Hunter Water Corporation
ABN 46 228 513 446

PO Box 5171
HRMC NSW 2310
36 Honeysuckle Drive
NEWCASTLE NSW 2300
1300 657 657 (T)
(02) 4979 9468 (F)
enquiries@hunterwater.com.au
hunterwater.com.au

9 March 2017

Our Ref: HW2016-492

Director Resource Assessments
Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

Attention: Michelle Kirkman

By email: michelle.kirkman@planning.nsw.gov.au

Dear Michelle

SSD 7332 EIS – PROPOSED HARD ROCK QUARRY – BARLEIGH RANCH WAY, EAGLETON – ADDENDUM TO SUBMISSION

The purpose of this letter is to submit further clarification and detail regarding Hunter Water's concerns about the proposed hard rock quarry at Barleigh Ranch Way, Eagleton. As noted in our submission dated 6 March 2017, the site is located within Hunter Water's Grahamstown Dam Drinking Water Special Area as gazetted in the Hunter Water Regulation 2015 and Hunter Water has a number of concerns about the potential effects of the proposed development on water quality.

As indicated in our previous correspondence to the Department, Hunter Water expects all development in the drinking water catchments to demonstrate a Neutral or Beneficial Effect (NorBE) on water quality, which requires that the development:

(a) has no identifiable potential negative impact on water quality, or

(b) will contain any water quality impact on the development site and prevent it from reaching any watercourse, waterbody or drainage depression on the site, or

(c) will transfer any water quality impact outside the site where it is treated and disposed of to standards approved by the consent authority.

Hunter Water's correspondence to the Department on 10 May 2016 noted that the requirement for NorBE applies at all times, including wet years and during storm events. Additionally, we indicated a preference for the site to operate as a closed system (i.e. no discharge of water from the site). If the development were to discharge water into the Special Area, we specified that the quality of water discharged from the site would need to be of the same or better quality than that currently leaving the undeveloped site in order to demonstrate NorBE.

Hunter Water also requested that Proponent should consult with Hunter Water to develop design criteria for stormwater containment and provide justification to clearly demonstrate how the criteria are appropriate for the development and meet NorBE.

Hunter Water commissioned an independent expert review of the proposed water management system for the site, specifically the Water Assessment report prepared by Umwelt Pty Ltd. The review found that the Proponent has not demonstrated that the development will meet NorBE, either by operating as a closed system or by ensuring water discharged from the site would be of equal or better quality than that currently leaving the site. Further, the Proponent has not provided sufficient justification for the proposed level of containment or demonstrated that the proposed water management system is feasible and effective.

The fundamental concerns with the proposed water management system for the development are as follows:

- Justification for the target design criteria for stormwater containment has not been provided. The adopted targets reflect containment of a 1 in 100 year ARI 24 hour burst event and the ability to safely "convey" (i.e. not contain) runoff from a Probable Maximum Rainfall event. The Water Assessment notes that the adopted targets are target design criteria for "typical catchments". Hunter Water expects that water management measures designed for the proposed quarry will take into account the sensitive nature of the downstream drinking water resource. Justification needs to be provided for why target design criteria for a "typical catchment" is appropriate for a drinking water catchment.

- Designing containment storage to a burst event criterion does not account for antecedent rainfall, or for extended wet periods that can cumulatively generate large volumes of runoff. Further, sizing retention storages based on a discrete storm event does not enable evaluation of the likely frequency, duration and volume of overflow that could be expected over the 30-year lifecycle. This makes it an inappropriate method for designing a closed system, particularly when the goal is to meet NorBE under all weather conditions. A continuous simulation model is considered more appropriate.

- The Water Assessment does include a continuous simulation model for the water balance, but it appears this was only used to determine whether the site would need to import water for use in process operations. The data were not, however, used to verify the containment storage volumes. The modelling results indicate that, without discharge to Seven Mile Creek, there would be periods of more than six years where continuous in-pit storage of up to 189 ML of water would be required. It is unclear how this could practicably be achieved without significantly impacting on site operations.

- If the system will not operate as a 'closed system' and discharge is necessary, the Proponent must demonstrate that the quality of water to be discharged from the site will meet NorBE. Such a demonstration requires:
    - An estimation of pollutant loads currently leaving the site (specifically excluding the portion of the site occupied by the Port Stephens Gardenland facility);
    - Estimation of the loads generated on the site during the operation of the development, particularly the maximum expected pollutant loads;
    - Detail of the volumes of water expected to be discharged from the site;

- Detail of the mitigation and treatment measures to be applied to the water prior to discharge;
- Demonstration that the proposed mitigation and treatment measures will reduce the post-development pollutant loads in the water to be equal to or less than the loads currently leaving the site.

None of these requirements have been sufficiently addressed in the supporting documentation for the development application. As such, Hunter Water considers that the Proponent has not demonstrated that the development will meet the criteria for NorBE.

The review also noted other issues with the proposed water management system, including:

— The water quality monitoring undertaken by Umwelt Pty Ltd is not considered to represent existing loads from the subject site as they are likely to be influenced by other local developments, particularly the Boral Quarry and the Port Stephens Gardenland composting facility. For the same reason, the water quality monitoring sites proposed for the development are not considered appropriate. Monitoring locations for both baseline and ongoing monitoring purposes need to be chosen to enable the contribution from the site to be accurately determined.

— Dams 1 and 2 will capture significant volumes of sediment over the life of the quarry. This volume will be related to the effectiveness of catch drains, check dams, sediment traps and the upslope bunded areas, which in turn will depend on the levels of maintenance undertaken throughout the quarry lifecycle. Typically, many of these measures are poorly maintained and their functions not well understood by site operators, leading to significant volumes of sediment being washed into sediment basins, meaning these structures become the only effective barrier prior to discharge into an adjacent waterway. Inadequate maintenance is considered to be a key risk to water quality for this development.

— The low flow pipes proposed to be incorporated into the bunds that detain stormwater would appear to make them permeable and therefore ineffective for controlling more frequent runoff events.

Based on the above findings, Hunter Water considers that the Proponent has not demonstrated that the development will meet Hunter Water's requirement for NorBE. Hunter Water therefore does not support approval of the proposed development in its current form.

The attached copy of the independent expert review commissioned by Hunter Water provides further detail and explanation. If you require further advice or clarification regarding this submission, or questions regarding the application of NorBE, please contact me on (02) 4979 9545.

Yours sincerely

Malcolm Withers
Senior Developer Services Engineer

Att: *Eagleton Quarry EIS - Review of Water Assessment* (Alluvium Consulting, 8 March 2017)