manager will investigate and address the likely cause by implementing appropriate dust suppression methods. Should repeated non-compliance occur, a review of work practices and dust suppression measures will be undertaken in accordance with the Environmental Management Strategy.

Appendix 5 – Noise Monitoring Program

Uncontrolled version. Current as at 26/3/2024

Albion Park Quarry

Noise Monitoring Program

SSD 10369

Version 1 Revision 3

Issued – March 2024

CLEARY BROS

ACKNOWLEDGEMENT

Cleary Bros acknowledge and pay our respects to the Traditional Custodians of the lands in NSW and Australia on which our projects are located. We value the knowledge, advice and involvement of the Elders and extended Aboriginal community that contribute to our Projects and extend our respect to all Aboriginal and Torres Strait Islander peoples.

Contents

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Document Control

Version	Date	Reason	Prepared	Approved
V1 R1	3/12/23	New monitoring program prepared for Stage 7 approval (SSD 10369)	Yang Liu	
V1 R2	15/2/24	Reviewed by Cleary Bros		Mark Hammond
V1 R3	26/3/24	Updated following comment from DPE		Mark Hammond

1. Introduction

Cleary Bros operates a hard rock quarry and processing plant at Croom, near Albion Park in the City of Shellharbour. Under development consent SSD10369, Cleary Bros is permitted to extract up to 900,000 tonnes of quarry products per year from the Project area within Lot 1 of DP858245 and Lot 7 of DP3709. The quarry is bordered by a number of isolated rural residences, higher density residential areas and other hard rock quarrying operations. Activities on the site include stripping of topsoil and overburden materials, blasting of the hard rock materials, initial processing and transportation to the fixed processing plant and sales area outside of the Project Area.

Conditions B5 and B6, Part B (Noise Monitoring) of the Stage 7 Development Consent (SSD10369) in relation to noise monitoring have been summarised in Table 1.

Table 1 Project Specific Noise Monitoring Conditions

Condition	Reference
B5. Prior to the commencement of quarrying operations in Stage 7 extraction area, the Applicant must prepare and implement a noise monitoring program for the development to identify whether the mitigation of noise emissions from the development is effective and to demonstrate compliance with the performance criteria listed in Table 2 of the DC.	This Air Quality Monitoring Program.
B6. The noise monitoring program must:	
(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the Planning Secretary;	Section 1
(b) use a combination of real-time and supplementary attended monitoring to evaluate the performance of the development, unless otherwise agreed by the Planning Secretary;	Section 3
(c) monitor noise at locations representative of the residences with the greatest risk of experiencing impacts to noise amenity;	Section 3.2
(d) include a program to calibrate and validate the real-time noise monitoring results with attended noise monitoring results over time; and	Section 3.7
(e) include a protocol for collecting and using noise monitoring data to distinguish between noise emissions of the development and any neighbouring development.	Section 3.6.2

Cleary Bros has engaged VMS Australia Pty Ltd (VMS) to prepare a Noise Monitoring Program for Albion Park Quarry Stage 7 operation to address the monitoring and assessment requirements and ensure compliance with the noise aspects of this Project.

VMS is a progressive firm of engineers and scientists offering broad experience in the specialist areas of vibration, noise and blasting assessments. VMS has over 20 years of experience in the measurement and assessment of noise and vibration applied to a wide range of construction, infrastructure, resource extraction and transportation projects. In addition, VMS has extensive experience monitoring vibration for the purpose of protecting against vibration induced structural damage in heritage listed and other sensitive structures during construction works.

This monitoring program has been developed by Mr Yang Liu (Master of Environmental Engineering, University of Technology Sydney) Associate of VMS Pty Ltd. Mr Liu's appointment as principal author of this document has been requested under SSD-10369-PA-16.

Mr Mark Hammond (BEnvSc (hons)), Quality and Environment Manager with Cleary Bros, provided a range of information presented in this document, as well as reviewing the draft and approving the final versions for release.

2. Noise Criteria

Conditions B1 to B3, Part B of SSD10369 state:

B1. The Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 2 at any residence on privately-owned land.

Table 2 Operational Noise Criteria

Residence	Day $L_{Aeq\ (15\ min)}$ dB(A)
R1	49
R2	46
R3	48
R4	40
R5	42
R6	40
R7	40
R8	40
R9	40
R10	40
R11	40

B2. Noise generated by the development must be monitored and measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Noise Policy for Industry (EPA, 2017). The noise enhancing meteorological conditions determined by monitoring at the meteorological station required under condition B30 and as defined in Part D of the NSW Noise Policy for Industry (EPA, 2017) apply to the Noise Criteria in Table 2.

