

# Appendix 3

## Updated Mitigation Measures Table

(Total No. of pages including blank pages = 7)

This *updated* compilation of the proposed management and mitigation measures for the proposed Stage 7 Extension of the Albion Park Quarry, as amended (the “Amended Project”) has been prepared in accordance with the NSW Government’s *State Significant Development Guidelines – Preparing an Amendment Report* (October 2022).

**Table A3.1** presents a comprehensive list of the management and mitigation measures that Cleary Bros would implement for the Amended Project to minimise the potential environmental impacts as far as practicable.

Any information presented in this Appendix supersedes that presented in Appendix D of the EIS. Where changes have been made they have been identified as red underlined text.

**Table A3.1**  
**Updated Compilation of Supplementary Mitigation Measures**

Page 1 of 6

<b>Mitigation Measure</b>	
<b>1. Air Quality</b>	
1.1	Update the AQMP for the Quarry to encompass the approved activities.
1.2	Maintain a real-time PM <sub>10</sub> monitor at an agreed location within the “Figtree Hill” property.
1.3	Relocate, modify and/or halt specific activities within the <u>Amended</u> Project Area <u>as required</u> .
1.4	Limit operations within the Stage 7 Area to a maximum of 16 Saturdays per calendar year.
1.5	Implement management measures outlined in the AQMP, including the Trigger Action Response Plan.
1.6	Maintain dust filters on the drill rig.
1.7	Apply water to haul roads at a rate of >2L/m <sup>2</sup> /hr subject to the prevailing meteorological conditions.
1.8	Use of spray bars with atomiser nozzles mounted over the crusher hopper, product conveyor and discharge points on both crushing and screening plants.
1.9	Limit on-site vehicle speeds to ≤ 30km/hr.
1.10	Turn off all vehicles and plant when not in use, where practicable.
1.11	Ensure that all vehicles and plant are regularly serviced (including the optimisation of tyre pressures) to ensure efficient operation.
1.12	Design truck routes and loading capacities to reduce the haul distance and effort required by vehicles.
1.13	Maintain roads in good condition to avoid vehicle meandering.
1.14	Reduce gradients within the <u>Amended</u> Project Area, where feasible.
<b>2. Noise and Blasting</b>	
2.1	Adopt noise mitigation and management measures including maximising the use of extraction faces to attenuate noise from the mobile equipment operating within the extraction area; the crushing and screening plants would be positioned in locations that achieve maximum topographic protection from residences to the north and east; all mobile equipment would be fitted with standard noise suppression equipment such as engine cowling and mufflers; all mobile equipment would be regularly maintained and serviced within the Company’s workshops to ensure the original equipment manufacturers specifications are maintained; and construction of <u>a temporary</u> amenity barrier along the northern edge of Stage 7a to provide an acoustic shield during extraction.
2.2	The extraction sequence in Stage 7 would proceed in a manner that would allow the working faces, where practicable, to be directed away from the nearest residences and thus maximise the acoustic shielding during extraction.

