



APPENDIX D –
UPDATED MITIGATION MEASURES

D.1 Updated mitigation measures table

A summary of the environmental management and mitigation measures for the proposed modification is provided in Table D.1.

Table D.1 Management and mitigation measures

Key environmental aspects	Measures
Air quality	Preparation and implementation of an air quality management plan, prepared following approval for the reactivation of the quarry, and including the below management and mitigation measures Water cart to operate on the internal unsealed haulage routes and sealing of the access road between Adams Road and the weighbridge Minimising drop heights when unloading from trucks Watering applied to the crushing plant as required to minimised dust emissions Sheltering factor applied for wind erosion within the established pit Avoiding the double handling of material wherever possible Site-wide vehicle speed limits will be applied (40 km/h limit on sealed and 20 km/h limit on unsealed roads); Avoiding disturbance of stabilised ground cover where possible Use of meteorological forecasts to predict when the risk of dust emissions may be high (due to adverse wind conditions), allowing procedures and preparatory measures to be implemented, as follows: • aim to have surfaces moist prior to the on-set of hot and windy conditions; • plan for additional water spraying during the day; • cease certain activities or reduce activity levels; and • re-schedule deliveries or product dispatch.
Noise	Construction – work practice methods: Noise monitoring during the initial stages of construction will be undertaken to determine if actual construction noise levels are above NMLs. Construction noise levels will be managed where exceedances of NMLs may occur as detailed in a construction noise management plan. • regular reinforcement of the need to minimise noise and vibration, such as through toolbox talks; • review and implementation of feasible and reasonable mitigation measures that reduce construction noise levels; • avoiding the use of portable radios, public address systems or other methods of site communication that may unnecessarily impact upon nearby residents; • develop routes for the delivery of materials and parking of vehicles to minimise noise; • where possible, avoid the use of equipment that generates impulsive noise; and • notify residents prior to the commencement of intensive works. Construction – plant and equipment: • where possible, choose quieter plant and equipment based on the optimal power and size to most efficiently perform the required tasks; • operate plant and equipment in the quietest and most efficient manner; and • regularly inspect and maintain plant and equipment to minimise noise and vibration level increases, to ensure that all noise and vibration reduction devices are operating effectively.

Table D.1 Management and mitigation measures

Key environmental aspects	Measures
	The safe working distances for cosmetic damage from vibrations will be monitored throughout the construction process. If safe working distances need to be encroached, real time vibration monitoring with audible and visual alarms will be installed at vibration sensitive structures so actual vibration levels can be monitored and managed appropriately in real-time. Operation The quarry will be operated generally in accordance with the quarry as previously assessed and approved including: • hours of operation; • traffic movements (with a small increase); and • existing noise bunds. Following approval of the proposed modification, the quarry's noise management plan will be reviewed and updated if necessary.
Surface water	Following approval of the proposed modification, the water management plan for the site will be updated to include the new water management strategy for the quarry and to address any specific development consent or licence conditions. It will also include the following: • baseline monitoring data results; • objectives and performance criteria including trigger levels for investigating any potential adverse impacts associated with water management; • details of the monitoring, inspection and maintenance programs; • reporting procedures for the results of the monitoring program; and • plans to respond to any exceedances of the performance criteria. Surface water quality monitoring will continue within Oak Creek, upstream and downstream of the site, and within the quarry pit and Water Management Dam. All monitoring will be undertaken in accordance with Approved Methods for Sampling and Analysis of Water Pollutants in New South Wales (DEC 2004). Inspections of the water management system will be undertaken informally on a regular basis and formally on a quarterly basis. The water management structures will be visually inspected for capacity, structural integrity and effectiveness. Maintenance, such as the removal of excessive sediment accumulation or macrophyte growth from the Water Management Dam and drainage lines, will be implemented as required.
Groundwater	No additional groundwater mitigation measures are required as a result of the proposed modification. The quarry's water management plan will be updated to include the new water management strategy for the site and to address any specific development consent or licence conditions.
Land and soil	Existing management plans (including the site water management plan and relevant subplans including erosion and sediment control plan required under Condition 24 of the consent will also be updated to account for the proposed modification.
Traffic and transport	Quarry trucks will only travel on the section of Adams Road between Elizabeth Drive and the site access road. No quarry trucks will travel on Adams Road south of the quarry access road. The Road Transport Protocol, required by Schedule 4, Condition 42 of the consent, will be revised to reflect site access changes and new infrastructure layout. Existing quarry roads will be used. These tracks may receive improvements but will not encroach on areas of native vegetation.