B3. The noise criteria in Table 2 do not apply of 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.

The locations of the receivers listed in Table 2 above are shown in Figure 1.

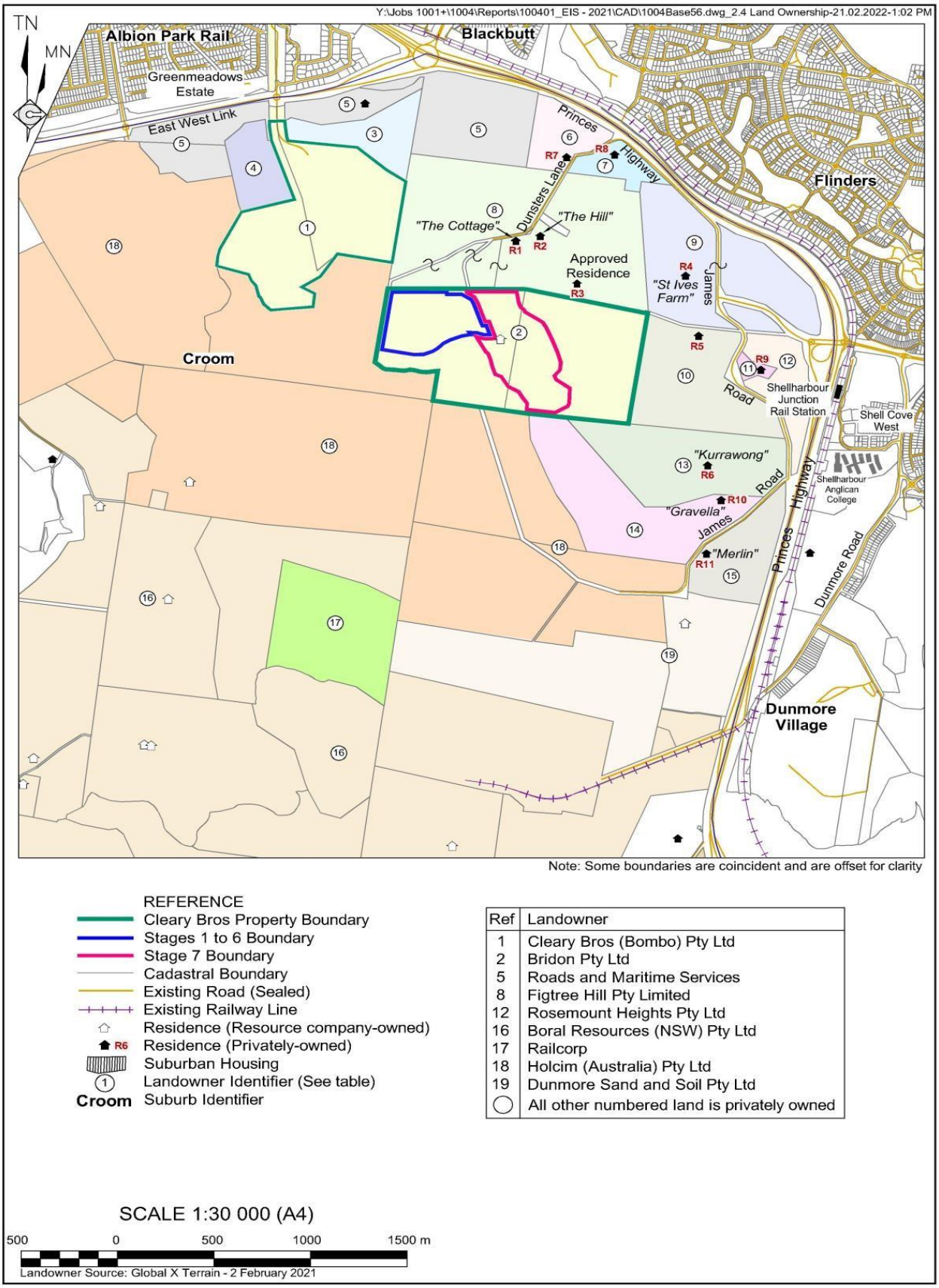
Cleary Bros have an agreement with the owner of residences R1-R3 to exceed the criteria, and have advised the Department in writing of this agreement. Therefore, the noise limits in SSD10369 do not apply to residences R1-R3. However a criteria of 48 $L_{Aeq\ (15\text{-}min)}$ has been adopted for management purposes as the noise level predicted for short term activities in the Stage 7a area.

