



OUT15/14968

24 JUL 2015

Mr Carl Dumpleton
Resource Assessments and Compliance
NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Carl.Dumpleton@planning.nsw.gov.au

Dear Mr Dumpleton,

**New Berrima Clay-Shale Quarry (PA08_0212 Mod 1)
Proposed Modification**

I refer to your email dated 6 May 2015 requesting advice from the Department of Primary Industries (DPI) in respect to the above matter.

Comment by Fisheries NSW

Fisheries NSW has reviewed the EA provided by RW Corkery & Co on behalf of Austral Bricks and has concerns relating to the potential for water quality decline in downstream Key Fish Habitats as a result of stormwater runoff during rainfall events. To ensure that there are no adverse impacts upon water quality, Fisheries NSW recommends that the following Conditions be included in the Consent (if issued):

- That the proponent develop and implement a Water Quality Management Plan (which includes provisions for water quality monitoring) prior to commencement of shale extraction operations.
- That Water Quality Monitoring provisions include a requirement to monitor discharges from the site during and immediately following significant (e.g. greater than 25mm/24 hours) rainfall events.
- That independent auditing of the implementation and effectiveness of the Water Quality Management Plan be conducted after 12 months from the commencement of shale extraction operations and at 3 yearly intervals thereafter.
- That the Water Quality Management Plan be refined/modified as required in light of the findings of each independent audit.

For further information please contact Jillian Reynolds, Regional Assessment Officer, [Huskinson office], on 4428 3406 or at jillian.reynolds@dpi.nsw.gov.au.

Comment by NSW Office of Water

The NSW Office of Water (Office of Water) has reviewed the Modification Application and provides detailed comments at Attachment A.

For further information please contact Janne Grose, Water Regulation Officer on (02) 8838 7505 or at Janne.Grose@dpi.nsw.gov.au.

Yours sincerely

A handwritten signature in red ink, appearing to read 'Kristian Holz', is positioned above the printed name.

Kristian Holz
Director Policy, Legislation and Innovation

Attachment A

New Berrima Clay-Shale Quarry (PA08_0212 Mod 1) Proposed Modification Comment / Additional comments by NSW Office of Water

The Office of Water has reviewed the Modification Application and provides the following comments:

Watercourses and Riparian Corridors

Condition 13 in Schedule 3 of the Project Approval for the New Berrima Shale Quarry project (MP08-0212) dated 6 July 2012 requires a minimum buffer distance of 730 m (measured from top of bank) to be maintained between the extraction area and the Wingecarribee River. The MOD 1 EA proposes to reduce this buffer distance to 515 m (see Table 2.2, page 15) but it provides no justification for reducing the width of the buffer by 215 m.

Figure 4.5 in the EA shows the quarry modification will remove 1st and 2nd order watercourses on the site but Appendix 6 indicates that within Catchment A where excavation is proposed there are no defined channels and they are open grassy depressions (page A6-10). The final landform (Figure 2.7) shows the upstream sections of these watercourses/depressions will flow into a rectangular basin (page 29). As surface runoff from the project site currently flows to the Wingecarribee River, the Office of Water requests consideration as to whether it is possible to divert the watercourses/depressions around the rectangular basin so the runoff flows to the river rather than into the basin once quarrying is completed.

Licensing

Schedule 1 of the *Water Management (General) Regulation 2011* outlines excluded works. Provided that dams meet the criteria, the works are excluded from the requirement to hold a water access licence. The Office of Water requests clarification of the application of the exemptions to some dams on the Mandurama property.

The Mod 1 EA indicates the proposed Modification utilises 8.52 ML through the combined quarry-related and agricultural activities on the Mandurama property (page 56). Appendix 6 (Mod 1 EA) indicates it has included Dams 1, 4, 5, 6 and 7 in the Harvestable Rights (HR) calculations for the site (page 16).

Table 8 of Appendix 6 indicates Dams 1 and 4 will not be used for re-use when clean (see pages 22-23) but Section 5.2 notes they will be used for agricultural purposes (page 15). Clarification is required on this.

