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Your ref: SSD-6612

Mr James McDonough

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Dear Mr McDonough

Martins Creek Quarry (SSD-6612) – Review of Response to Submissions Report

I refer to your e-mail dated 19 November 2021 in which the Planning and Assessment Division (P&A) of the Department of Planning, Industry and Environment (the Department) invited Biodiversity and Conservation Division (BCD) to provide advice in relation to the Martins Creek Quarry project (SSD 6612).

BCD has reviewed the Response to Submissions Report, including relevant appendices, in relation to impacts on biodiversity (including matters of national environmental significance [MNES] under the *Environment Protection and Biodiversity Conservation Act 1999*) and flood risk assessment.

If you have any further questions in relation to this matter, please contact Steven Crick, Senior Team Leader - Planning, on 4927 3248 or via email at huntercentralcoast@environment.nsw.gov.au

Yours sincerely

A handwritten signature in black ink that reads 'Joe Thompson'.

Joe Thompson
Director Hunter Central Coast Branch
Biodiversity and Conservation Division

Date: 7 December 2021

Enclosure: Attachments A, B and C

BCD's recommendations

Martins Creek Quarry (SSD-6612) – Review of RTS

Biodiversity

1. BCD recommends that the proponent commences discussions about the biodiversity offset strategy with the Biodiversity Conservation Trust as soon as possible.

Matters of National Environmental Significance

2. BCD recommends that additional information on the assessment of Matters of National Environmental Significance is provided to BCD to enable the bilateral assessment to be completed.

Water Floodplains and Coast

3. In order for BCD to assess potential impacts of the water harvesting system, evidence of monitoring carried out to date is to be provided. This is to include photographic evidence and assessment of riparian condition prior to the previous expansion of quarry operation. If no such evidence exists, the upstream unimpacted stream sections may be used as proxy baseline areas to produce a baseline condition report. The current condition of the streams at the two points of discharge and for a minimum of 200m downstream is to be similarly documented to provide evidence to support the no impact statement. A long term monitoring plan is to be prepared and submitted for approval by BCD. This plan should include remedial actions in the event that deterioration of riparian condition or streambank stability is observed.

In addition, detailed reports of the water quality monitoring program at the discharge point are to be provided together with action plans including a requirement for cease to pump when water quality does not meet minimum requirements. The use of the slightly disturbed or moderately disturbed water quality targets is to be justified to reflect the condition of the waterway prior to the commencement of quarry operations.

Inconsistencies between detailed reports and the summary of management measures made need to be resolved because these documents will form the basis of an approval should one be

4. A report is to be prepared identifying any groundwater dependent ecosystem potentially impacted by groundwater drawdown due to expansion of the quarry footprint and depth of excavation unless it can be proven by documented monitoring bores that the quarry depth does not intercept the water table at any point. A report should be prepared detailing the impact of changes in groundwater hydrology on riparian vegetation and any ground water dependent ecosystems together with monitoring and action protocols.
5. The impact of local flooding on the safety of quarry workers including likely rate of rise and evacuation should be considered and addressed by the proponent.
6. The hydraulic impacts of inclusion of large mine voids in the final landform on riparian health and downstream ecosystems is to be assessed prior to approval, not deferred to rehabilitation assessment. The report prepared for item 4 above may form a baseline condition report. Any EEC in the downstream riparian area is to be identified. Removal of water may have additional biodiversity impacts and further offsets may need to be negotiated to compensate for loss of

vegetation post quarry rehabilitation. An action plan is to be developed to determine how riparian condition will be protected in the long term flow removal period following rehabilitation.

Impact on downstream flooding and streambank erosion are to be assessed by suitable hydraulic modelling for the post void filling period due to the concentration of flow and changed flow regime. Assessment of likely water quality and the potential for pollutant mobilisation in the post rehabilitation flow through scenario is to be determined together with a monitoring regime to ensure commitments made are adhered to.

BCD's detailed comments

Martins Creek Quarry (SSD-6612) – Review of RTS

Biodiversity

1. The proponent should commence discussions with the Biodiversity Conservation Trust about the Biodiversity Offset Strategy for the project

Section 4.3.1 'Biodiversity' of the RTS report (pg. 49) provides a statement that the Biodiversity Offset Strategy for the project will be further developed in consultation with BCD and Department of Planning, Industry and Environment (DPIE), if consent is granted. Under the *Biodiversity Conservation Act 2016*, the BioBanking Assessment Methodology (BBAM) credits in which the project's offset obligation is measured will need to be converted to Biodiversity Assessment Method (BAM) credits. This will require an application to BCD for 'reasonable equivalence' of BBAM credits [<https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme/offset-obligations-and-credit-trading/assessment-of-reasonable-equivalence/existing-credit-obligation>].