The noise criteria above apply under all meteorological conditions except the following:

1. wind speeds greater than 3 metres/second (m/s) measured at 10m above ground level;
2. stability category F temperature inversion conditions and wind speeds greater than 2m/s at 10m above ground level; or
3. stability category G temperature inversion conditions.

Stability categories F and G are applicable for night time periods only, and as such are not relevant to the Project, which permits operation during day time hours only (7am to 6pm). As such, the criteria will apply under all conditions with the exception of point 1 above (wind greater than 3m/s).

Figure 1 Receptors and Surrounding Noise Producing Activities



Reference: "Albion Park Quarry Extraction Area Stage 7 Extension – Air Quality Assessment" prepared by Northstar Air Quality Pty Ltd dated February 2022.

3. Noise Monitoring Program

3.1 General Requirements

Noise monitoring will be undertaken as detailed in Table 4 below.

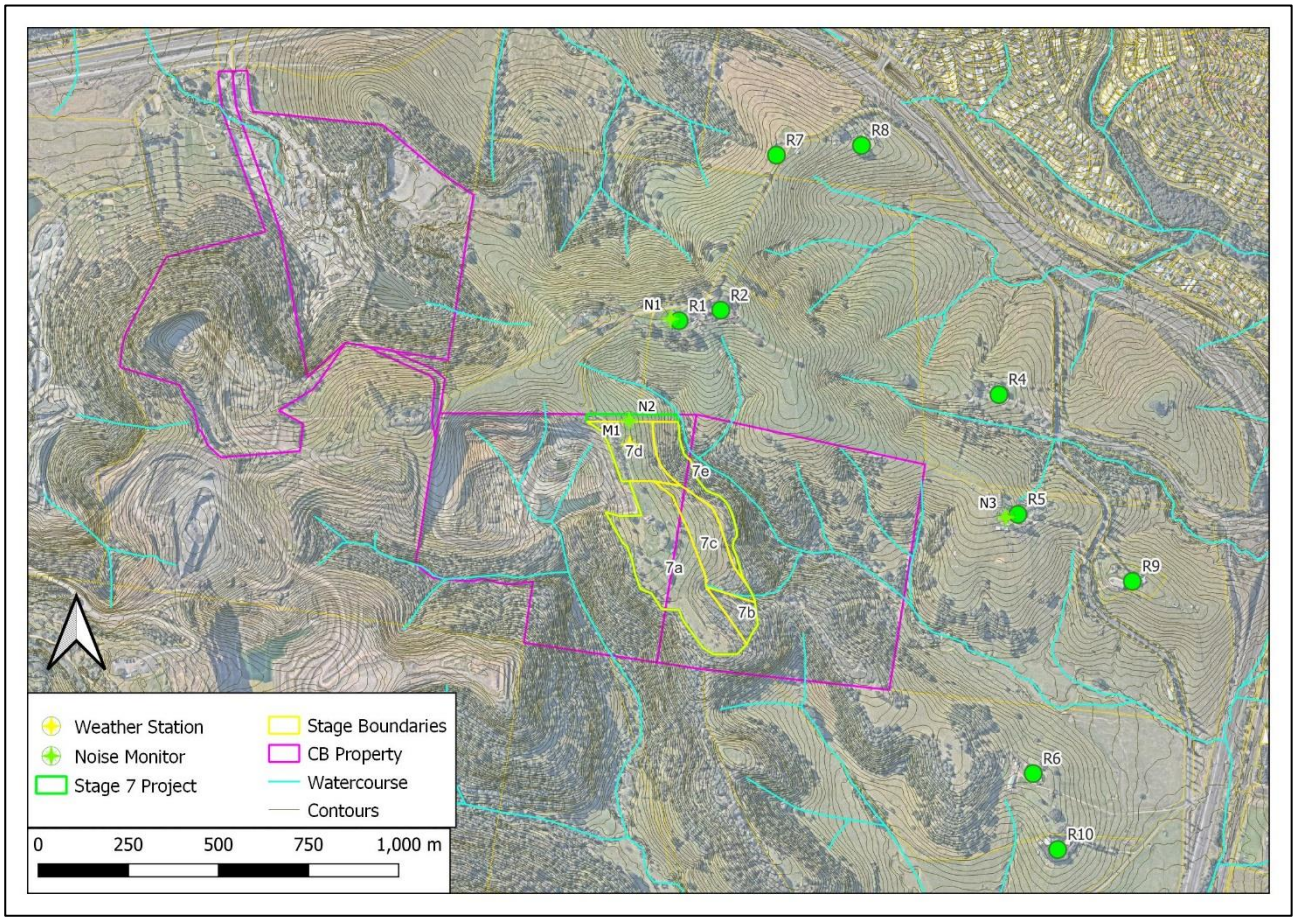
3.2 Noise Monitoring Locations

Noise monitoring locations and the operational criteria for these locations during Stage 7a are presented in Table 3 and Figure 2.

Table 3 Noise Monitoring Locations

Location ID	Monitoring Location	Stage 7a criteria ($LA_{eq(15\ minute)}$)
N1	R1 "The Cottage"	48
N2	Quarry Extension Area – Stage 7 North Boundary	To be determined - refer to Section 3.6.1
N3	R5 – 42 James Road, Croom	40

Figure 2 Monitoring Locations



Note: Locations of monitoring equipment are approximate only.

Table 4 Noise Monitoring Requirements

Monitoring Type	Monitoring Location	Frequency	Monitoring Method	Who	Primary Purpose	Reporting
Real-time Noise Monitoring	N2 – Quarry Extension Area – Stage 7 North Boundary	24 hours a day, 7 days a week	Real-time noise monitoring data will be logged on a 15-minute basis with summarised statistical data (including LA1, LA10, L50, LA_{90}, La_{eq} and La_{max}). The C and Z weightings will be recorded, as will the direction of the source of noise peaks.	Unattended	To inform quarry management of noise levels in real time, and allow for an adaptive response to elevated noise levels.	A graphical noise level summary of noise levels over the previous week will be emailed to quarry staff weekly.
Noise Compliance Monitoring	N1 - R1 "The Cottage" N2 - Extraction Area N3 - R5 "Deer Farm" (if access is not granted, monitoring will be at nearest point on CB property)	Biannual	Operator-attended noise compliance monitoring will be conducted twice each financial year, once during the winter months, and once at another time of the year and to include the "short-term activities" if they are undertaken during the year. Also see additional requirements in Section 3.3.	Acoustic consultant	Noise Compliance Assessment (Section 3.3). To calibrate/ validate real-time noise monitoring results.	Noise Compliance Report prepared by the consultant and included in the Annual Review.