Table 8 indicates the capacity of Dam 1 is 1.43 ML and Dam 4 will be enlarged to 1.4 ML (see Appendix 6, pages 22 and 23). It is unclear how the combined capacity of 2.12 ML has been derived for Dams 1 and 4. Based on Table 8, the combined capacity of Dams 1 and 4 appears to be 2.83 ML rather than 2.12 ML (see Section 5.2 of Appendix 6, page 15 and 16).

Insufficient information has been provided to determine the exempt status of dams 3b and 8. Specifically, the proponent needs to ensure that clean water runoff is diverted around the disturbance footprint where feasible, and that the area of land disturbance leading to dirty water runoff is best practice and the minimum area required to be disturbed. Where these requirements cannot be demonstrated to be met, the dams are unlikely to be exempt from the requirement to hold a water access licence.

Appendix 6 outlines Dam 7 has a total volume of 6.94 ML and notes 5.4 ML is to be used for storm capture and 1.54 ML is to be used for dust suppression and washdown water (pages 16 and 23). Appendix 6 only includes 1.54 ML as part of the HR calculation but Schedule 1 (2) of the *Water Management (General) Regulation 2011* specifies that to be an excluded work the dam

needs to be "solely for flood detention and mitigation" and (a) from which no water is reticulated. In order that the Office of Water can be satisfied that the 5.4 ML storm capture component does not require licensing, a commitment or condition preventing extraction from the dam when it is above the full storage level of 1.54 ML is recommended.

If the total combined capacity of the non-exempt dams exceeds the MHRDC, the applicant needs to either modify the dams so they comply with the MHRDC, or acquire a Water Access Licence so that the capacity of the dams in excess of the MHRDC are licensed.

Section 2.15 of the Mod 1 EA indicates the final landform would consist of a rectangular basin with a dam with a capacity of at least 2 ML (page 28). Figure 2.7 shows the final landform includes Dams 1, 2, 4, 5, 7, 8 and 9. Details are required on the capacity of these dams and their proposed use.

Given that the volume of storages is around the limit of maximum harvestable rights, the proponent may wish to consider acquiring a small volume of additional water licences in the future to provide it greater operational flexibility.

Water Use

Appendix 6 indicates water collected on-site is to be used for dust suppression and machinery washdown and would be sourced from the 1.54 ML storage volume in Dam 7 (pages 17-18). It assumes 2000 L/day will be used for washdown and cleaning of machinery for 90 days per year which equates to 0.18 ML/year.

It indicates the daily water demand for dust suppression would be 17kL and this would be used on dry days only but to ensure an adequate water supply is available for the Mod 1 project, it is recommended the applicant provides an estimate of:

- the maximum number of dry operational days when water would be required for dust suppression
- the maximum volume of water that could potentially be used for dust suppression in a year.
- the total volume of water to be used from storage Dam 7 in a year.

Groundwater

The Office of Water notes that there has been minimal groundwater assessment undertaken. Given the long term nature of this project, the stated potential for future expansions, and the limited understanding of the local groundwater conditions, the Office of Water recommends that the risks are best managed through ongoing monitoring, and development of a groundwater management plan as required as a condition of the existing development consent.

Aquifer Interference

The proposed mining activities are shallow (to maximum about 32 m) and confined to the capping rocks (Ashfield Shale) for the underlying fractured and porous rock water source (Hawkesbury Sandstone). The finished quarry floor at about RL 640 m (AHD) will be approximately 5m below the bed of the Wingecarribee River located >550 m away; the chance of significant interconnectivity seems low.

However, the Proponent has not prepared an assessment for the project in terms of the Aquifer Interference Policy (AIP). Since there has been no baseline monitoring, it has not been demonstrated that the watertable will not be intersected and that connectivity to the River is not present.

There are 2 registered groundwater works (GW 019078 and GW 028588) at about 550 m and 812 m respectively from the edge of the proposed excavation. Both bores draw water from the underlying sandstone; however, the latter is linked to a WAL for irrigation purposes of 19 ML/yr. It is unlikely that the project will impact on these bores.

There are general GDEs associated with the Wingecarribee River about 600 m or more away, and these are also not expected to be impacted by the project.

Based on the described geology (Section 2.3 of the EA) and details from the logs of the water bores, it is expected that some perched water tables will be encountered in the fractured shales and the interbedded sandstone lenses.

