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SSD 8795

Mr Anthony Barnes  
Senior Environmental Assessment Officer  
Resource Assessments | Planning Services  
[anthony.barnes@planning.nsw.gov.au](mailto:anthony.barnes@planning.nsw.gov.au)

Dear Anthony

**OEH review of Environmental Impact Statement, Karuah South Quarry, SSD 8795**

I refer to your e-mail dated 11 April 2019, seeking comments on the Environmental Impact Statement for the Karuah South Quarry, SSD 8795.

OEH has reviewed the Environmental Impact Statement, including relevant appendices, annexures, attachments and parts of the document titled '*Environmental Impact Statement for the Karuah South Quarry State Significant Development 17\_8795*' (prepared by R.W. Corkery & Co. Pty. Limited and dated May 2019) in relation to impacts on biodiversity, Aboriginal cultural heritage and flooding.

OEH's recommendations are provided in **Attachment A** and detailed comments are provided in **Attachment B**. If you require any further information regarding this matter, please contact Vanessa Owen, Senior Regional Biodiversity Conservation Officer, on 4927 3116 or via email at [rog.hcc@environment.nsw.gov.au](mailto:rog.hcc@environment.nsw.gov.au).

Yours sincerely

14 June 2019

**STEVEN COX**  
**Senior Team Leader Planning**  
**Hunter Central Coast Branch**  
**Conservation and Regional Delivery Division**

Contact officer: VANESSA OWEN  
02 4927 3116

Enclosure: Attachments A and B

## OEH's recommendations

### Karuah South Quarry- Environmental Impact Statement

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#### Biodiversity

1. OEH recommends survey period for all threatened flora species is reported.
2. OEH recommends clarification that *Rhodamnia rubescens* does not occur on the subject land.
3. OEH recommends PCT 1590 is identified as forming part of the Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions Endangered Ecological Community.
4. OEH recommends assessment and mitigation of post-development fauna habitat connectivity is undertaken.
5. OEH recommends plot field data sheets and digital shape files for all maps and spatial data are submitted.

#### Aboriginal cultural heritage

6. OEH recommends that archaeological survey be undertaken in the southern portion of the project area with opportunity provided to the registered Aboriginal groups to participate in the survey.
7. OEH recommends that the results of the additional survey of the southern portion of the project area and additional consultation with the registered Aboriginal groups relating to Aboriginal cultural values of this area should be documented in a revised Aboriginal cultural heritage assessment and a revised Archaeological report in accordance with the SEARs.

#### Flooding and flood risk

8. OEH recommends that the proponent demonstrate that proposed site drainage will not result in increased nuisance flooding across the Pacific Highway.

## OEH's detailed comments

### Karuah South Quarry- Environmental Impact Statement

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#### Biodiversity

##### 1. Nominated survey period for all threatened flora species should be shown

The Biodiversity Development Assessment Report (BDAR) Table 8 shows nominated survey months for threatened flora species (OEH, 2018) against months when flora surveys were undertaken for the BDAR. Some flora species identified in the BDAR with potential to occur are not shown in Table 8, including *Angophora inopina*, *Corybas dowlingii*, *Diuris praecox* and *Melaleuca groveana*. Table 8 of the BDAR should include these species, nominated survey months (OEH, 2018) and months when the flora surveys were undertaken for the BDAR to demonstrate these species have been adequately surveyed.

##### Recommendation 1

OEH recommends survey period for all threatened flora species is reported.

##### 2. Clarification is sought that targeted flora surveys would have detected *Rhodamnia rubescens* if present

*Rhodamnia rubescens* has been recently listed (1/02/2019) as critically endangered on Schedule 1 of the *Biodiversity Conservation Act 2016* (BC Act). The species is associated with Plant Community Type (PCT) 1527 as described in the BDAR, on the New South Wales North Coast (which includes the project area). The species can be identified in the field year-round. Based on the survey periods shown in Table 8 and the survey effort shown in Figure 7 of the BDAR, it appears that the species would have been detected if present. The species does not appear in any species lists in the BDAR. Clarification is sought that surveys would have detected *Rhodamnia rubescens* if present on the subject land.

##### Recommendation 2

OEH recommends clarification that *Rhodamnia rubescens* does not occur on the subject land.

##### 3. Plant Community Type 1590 forms part of the Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions Endangered Ecological Community

The NSW Threatened Species Scientific Committee has recently made a final determination (31/05/2019) to list Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions (LHSGIB) as an Endangered Ecological Community (EEC) on Schedule 2 of the BC Act. PCT 1590 as described in the BDAR forms part of LHSGIB EEC; relevant sections of the BDAR should be updated to reflect this.