Short Term Noise Monitoring	N1 - R1 "The Cottage"	Monthly (when surface activities undertaken)	Attended monitoring for two consecutive 15 min sample intervals recording $L_{Aeq\text{-}15minute}$ and noise sources.	CB Environmental Officer	Verify noise levels of surface activities	Results recorded as part of internal reporting and available for audit purposes.
Primary Crushing Equipment Monitoring	N1 - R1 "The Cottage"	Within 3 days of each blast on uppermost bench where processing occurs.	Attended monitoring for two consecutive 15 min sample intervals recording $L_{Aeq\text{-}15minute}$ and noise sources.	CB Environmental Officer	Verify noise levels of processing activities	Results recorded as part of internal reporting and available for audit purposes.
On-site Weather Monitoring	Project Site (refer to **Figure 2**)	24 hours a day, 7 days a week	Meteorological data recorded at the on-site automatic weather station during the monitoring period will be accessed for use in the interpretation of the noise monitoring results.	Unattended	Record ambient conditions and aid management of noise levels.	Data retained on hosting server and available for audit purposes.

3.3 Noise Compliance Assessment

Noise Compliance Monitoring as summarised in Table 4 will be conducted in accordance with the NSW Noise Policy for Industry (EPA 2017), and the procedures documented in *Australian Standard 1055:2018 Acoustics – Description and Measurement of Environmental Noise – General Procedures (AS1055:2018)*. Specifically, the following protocols will be followed unless the Planning Secretary has endorsed an alternative:

1. Fact Sheet B, Section B1.1 – *Instrumentation requirements and siting* in regards to:
    - monitoring locations for the collection of representative noise data;
    - meteorological conditions during which collection of noise data is not appropriate;
    - equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and (Fact Sheet B – B1.1 - Instrumentation requirements and siting)
2. Fact Sheet C – *Corrections for annoying noise characteristics* in regards to modifications to noise data collected, including penalties for tonal or low frequency noise during compliance testing. An increase to the noise criteria may be made due to an unusual and one-off noise event recorded during the Noise Compliance Assessment, in accordance with the permitted adjustments for duration.