The proponent should provide an assessment of the likelihood and scale of perched water tables expected to be encountered, including a risk assessment to groundwater resources, including consideration of the scale of the potential volume of groundwater that could be intercepted.

Longevity of operations and future approval

The Proponent states (Sections 2.10 and 2.15) that following the current amended project (after about 30 years) that they will seek an extension of quarry size and operations at the site, with the aim of recovering up to another approx. 4 million tons of resource from the site; i.e. an amount approximately equal to the present proposal. This is considered to be a sufficient reason to ensure that the site's groundwater conditions are better understood.

Groundwater management and assessment

The Proponent has consistently maintained that there will be no groundwater issues associated with the original or amended project. The Office of Water's original review and notification to the Department of Planning (and subsequently the Proponent) on 31 Jan 2011, however, states our concerns that the groundwater should be properly assessed.

The original approval instrument (dated 6 July 2012) for the project includes the Condition 18(c) for preparation of a Groundwater Management Plan as part of a Water Management Plan prepared in consultation with NOW; as follows:-

- (c) Groundwater Management Plan, which includes:
- detailed baseline data on groundwater levels, yield and quality in the area, that could be affected by the project;
 - groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts;
 - a program to monitor:
 - groundwater inflows to the quarrying operations;
 - the impacts of the project on:
 - local alluvial aquifers;
 - any groundwater bores on privately-owned land that could be affected by the project;
 - the seepage/leachate from water storages or backfilled voids on site; and
 - groundwater dependent ecosystems;
 - a plan to respond to any exceedances of the groundwater assessment criteria;

It is not considered that these requirements are complex or unreasonable.

Options

In Section 4.7 of the current revision document the Proponent again dismisses any groundwater impact from the activities. The Proponent also avoids mentioning any Groundwater Management Plan and has as yet to finalise any Water Management Plan – on an overall basis (as discussed in their Section 1.4.2).

It is suggested that the Department of Planning & Environment consider enforcement of the existing project conditions, and provision of some relevant background studies of groundwater be introduced. This will enable a better assessment of the ongoing project and its future should the nature of the surrounding district and its natural or modified environment change to any significant extent. With the baseline information to hand a better assessment in terms of the AIP can be made.

There is a low likelihood of impacts on regional groundwater from this project in its original or modified forms. However, until the hydrogeological setting is better delineated, together with

clarification of the relationship of the proposed quarry excavation level to groundwater source resources in the underlying Hawkesbury Sandstone, the evidence is not clear.

There is a low likelihood of connectivity of the quarry floor and quarrying activities with the Wingecarribee River. Matters like pollution from quarrying vehicles and activities which may interconnect with groundwater or the River have been addressed by the Proponent.

There is the strong possibility of small inflows of perched groundwater from sandstone lenses and stringers within the shale resource, and maybe from some weathered jointed mass. However, these are likely to be small and may be not sustained given the development context - vegetation clearing, quarrying, grazing agriculture surrounding.

There is also a small potential risk of groundwater impact should quarrying be extended in about 30 years. At this time, insufficient information is available in order to completely assess such a future scenario.

The Office of Water recommends the following in relation to groundwater:

1. That the original Approval Condition 18(c) which required a Groundwater Management Plan (GMP) to be prepared be enforced.
2. That the Proponent be required to establish at least three (3) pairs of nested piezometers – one towards each of the SW, NW and NE corners of the "Project Site Boundary" as approved. The nested piezometers shall consist of one (1) to measure groundwater levels in the Ashfield Shale and one (1) to measure groundwater pressures in the immediately underlying Hawkesbury Sandstone. The piezometers in the SW corner area shall be east of the main N-S Lot boundary.
3. That groundwater levels in all monitoring bores be measured every 3 months, together with the pH and electrical conductivity of representative samples, and the information be reported annually to NOW. The reporting should be accompanied by an analysis of the results in the context of the project's operations, historical water level data, district rainfall, and local landholder activities; and any adverse outcomes explained to the satisfaction of NOW.
4. Quarry operators should routinely monitor for groundwater inflows from the floor and walls and should record all instances. A report of groundwater inflows together with a suitable analysis and groundwater management assessment should be prepared annually included in the Annual Review.

End Attachment A