##### Recommendation 3

OEH recommends PCT 1590 is identified as forming part of the Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions Endangered Ecological Community.

##### 4. Assessment and mitigation of fauna habitat connectivity west of the subject land is required

The BDAR Section 2.1.4 and Figure 4 identifies terrestrial habitat connectivity across the subject land (noting recent clearing has impacted this connectivity). It is unclear if connectivity to native vegetation southeast on the subject land and west of the subject land could be retained post-development, or if this native vegetation will become isolated. An assessment of post-

development habitat connectivity is required as per Clause 6.1 of the Biodiversity Conservation Regulation 2017, specifically to address the gap between native vegetation retained on the southeast of the subject land and west of the subject land, potential isolation of native vegetation west of the subject land, and if fauna structures (such as rope bridges or glider poles) are required to maintain habitat connectivity.

#### Recommendation 4

OEH recommends assessment and mitigation of post-development fauna habitat connectivity is undertaken.

### 5. Plot field data sheets and digital shape files should be submitted

The Biodiversity Assessment Method (BAM) Table 25 lists the minimum information requirements for BDARs, including plot field data sheets and digital shape files for all maps and spatial data. Submission of plot field data sheets and digital shape files aids in the interpretation of vegetation mapping and gives context to threatened species habitat assessment.

#### Recommendation 5

OEH recommends plot field data sheets and digital shape files for all maps and spatial data are submitted.

## Aboriginal cultural heritage

### 6. Further field survey should be undertaken

Previous surveys in the Karuah local area record that Aboriginal cultural heritage sites are located adjacent to major fresh water sources and that such areas are areas of high archaeological sensitivity. Several waterways cross the project area including Yalimbah Creek a second order creek and its tributaries. This creek line, with two confluences within the project area, lies in the southern portion of the Karuah South project area (as depicted on Figure 5 of the *Karuah South Quarry Biodiversity Development Assessment Report* prepared by Ecoplanning Pty Ltd (February 2019). No archaeological survey was conducted in this area, the area with the highest potential for Aboriginal heritage sites to be present.

The Archaeological survey methodology in Section 5.2 of the Archaeological Report states that “the survey effort targeted all landforms within the Study Area”. Figure 7 and Figure 8 of the report shows that survey coverage was low and focused on cleared areas and tracks to the north west and upslope of the creek line. No survey was undertaken along the flatter, lower slopes flanking the creek line characterised by open forest.

Survey coverage was not adequate and excluded areas where Aboriginal sites were more likely to occur along creek banks and areas that would have had higher potential for accessible natural resources. OEH recommends that additional survey be undertaken in the southern portion of the project area. Additional consultation with the registered Aboriginal parties should be undertaken to provide them with the opportunity to participate in the survey.

#### Recommendation 6

OEH recommends that archaeological survey be undertaken in the southern portion of the project area with opportunity provided to the registered Aboriginal groups to participate in the survey.

### 7. Revised Aboriginal Cultural Heritage Assessment Report and Revised Archaeological Report Required

A revised Aboriginal cultural heritage assessment (ACHA) and a revised Archaeological report are required to include the results of the additional survey. Additional consultation with the registered Aboriginal parties regarding Aboriginal cultural values in the southern portion of the project area is also required and should be documented.

#### Recommendation 7

OEH recommends that the results of the additional survey of the southern portion of the project area and additional consultation with the registered Aboriginal groups relating to Aboriginal cultural values of this area should be documented in a revised Aboriginal cultural heritage assessment and a revised Archaeological report in accordance with the SEARs.

### **Flooding and flood risk**

#### **8. There is the potential for increased nuisance flooding across the Pacific Highway**

The proponent needs to demonstrate that there will be no adverse impacts on the Pacific Highway. Changes in site drainage may increase the peak discharge at the Pacific Highway culverts. This is because the clean water diversion drain will collect and concentrate overland sheet flow into channel flow. This drain, as well as the southern sediment basin, then discharge to Blue Rock Close and then under the Pacific Highway. If the discharge exceeds the capacity of the Pacific Highway culverts, there may be an increase in nuisance flooding across the highway.

#### Recommendation 8

OEH recommends that the proponent demonstrate that proposed site drainage will not result in increased nuisance flooding across the Pacific Highway.