Operator-attended monitoring will quantify and characterise the maximum (L_{Amax}) and the average ($L_{Aeq(15\ minute)}$) intrusive noise from quarrying over a 15 minute measuring period. The monitoring periods will be timed to coincide with the monitoring periods recorded by the real time noise monitor, to allow validation of the real time noise monitoring data.

Noise verification measurement to be undertaken at the most affected point on the receptor boundary or within 30 metres of the dwelling where the dwelling is more than 30 metres from the boundary.

The noise monitoring will be designed to confirm that noise generated by the development does not exceed the noise criteria specified in Section 2. To distinguish between the noise emissions from the Cleary Bros and adjacent Holcim Quarry, a record of quarry activities will be maintained for the duration of the attended monitoring. Due to the proximity and line of site between the source and receivers, it is likely that only the receivers R1 and R2 (represented by N1) are likely to be significantly influenced at times by noise emissions from the Holcim quarry. When undertaken attended monitoring at N1, the experienced acoustic technician will consider noise contributions from the Holcim Quarry based on a visual comparison with measured noise levels. Actions in line with the management of extraneous noise sources in the Noise Policy for Industry will be considered as may be appropriate.

3.4 Equipment Calibration

All noise monitors used for monitoring including the real time noise monitor will be calibrated periodically in accordance with *Australian Standard 1055:2018 Acoustics – Description and Measurement of Environmental Noise – General Procedures (AS1055:2018)*.

3.5 Meteorological Monitoring

In accordance with Condition B30 of SSD 10369, Cleary Bros will operate an automatic weather station (AWS) for the duration of the Project. The AWS will be located within the Project footprint as shown in Figure 2 for the majority of the Project life. Once quarrying commences in Stage 7d, it will be relocated to a suitable position nearby. The AWS will be sited in accordance with the EPA's Approved Method 1 (AM-1) *Guide for the siting of sampling units*, as referenced in the EPA publication *Table of AM-coded methods for ambient air monitoring*, 2021 (which has superseded in part the EPA's 2007 publication *Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales)*.

The AWS will record wind speed and direction, as described in the EPA's *Noise Policy for Industry* 2017, Section 7.1.2 *Items to be monitored.* The AWS will also record the parameters as presented in Table 5.

Table 5 Meteorological Monitoring Parameters

Meteorological Monitoring Parameters	Units	Average Period
Rainfall	mm	10 minute (total)
Temperature at 2 metres	^{o}C	10 minute
Temperature at 10 metres	^{o}C	10 minute
Wind direction at 10 metres	degrees	10 minute
Wind speed at 10 metres	m/s	10 minute
Wind gust at 10 metres	m/s	10 minute (max)
Sigma theta at 10 metres	Degrees	10 minute
Total Solar Radiation	W/m^2	10 minute

Data from the AWS is uploaded in real time to a web-based server allowing data to be accessed by Quarry personnel to assist in operational monitoring. The AWS is able to be configured to provide alerts to Quarry personnel notifying of specific meteorological conditions if required.

The data from the AWS will be used for determining meteorological conditions for the Noise Compliance Assessment (Section 3.3). Due to the differences in the averaging periods of the Noise Compliance Assessment and the AWS measurements, the AWS monitoring interval comprising the greatest overlap with the time of the Noise Compliance Assessment will be used for determining meteorological conditions. However the adjoining AWS data will be reviewed to ensure there is no significant departure from the selected meteorological conditions.

3.6 Trigger Action Response Plan (TARP)

A Trigger Action Response Plan (TARP) has been prepared to address and manage specific noise related triggers, utilising the real-time noise monitor established at N1. Data recorded by the real-time noise monitor will be uploaded automatically to a web server, which will allow the viewing and extraction of data as required, with SMS or email alerts automatically sent to the Quarry Supervisor and Quarry Manager where noise levels exceed predetermined triggers and additional mitigation measures may be required to compliance with Project noise criteria. A trigger will also be recorded in the event of a noise complaint. The TARP will be used to verify the proactive measures taken based on the weather forecast for the day. It will complement this planning process and provide feedback to the Quarry Supervisor allowing ongoing refinement of the day to day planning of quarry operations.