Table D.1 Management and mitigation measures

Key environmental aspects	Measures
Biodiversity	The proposed mitigation measures to mitigate indirect impacts to the biodiversity values on site will include: • operations will be carried out in accordance with the vegetation management plan which will be revised prior to the restart of quarrying operations; • a speed limit of 40 kilometres per hour (km/h) will apply on the sealed site access road and 20 km/h on unsealed internal roads; and roads will be regularly be maintained by managing vegetation on the shoulder to main visibility to prevent vehicle strike.
Rehabilitation	The Site Rehabilitation Plan (Connacher Environmental Group 2009) will be updated to include the changes relevant to the proposed modification and subsequently implemented in accordance with Schedule 4 Condition 33 of the consent.
Visual	The site vegetation management plan will be updated prior the restart of quarrying operations. This update will consider opportunities for further vegetation screening.
Heritage	The following mitigation measures will be applied: • AHIMS site #45-5-2280 will continue to be avoided and protected by fencing. • The corrected coordinates for AHIMS site #45-5-2280 will be entered in the AHIMS database. • The riparian corridor along the western bank of Oaky Creek will continue to be avoided by quarrying activities. • The work will proceed with caution and the following actions will be taken in accordance with the AHDD recommendations: – In the event that unexpected Aboriginal objects, sites or places are discovered, DPIE will be notified as soon as practicable after they are first identified. – In the event that known or suspected human skeletal remains are encountered, the following procedure will be followed: ▪ the immediate vicinity will be secured to protect the find and the find will be immediately reported to the work supervisor who will immediately advise the site supervisor or other nominated senior staff member; ▪ the environmental manager or other nominated senior staff member will notify the police and the state coroner on the same day of the find (as required for all human remains discoveries); ▪ the environmental manager or other nominated senior staff member will contact DPIE for advice on identification of the skeletal material as Aboriginal and if so, management of the material; ▪ if it is determined that the skeletal material is ancestral Aboriginal remains, the Aboriginal community will be contacted, and consultative arrangements will be made to discuss ongoing care of the remains; ▪ the site will be recorded in accordance with the NPW Act and DPIE guidelines; and ▪ if the remains are historical and not of Aboriginal origin, the Heritage Division of DPIE will be notified for further instruction.
Hazards	Oils and lubricants and any other hazardous materials (eg cleaning products) will be stored in designated bunded areas in accordance with the following Australian Standards: • Australian Standard 1940: 2004 The Storage and Handling of Flammable and Combustible Liquids; and • Australian Standard 1596: 2008 The Storage and Handling of LP Gas. Site management processes will periodically review conformance with these controls and standards.

Table D.1 Management and mitigation measures

Key environmental aspects	Measures
Waste	To encourage the efficient use of resources and reduce potential environmental impacts from the quarry, all waste will be managed in accordance with the waste hierarchy: • reduce waste production; • recover resources; and • dispose of waste appropriately. General waste management measures on site will include: • working with suppliers to reduce overall packaging as much as possible; • storing cardboard packaging and recyclable containers until collection by a licensed recycling contractor, or dispatch to an appropriately licensed facility; and • storing general waste in vermin proof bins until a scheduled collection from a licensed contractor. General waste management measures on site will include: • working with suppliers to reduce overall packaging as much as possible; • storing cardboard packaging and recyclable containers until collection by a licensed recycling contractor or dispatch to an appropriately licensed facility; and • storage of general waste in vermin proof bins until a scheduled collection from a licensed contractor.