The Biodiversity Conservation Trust (BCT) administers biodiversity offset mechanisms, such as Biodiversity Stewardship Agreements. BCD recommends that the proponent commences discussions as early as possible with the BCT to determine how offset obligations for the project, if approved, may be met. This will provide more time for the processes(es) that will be required.

Recommendation 1

BCD recommends that the proponent commences discussions about the biodiversity offset strategy with the Biodiversity Conservation Trust as soon as possible.

Matters of National Environmental Significance

2. Further information is required on the assessment of Matters of National Environmental Significance

Section 4.3.2 'Matters of National Environmental Significance' in the RTS report does not provide all of the information requested by BCD in our letter dated 9 July 2021. It refers to sections of the Environmental Impact Statement for the Amended Development Application, which identifies some data requested in our last letter. This project is a controlled action (EPBC 2016/7725) therefore BCD will undertake a bilateral assessment of Matters of National Environmental Significance (MNES) for the Commonwealth Department of Agriculture, Water and the Environment (DAWE). Current bilateral assessment requirements post-date DAWE's assessment requirement checklist, therefore additional information is required to enable BCD to complete the bilateral assessment. This information requirement is summarised in **Attachment C**. To facilitate a timely completion of the bilateral assessment, BCD recommends that the information requested is provided as a single document. If some of the data requested already exists in the BAR or RTS report then please either repeat the information in the new document or provide precise cross-references (Section Number(s) and page number(s)). BCD will not be able to complete its bilateral assessment for this project until the information requested here is received. Delays in the provision of the requested information may delay the DAWE assessment process.

Recommendation 2

BCD recommends that additional information on the assessment of Matters of National Environmental Significance is provided to BCD to enable the bilateral assessment to be completed.

Water management and flooding impacts

3. The impact of the proposal on downstream waterways has not been adequately considered

The proposal includes interception of a first and second order stream for the west pit expansion. The surface water management report outlines that it will not be possible to route the clean water from the upstream portion of these streams around the proposed quarry site due to steep topography. This means that all runoff from the catchment of the two streams, including 16 hectares of undisturbed catchment, will be captured by the quarry water management system and be discharged by controlled or uncontrolled flow from the quarry water dams. Treatment to relevant discharge standards is required.

The water balance assessment indicates that loss of flow will occur due to evaporation from surface water storages, use in dust suppression and loss attached to exported quarry product as a result of dust suppression. These losses amount to 42% of predicted total flow across the site. Flows into the downstream waterways will be discharged as pumped flow following treatment to acceptable standards. Flow will be altered in quality by chemical and physical treatment to meet discharge requirements. Flow will also be pumped at a relatively constant rate over a number of days rather than variable natural flow containing rising and falling hydrographs.

The number and type of discharge events occurring through operation of the quarry will be a substantial change from the natural hydrology of the site and the impacts of this on streambank erosion and riparian vegetation health has not been considered.

Section 6.1.3 of the surface water assessment states that no impacts on stream stability were observed following 47 days of discharge totalling 110 megalitres (ML) which occurred from the site in 2016. This statement is not supported by any monitoring data or streambank condition reporting. No assessment of the impact of reduced total flows or changed frequency and nature of flow on the receiving environment has been made.

The response to submission provides no further information on the above requests for information. The Office of Water submission suggests that water take will be in excess of harvestable rights and the lack of diversion of clean water around the works is not in accordance with best practice. Harvestable rights are calculated to ensure that viable quantities of water remain in the waterway. Interception of water in excess of harvestable rights can therefore be expected to have adverse consequences for the downstream waterway.

The EPA submission also requested water quality information, and this indicates that water quality in the existing dams does not meet the required standards for slightly disturbed landscapes. It is considered that both flow regime and water quality will be altered by this proposal and insufficient information has been provided to determine the likely offsite impacts.

Section 4.3.3 of the response indicates that the local waterways have been subject to altered flow regimes for nine years. No evidence has been provided to support the claim made that no harm to the waterway has occurred. Prior operation of a quarry does not preclude the need for assessment of potential impact of further altered regimes. Although peak flow is not proposed to be changed the frequency and duration of pumped flow and the quantity of water intercepted is noted to significantly change with this expansion.