3.6.1 Noise Response Trigger Level

Due to the background noise environment of N1, it is not feasible to site the real time noise monitor at N1 without frequent trigger events unrelated to quarrying, and which would render the process unworkable. As such the real time noise monitor will be located at N2, with the noise response trigger level to be developed during the first Short Term Noise Monitoring event associated with surface disturbance works, during the first month of quarrying activities in the Stage 7 area. The trigger level for this location will be calculated as the noise level predicted to generate a noise level equivalent to the maximum noise level predicted for surface disturbance activities in the Stage 7a area at the nearest sensitive receivers. While N1 is at a project-related receiver and the noise criteria in SSD10369 do not apply, it provides an effective baseline for estimating noise emissions at other receivers, in line with the modelling undertaken as part of the EIS. The siting of the real time noise monitor closer to the noise sources within the extraction area will also allow a

higher trigger value to be used, and reduce the relative contribution of noise emissions from the adjacent Holcim Quarry on the noise levels recorded by the monitor.

The noise levels ($L_{Aeq(15\ minute)}$) will be recorded concurrently at N1 using a sound level meter and at N2 using the real time noise monitor. Based on the measured noise level at N1, the measured noise level at N2 will be scaled to represent a sound level at N1 equivalent to the criteria in Table 3 and Table 6. This will be the criteria for N2 which is used as the trigger level for an alert to be sent requiring a response.

The noise response trigger levels are shown in Table 6.

Table 6 Noise Response Trigger Levels

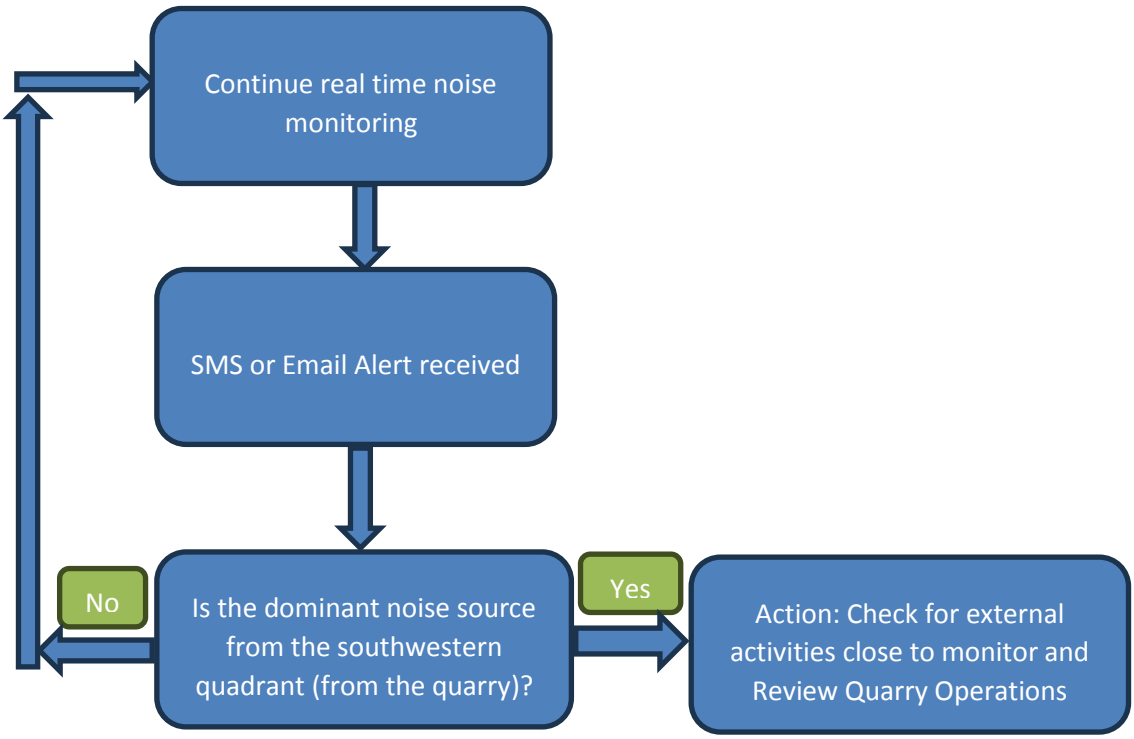
Current operational area	Target noise level for trigger at N1 (R1)	Trigger Level $L_{Aeq\ (15\text{-}min)}$ at N2
Stage 7a	48	To be determined
Stage 7b	41	To be determined
Stage 7c / 7d / 7e	55	To be determined

Trigger levels will be reviewed following each Noise Compliance Assessment, in the event of a noise complaint attributable to the Project, and in the event of any non-compliance with the operational noise criteria.