**Table A3.1 (Cont'd)**  
**Updated Compilation of Supplementary Mitigation Measures**

<b>Mitigation Measure</b>	
<b>2. Noise and Blasting (Cont'd)</b>	
2.3	Ground vibration and airblast site laws would be updated on a regular basis to reflect the blast results obtained. This will ensure that future blast design is optimised to minimise blast impacts upon the nearest sensitive receivers.
2.4	Blasting would be avoided, where possible, under unfavourable meteorological conditions.
2.5	Deck charging of blastholes would continue to be used to limit blast emissions and ensure compliance with airblast overpressure and ground vibration limits.
2.6	Front row boreholes would be surveyed to identify areas of sub optimal burden where additional inert material would be placed to prevent flyrock ejection from the blast face. Aggregate would be used as stemming material to limit flyrock ejection from the borehole collar.
2.7	<u>Where requested</u> , stakeholders would be notified by telephone on the morning of each blast and advised of the expected time of firing.
2.8	Undertake blasts no more than once per week.
2.9	Measures would be undertaken to ensure that blasts in the neighbouring quarry are separated in time from blasts within the <u>Amended</u> Project Area.
2.10	<u>Monitor blast emissions at the closest residence on "Figtree Hill", as well as to the east of the Amended Project Area on Cleary Bros' property.</u>
<b>3. Visual Impacts</b>	
3.1	Undertake extraction of substages sequentially i.e. substage 7a to <u>7e</u> .
3.2	Construct <u>the following</u> amenity barrier <u>and/or trees screens</u> . <ul style="list-style-type: none"> <li>- A 170m long amenity barrier north and northeast of Stage 7a</li> <li>- <u>A</u> 10m wide tree screen along the eastern side of Stage 7a.</li> <li>- A tree screen on natural ground immediately east of the Amended Project Area.</li> <li>- A tree screen along the ridgeline to the east of the Amended Project Area.</li> </ul>
3.3	Place soil onto the 45° overburden side slopes once created on the western side of substage 7a and revegetated.
3.4	<u>Progressively construct and revegetate visible western and northern terminal highwalls with 10m wide benches intersecting 7m high faces.</u>
3.5	<u>Ensure that visible dust plumes, including from dust generated by blasting, movement of mobile plant and crushing and screening operations, are minimised through an approved Air Quality Management Plan.</u>
<b>4. Biodiversity</b>	
4.1	Prepare and implement a Biodiversity Management Plan detailing the biodiversity mitigation and management measures required at the Quarry. This plan would include procedures for the monitoring of rehabilitation outcomes and describe the implementation of the proposed staged biodiversity offsets described in Section 3.13.4.
4.2	Delineate the boundaries of the proposed Stage 7 extraction area with clearly visible markers.
4.3	Establish fencing around areas of native vegetation adjacent to the proposed disturbance areas and maintain fencing throughout the Project life.
4.4	Ensure that topsoil resources stripped from the surface of proposed extraction area are retained for use in rehabilitation activities – see Section 6.8.5.
4.5	Implement adaptive dust management and monitoring programs to manage air quality in accordance with existing protocols for the Quarry.
4.6	Communicate environmental features and requirements to protect threatened flora through staff inductions, training sessions and briefings.

**Table A3.1 (Cont'd)**  
**Updated Compilation of Supplementary Mitigation Measures**

<b>Mitigation Measure</b>	
<b>4. Biodiversity (Cont'd)</b>	
4.7	Establish and regularly maintain erosion and sediment controls until rehabilitation works have achieved vegetated final landforms.
4.8	Avoid clearing of hollow-bearing trees during the breeding season for the majority of hollow-dwelling fauna (i.e. spring).
4.9	Undertake pre-clearing inspections of hollow-bearing trees to confirm the absence of roosting/breeding threatened species and manage any vertebrate fauna identified during inspections to minimise the risk of mortality or injury.
4.10	Undertake vegetation clearance and mulching in accordance with best practice principles.
4.11	Ensure that all waste generated <u>on the Project</u> is managed appropriately.
<b>5. Aboriginal Heritage</b>	
5.1	Implement the following unexpected finds protocol in the event that a previously unknown Aboriginal site is identified within the proposed areas of disturbance. <ul style="list-style-type: none"> <li>– Immediately cease all work in the vicinity of the site.</li> <li>– Temporarily fence the site to prevent further disturbance.</li> <li>– Engage a qualified archaeologist to provide further advice or to assess the site.</li> <li>– Should the site be determined to be an Aboriginal object, ensure that the site location is registered with AHIMS and that a site card is submitted.</li> <li>– Follow the advice of a qualified archaeologist.</li> </ul>
5.2	Implement the following protocol in the event that suspected human skeletal material is discovered within areas to be disturbed. <ul style="list-style-type: none"> <li>– Cease all work in the vicinity of the site immediately.</li> <li>– Temporarily fence the site, ensuring that no further disturbance occurs to the skeletal remains or associated artefacts. If skeletal remains have been removed from the ground, these should be stored in a dry location on site.</li> <li>– Contact the NSW Police and Heritage NSW's Environmental Line (131 555) as soon as practicable and provide details of the remains and their location.</li> <li>– Ensure that work within the cordoned off area is not recommenced until authorisation is received in writing from Heritage NSW.</li> </ul>
<b>6. Historic Heritage</b>	
6.1	<u>Prepare an interactive three-dimensional virtual model of the "Belmont" and surrounds, to capture and share the heritage values of the site with the community into perpetuity (as per Action Item 1 in Biosis (2023)).</u>
6.2	<u>Engage a structural engineer to assess the feasibility of relocating the "Belmont". Where relocation is deemed feasible, Cleary Bros will invite expressions of interest from the community for the relocation of the "Belmont" (as per Action Item 2 in Biosis (2023)). Cleary Bros would pay the relocation costs of the building to a location within the Shellharbour Local Government Area in the event a suitable location is identified through the expressions of interest process.</u>
6.3	<u>Where relocation is not feasible, Cleary Bros will invite expressions of interest from the community for recovering artefacts and other features of the "Belmont" during its removal (as per Action Item 3 in Biosis (2023)). Where suitable expressions of interest are registered, Cleary Bros would arrange for these relevant items/materials to be removed from the "Belmont" under the supervision of an Archaeologist and provided to the stakeholder.</u>