Increased water capture will also have a significant impact on the low flow regime because site capture and reuse beyond the harvestable rights will reduce downstream flows to zero in low flow events which are critical to ongoing riparian health.

Figure 6.1 of the response to submissions indicates a reduced disturbance footprint. It is unclear if the ability to intercept and divert clean water has been reviewed based on the revised footprint or if the water balance has been similarly updated to consider the revised disturbance footprint. The summary of management measures Section 1.10.1 indicates water management will include clean water diversion however the provided water management strategy indicated that this would not be possible due to steep topography. Inconsistency in the provided documents does not allow the suitability of commitments made by the proponent to be adequately assessed.

Recommendation 3

In order for BCD to assess potential impacts of the water harvesting system, evidence of monitoring carried out to date is to be provided. This is to include photographic evidence and assessment of riparian condition prior to the previous expansion of quarry operation. If no such evidence exists, the upstream unimpacted stream sections may be used as proxy baseline areas to produce a baseline condition report. The current condition of the streams at the two points of discharge and for a minimum of 200m downstream is to be similarly documented to provide evidence to support the no impact statement. A long term monitoring plan is to be prepared and submitted for approval by BCD. This plan should include remedial actions in the event that deterioration of riparian condition or streambank stability is observed.

In addition, detailed reports of water quality monitoring program at the discharge point is to be provided together with action plans including a requirement for cease to pump when water quality does not meet minimum requirements. The use of the slightly disturbed or moderately disturbed water quality targets is to be justified to reflect the condition of the waterway prior to the commencement of quarry operations.

Inconsistencies between detailed reports and the summary of management measures made need to be resolved because these documents will form the basis of an approval should one be granted.

4. Impacts on ground water dependent ecosystems have not been given due consideration

The existing quarry operation is primarily being carried out above the water table level. The proposal involves a much deeper excavation. The groundwater assessment outlines that the proposal will excavate to 13.0m Australian Height Datum (AHD) although the schematic in Figure 5.13 and Figure 3.2 indicate that the deepest section of the pit will be of the order of 5.0m AHD. Clarification as to whether the stated depth is an average or maximum endpoint of the excavation is required.

In any event this extent of excavation will effectively form a dam to which both surface flows and groundwater flows may be directed and subsequently require treatment and discharge via site water management facilities. This will change the nature of flow to the ephemeral waterways in a similar manner to the interception of the first and second order streams. The assessment of the interception of groundwater has been limited to the likely impact on groundwater licensing requirements. No assessment of impacts on hydrology or riparian vegetation has been provided.

It should also be noted that existing monitoring bores do not appear to be at a depth which permits baseline monitoring of groundwater at the proposed final excavation depth.

Figure 4.2 – extended geological cross section indicates that the proposal intercepts the inferred piezometric surface and includes mining to deeper levels than are currently occurring. Anecdotal evidence of no damage to vegetation under the existing regime does not address the requirement to consider impacts with deeper excavation. Section 1.10.2 of the Summary of Management Measures also indicates that quarry operations may extend below the water table. Limited information has been provided about the impact on water table draw down from the existing mining operations however this cannot be used to justify a “no impact” assessment for continued operations with a different relationship to water table levels.

Recommendation 4

A report is to be prepared identifying any groundwater dependent ecosystem potentially impacted by groundwater drawdown due to the of the quarry footprint and depth of excavation unless it can be proven by documented monitored bores that the quarry depth does not intercept the water table at any point. A report should be prepared detailing the impact of changes in groundwater hydrology on riparian vegetation and any ground water dependent ecosystems together with monitoring and action protocols.

5. Safety of quarry users and equipment in the event of flooding has not been considered

The quarry is outside of the mapped probable maximum flood (PMF) extent of the Paterson River based on the Paterson River Vacy to Greenrocks Flood Study 2017. However, this study only considered the main river and major tributaries. The minor water courses which pass through the quarry site were considered as catchment only.

The surface water assessment has concentrated on average flows in wet and dry years, and no assessment of the impact of a local flood event has been carried out. The pit void is noted to have significant storage volume (Section 3.0 of the Surface Water Study indicates 400ML), however; the depth of storage within the pit may pose significant risk to personnel and equipment together with extensive time to dewater in the event of a flood.

There is no specific Paterson River warning system in operation at this locality and no local flood warning system exists. It is the responsibility of the proponent to determine how they will monitor flood conditions and develop appropriate evacuation strategies to protect workers and equipment.