3.6.2 Noise Monitoring Response Protocol

In the event the noise response trigger level is exceeded or a noise complaint is received, the Quarry Supervisor will respond as shown in Figure 3. The adequacy of these response trigger levels will be reviewed as part of the preparation of the Annual Review.

Figure 3 Noise Response Flow Chart



In the event the flow process described in Figure 3 determines an action is required, the audio feed from the monitor representing the peak noise event will be reviewed to identify any external influences causing the trigger. The monitor is located on an active agricultural enterprise, and as such there is the potential for

background noise to generate alerts at times unrelated to quarrying activities. The directional capability of the noise monitor will reduce the number of these false alerts, however they cannot be avoided altogether. Where activities outside of the Project are likely the dominant noise sauce at the monitor, this will be noted and no further action will be taken.

Where it is determined that background noise is not the cause of the trigger, the quarry operations will be inspected to determine the likely source of elevated noise. This will also include a review of noise generation at the adjacent Holcim quarry. If the principle noise source likely causing the trigger exceedance is from the Holcim quarry, activities within the Project Area will still be reviewed to ensure Cleary Bros is not materially contributing to the trigger exceedance. Where the source is likely attributable to a single item of plant, the Quarry Supervisor will consider the following hierarchical actions that can be applied to reduce noise emissions from the site and implement as appropriate:

- Screened – where the task can be easily moved, it will be relocated to a location that offers improved natural screening. Where it can't be moved easily, practical options to screen the equipment with natural or man-made features will be considered as the case may be.
- Maintained – where the item of plant is noisier than usual, the workshop will be commissioned to service the plant prior to its continued use.
- Delayed – where the activity can be delayed until more favourable weather conditions, such as wind blowing from the receivers to the source (such as the north easterly sea breeze). Or until such a time as other activities have ceased so that cumulative noise levels are reduced.
- Changed – where the activity can be practically undertaken in a different manner, or with alternative equipment with lower noise generation, this will be considered.
- Stopped – where all of the above options have been exhausted, the activity will be stopped to ensure the operational noise criteria are not exceeded.

Where the inspection does not identify a single item of plant which is likely causing the elevated noise levels, the Quarry Supervisor will utilise the same hierarchy as above on all activities within the Project area as may be appropriate, until such a time as noise levels reduce below the trigger level.

In the event further trigger exceedances are generated by the real time noise monitor attributable to Cleary Bros activities, the Quarry Supervisor will continue to adjust quarry activities in line with the above hierarchy. The Quarry Supervisor will record the actions taken in response to any trigger generation.

3.7 Validation of Real-Time Noise Monitor

The real-time noise monitor will be verified using the noise levels recorded during the biannual operator-attended noise monitoring surveys. This will be undertaken as follows:

- The 15-min LAeq noise levels recorded during the Noise Compliance Monitoring (section 3.3) at N2 will be compared to the equivalent level recorded by the real-time noise monitor.
- Where a discrepancy in noise levels is identified, the trigger levels (section 3.6) for the real time noise monitor will be adjusted to compensate for the departure until the next calibration of the real-time monitor. Where a significant discrepancy is identified (>3 dB(A)), the real time monitor will be re-calibrated in accordance with Section 3.4.

The noise response trigger level (Table 6) will be validated by comparing the noise level ($L_{Aeq(15\ minute)}$) recorded at N1 and N3 during the biannual Noise Compliance Assessment with the real time noise level recorded for the corresponding period. The trigger level will be adjusted as described in 3.6.1 to ensure the trigger level is suitable for ensuring compliance with the noise criteria at these receivers.

4. Review and Reporting

The Quarry Supervisor will maintain a daily log of all triggers recorded, and actions taken in response to any trigger.

The Noise Monitoring Program will be reviewed annually during the preparation of the Annual Review and updated as required.

The reports prepared for the Noise Compliance Monitoring will be included with the Annual Review prepared under condition D10 of SSD10369. A summary of the results of each of the other monitoring types listed in Table 4 will also be included in the Annual Review. This will include details of any trigger events and the actions taken in response.