**Table A3.1 (Cont'd)**  
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<b>Mitigation Measure</b>	
<b>6. Historic Heritage (Cont'd)</b>	
6.4	<u>Following the completion of the above (as applicable), any remaining structure(s) would be deconstructed and removed under the supervision of an archaeologist, including archival recording of the structure in accordance with relevant guidelines or standards applicable at the time (as per Action Item 4 in Biosis (2023)).</u>
6.5	Undertake further archaeological investigations, including monitoring for the presence of archaeological deposits or remains during <u>removal</u> and ground disturbance works in the immediate vicinity of the heritage items. Depending on the nature of the uncovered remains, further excavations may be required. These investigations would: <ul style="list-style-type: none"> <li>– follow the intent of the Heritage Act;</li> <li>– be conducted by a suitably qualified heritage consultant who meets the NSW Heritage Council's Excavation Director criteria; and</li> <li>– be supported by an archaeological assessment (i.e. Biosis (2021c)) and an Archaeological Research Design.</li> </ul>
6.6	Engage an experienced dry stone waller to undertake salvage and reconstruction works for dry stone walls C and D.
6.7	Update the current <i>Albion Park Quarry Heritage Management Plan</i> to include the archaeological investigations, <u>removal of "Belmont"</u> , and the salvage and reconstruction of dry stone walls C and D.
<b>7. Soil and Land Capability</b>	
7.1	Clearly mark areas for stripping and stockpiling.
7.2	Strip topsoil from all areas of disturbance and store in stockpiles on relatively flat areas (<10% slope) orientated parallel to the contours no more than 2m high.
7.3	Strip subsoil (where present) from areas of disturbance and store in stockpiles no more than 4m high.
7.4	Refrain from stripping or placing soil during wet conditions.
7.5	Ensure that the soil stockpile surfaces have a surface that is as 'rough' as possible, in a micro-scale, to assist in surface water runoff control and seed retention and germination.
7.6	Spread seed of a suitable cover crop on all soil stockpiles to facilitate early vegetation and apply water, if required.
7.7	Ensure that soil stockpiles are constructed with side slopes of 1:3 (V:H) or less and that the surface of all stockpiles achieves an effective 70% vegetation cover as soon as practicable. This would be achieved through the use of mulches, spray on polymer based products or other practices that would allow a vegetative cover to become established.
7.8	Signpost the soil stockpiles and limit operation of machinery on the stockpile to minimise compaction and further degradation of soil structure.
7.9	Rip or scarify all areas to be respread with topsoil to allow the respread material to be keyed into the underlying material.
7.10	Amelioration and fertilisation of topsoil and subsoil is recommended prior to use in rehabilitation to ensure appropriate growing conditions, in accordance with the nutrient and ameliorant application rate specified in Section 2.4.7 of SEEC (2022).
<b>8. Surface Water</b>	
8.1	Retain a minimum cross-sectional area of 10.2m <sup>2</sup> (including freeboard) for Watercourse 6 beyond the Stage 7 boundary to prevent inflows in a 1% AEP storm event.
8.2	Avoid concentration of surface water flows outside of existing watercourses or other stabilised pathways to reduce the risk of erosion.