Recommendation 5

The impact of local flooding on the safety of quarry workers including likely rate of rise and evacuation should be considered and addressed by the proponent.

6. Final rehabilitation strategy includes large permanent ponds of unknown hydrological and hydraulic impact

Figure 5.1 of the rehabilitation strategy indicates that two permanent voids will remain in the rehabilitated landscape. The west pit void is very large in size and the Surface Water Impacts Assessment indicates it will take approximately 22 years to fill. The smaller east pit is estimated in the report to take 8 years to fill. This means that water from within the catchment will not flow into the downstream waterway for the full duration of the time taken to fill the remaining voids. During operation, portions of this water would be returned to downstream areas via pumping however pumping ceases when the quarry is decommissioned. These impacts will be exacerbated by ongoing evaporation loss from the voids.

Loss of water to the downstream ephemeral waterway is likely to have an impact on the riparian vegetation which has not been considered.

In addition, the manner of discharge to the downstream waterways in a flood event will also change post-rehabilitation. Once the storage fills discharge will be via weir flow to the receiving environment with unknown effect on downstream flooding and erosion. No assessment has been made on the changed hydraulic behaviour post rehabilitation.

The response notes that additional water licenses will be obtained to address the required water take. These would need to remain in place for a considerable period after quarry closure to account for filling of the mine void. The proponent has proposed that the hydraulic behaviour of the mine voids will be assessed as part of the rehabilitation strategy. It is considered important that a draft remediation strategy including the likely impact on downstream vegetation health and ecosystems during the void filling operation be prepared. Additional environmental offsets may be required if the riparian area is to be subject to lengthy periods without effective catchment inflows post quarry rehabilitation works.

After quarrying operations stop, mine voids would be filled by catchment runoff over an extended time frame with no effective runoff, and yet the local hydrology would be treated as a flow-through system. There is no assessment provided of the manner in which this flow will occur or how ongoing water quality will be managed.

Recommendation 6

The hydraulic impacts of inclusion of large mine voids in the final landform on riparian health and downstream ecosystems is to be assessed prior to approval, not deferred to rehabilitation assessment. The report prepared for item 4 above may form a baseline condition report. Any EEC in the downstream riparian area is to be identified. Removal of water may have additional biodiversity impacts and further offsets may need to be negotiated to compensate for loss of vegetation post quarry rehabilitation. An action plan is to be developed to determine how riparian condition will be protected in the long term flow removal period following rehabilitation.

Impact on downstream flooding and streambank erosion are to be assessed by suitable hydraulic modelling for the post void filling period due to the concentration of flow and changed flow regime. Assessment of likely water quality and the potential for pollutant mobilisation in the post rehabilitation flow through scenario is to be determined together with a monitoring regime to ensure commitments made are adhered to.

BCD's information requirements for a bilateral assessment

Martins Creek Quarry Project (SSD-6612)

1. Assessment of the impacts to MNES

- a) Discuss the likely cumulative and consequential impacts relevant to MNES.
- b) Describe the size and nature of the impacts on the species, the populations and/or the extent of the community (including discussion of the scale of impact in relation to local, regional, state and national populations / habitat).
- c) Include a statement whether any relevant impacts to MNES entities are likely to be unknown, unpredictable or irreversible; and
- d) Provide a table of all EPBC Act-listed TECs that may be significantly impacted by the project. For each Endangered Ecological Community, list the associated Plant Community Type (PCT) in the development footprint. Provide the area and number of ecosystem credits for each PCT. If none, then state that.
- e) Provide a table of all EPBC Act-listed species that may be significantly impacted by the project. For each species identify its credit type in the FBA, list the associated PCTs that contain habitat for each species, and provide the area of impact and credits required by each PCT.

2. Measures to Avoid, mitigate and offset

- a) Identify measures to avoid and minimise impacts to relevant EPBC Act listed threatened species and communities. This section can be shorted by cross-referencing sections of the BAR, but it must be specific to MNES for the project.
- b) Discuss measures to avoid, mitigate and offset that are particular to the EPBC Act, such as Approved Conservation Advice, Recovery Plans and Threat Abatement Plans.

3. The Proposed Offset Package

The EPBC Act requires like-for-like offsetting for impacts to MNES, including indirect impacts. More information is required from the proponent that discusses how like-for-like offsetting will be met, particularly in the current absence of details of the offset package in the BAR and RTS report. This could include a commitment to meet offset obligations for MNES in accordance with requirements under the EPBC Act, and a commitment to discuss offset requirements with DAWE.