**Table A3.1 (Cont'd)**  
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<b>Mitigation Measure</b>	
<b>8. Surface Water (Cont'd)</b>	
8.3	Manage topsoil and subsoil stockpiles in accordance with the methods outlined in Section 6.8.6.
8.4	Regularly monitor weather forecasts when planning soil stripping and stockpiling activities to minimise the risk of sediment-laden runoff into watercourses.
8.5	Implement the components of the staged surface water management plans described in Appendix 2 of SEEC (2022).
8.6	<u>Engage a suitably qualified hydraulic engineer to complete detailed design for the proposed inclined pipeline, including inlet and outlet infrastructure, in accordance with guidelines, standards or best practices relevant at the time – at least 5 years prior to closure.</u>
8.7	<u>Construct the outlet infrastructure in a manner that minimises surface disturbance in accordance with Managing Urban Stormwater or the applicable guideline(s) at the time.</u>
8.8	<u>Manage the Southern Sump initially as a sediment control basin in accordance with Managing Urban Stormwater or the applicable guideline(s) at the time. In particular, ensure that water is tested and, if required, treated prior to discharge, and in accordance with EPL299. Permit passive discharge only once testing demonstrates that water quality consistently meets the discharge criteria applicable at the time.</u>
<b>9. Groundwater</b>	
9.1	Implement Cleary Bros' existing 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.
9.2	Maintain the Pollution Incident Response Management Plan for the Quarry, including associated protocols for communicating pollution incidents to potentially affected parties, throughout the <u>Amended</u> Project life.
9.3	Implement the existing groundwater monitoring program (see Section 6.10.6) throughout the <u>Amended</u> Project life.
9.4	Implement appropriate make good provisions (e.g. replacement of impacted bores) in the event that existing groundwater bores are impacted beyond the relevant <i>Aquifer Interference Policy</i> Minimal Impact Considerations.
<b>10. Traffic and Transportation</b>	
10.1	Continue to implement a Transport Management Plan, including a Driver's Code of Conduct that outlines Cleary Bros expectations in relation to truck driver behaviour, including <ul style="list-style-type: none"> <li>○ accessing the site only via the East-West Link;</li> <li>○ adherence to all relevant road rules; and</li> <li>○ operate the vehicle in a safe manner.</li> </ul>
10.2	Implement procedures to monitor the effectiveness of the Transport Management Plan.
<b>11. Social Impacts</b>	
11.1	Maintain ongoing open and transparent discussions of social community impacts at biannual Community Consultative Committee meetings.
11.2	Regularly review and where appropriate, enhance Cleary Bros' social investment strategy to strengthen social value.
11.3	Enhance Cleary Bros' existing engagement strategy in the Quarry Environmental Management Plan.
11.4	Inform and educate nearby residents of outcomes of the SIA.
11.5	Establish a framework to monitor and report on social impacts.

Table A3.1 (Cont'd)  
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Mitigation Measure	
<b>11. Social Impacts (Cont'd)</b>	
11.6	<u>Implement a range of measures to minimise social impacts on the Aboriginal community, including:</u> <ul style="list-style-type: none"><li>– <u>Regular consultation with the Aboriginal community.</u></li><li>– <u>Cultural awareness training for Cleary Bros employees and subcontractors.</u></li><li>– <u>Acknowledgment and respect of Aboriginal people's connection to country and their cultural heritage.</u></li></ul>