

APPENDIX 8. OEH REVIEW OF THE RESPONSE TO SUBMISSIONS DOCUMENTS

Preliminary Documentation

Cabbage Tree Road Sand Quarry - (EPBC 2016-7852)



Office of
Environment
& Heritage

DOC16/573848-1
SSD 6125

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Dear Ms Seed

Review of the Response to Submissions documents for the proposed Cabbage Tree Road Sand Quarry, Williamtown

I refer to your email dated 10 November 2016 seeking comment on the Response to Submissions documents prepared for the proposed Cabbage Tree Road Sand Quarry at Williamtown. This project is being considered under the State Significant Development provisions of the *Environmental Assessment and Planning Act 1979*.

The Office of Environment and Heritage (OEH) has undertaken a review of the document titled '*Response to Submissions: Cabbage Tree Road Sand Quarry (SSD 13_6125)*' (including Appendices) prepared for Williamtown Sand Syndicate Pty Limited by Kleinfelder Australia Pty Ltd (dated 9 November 2016). Detailed comments are provided in **Attachment A**.

With respect to biodiversity (including threatened species), national parks estate and flooding, OEH is of the opinion the Response to Submissions documents adequately address the issues raised in OEH's review of the Environmental Impact Statement, providing issues discussed in Attachment A are satisfactorily addressed. Please note that, the Response to Submission documents fails to adequately address OEH's previous concerns regarding the Aboriginal cultural heritage assessment. These concerns are detailed in Attachment A.

If you require any further information regarding this matter please contact Steve Lewer, Regional Biodiversity Conservation Officer, on 4927 3158.

Yours sincerely

5 DEC 2016

RICHARD BATH
Senior Team Leader Planning, Hunter Central Coast Region
Regional Operations

cc: Colin Phillips, Department of Planning and Environment

Enclosure: Attachment A

ATTACHMENT A: OEH COMMENTS ON THE RESPONSE TO SUBMISSIONS DOCUMENTS FOR THE PROPOSED CABBAGE TREE ROAD SAND QUARRY AT WILLIAMTOWN (SSD 6125)

BIODIVERSITY AND THREATENED SPECIES

OEH has undertaken a review of the document titled '*Response to Submissions: Cabbage Tree Road Sand Quarry (SSD 13_6125)*' and Appendices 4 (Revised Ecological Assessment) and 5 (Biodiversity Offset Strategy). OEH correspondence dated 15 February 2016 (DOC15/491264-2) identified the following concerns with the Environmental Impact Assessment (EIS):

- insufficient justification for impacts to threatened species (including their habitat) and/or inadequate threatened species assessment (including areas where OEH does not concur / support the assessment), namely with respect to Koala and the Drooping Red Gum (*Eucalyptus parramattensis* subsp. *decadens*)
- lack of details and/or no provision of a biodiversity offset strategy, including specific details on proposed method in securing the such an offset in the long-term with respect to conservation and management
- no provision of the Koala Spot Analysis Technique (SAT) results / data
- further clarification of one of the vegetation community description (notably those that contain what appear to significant records of Drooping Red Gum) and the matching of all communities on the subject site to their appropriate OEH Plant Community Types for consistency with appropriate quantitative-based assessment tools
- additional clarification of fauna survey approach undertaken, specifically in relation to survey design and stratification units chosen.

OEH notes that the proponent's ecological consultants (Kleinfelder) have provided a revised ecological assessment (Appendix 4) which updates many of the issues outlined above, including refining the on-site vegetation mapping and referencing to the OEH Plant Community Types, revision and justification of the impact assessment to threatened species, such as Koala (including updated Koala mapping) and Drooping Red Gum, and assessment of proposal to newly found threatened species, namely Camfield's Stringybark, and the provision of a Biodiversity Offset Strategy (BOS) which includes on-site and proposed offsite offsetting. This BOS utilised the BioBanking Assessment Methodology (BBAM; OEH 2014) to quantify the impacts, and determine the type and scale of biodiversity offsets required; to which OEH supports. OEH is of the opinion the revised ecological assessment and BOS represents a significant modification to the previous assessment provided in the EIS and provides the following comments with respect to how these documents generally have addressed our previously raised concerns.

Survey Effort and Design

As stated in previous correspondence (dated 15 February 2016), OEH was of the opinion that the majority of the flora and fauna survey components of the EIS appeared to be adequate and have been undertaken in accordance with OEH guidelines, however, further clarification was requested on survey effort for fauna, specifically the stratification units chosen, size details of each stratification unit used for sampling, the method of sampling and how they meet the minimum requirements in OEH survey guidelines (DEC 2004). OEH suggested that this be presented in tabular form to indicate the specific vegetation / habitat types under each broad stratification unit, coupled with details of size of each unit, timing of surveys (not just the survey, but each specific component), and how they meet the minimum requirements in OEH survey guidelines (DEC 2004). Furthermore, details of the prevailing climatic conditions at time of survey should be provided. Table 2 with Appendix 4 (revised ecological assessment) generally provides these details, except for size of stratification units which can be inferred from Table 6 – Area of each Vegetation Community. Prevailing climatic conditions are detailed within Table 3 – Weather Conditions during Fauna Surveys. Based on the information provided in Appendix 4, OEH is now of the opinion that the fauna surveying undertaken for the proposal adequately complies with OEH's guidelines.

Given that the proponent is now utilising the BBAM to address the impacts to threatened species and biodiversity, the fauna surveying components is now redundant to some extent, except for targeted surveys required for 'species credit' species, as this process assumes presence of the likely candidate species on the basis of the habitat / vegetation communities present. OEH will provide an evaluation of the BBAM assessment later in this review. Nevertheless, OEH acknowledges that the Response to Submissions document has shown that surveying is compliant, plus this surveying has provided an indication of the species present, particularly threatened taxa. This information provides a clearer picture of the overall impact of the proposal.

Presentation of Survey Results

OEH previously commented on the following aspects of the survey results. The 'Revised Ecological Assessment' (Appendix 4) adequately addresses these concerns as briefly outlined below:

- Koala Spot Analysis Technique (SAT) surveys were undertaken for the project and conducted in accordance with the recommended technique (Philips & Callaghan 2011), however, the results were not presented in the EIS. OEH notes that these have now been suitably presented (i.e. as a per cent of activity). Table 5 in Section 3.2.2.1 (Koala) of Appendix 4 clearly articulates the results, with the SAT surveys indicating that the subject site is likely unoccupied due to the lack of Koala activity. These SAT surveys were undertaken by Umwelt in September 2015.
- OEH previously queried the naming / assigning of 'Coastal Sand Wallum Woodland' community within the north-eastern corner (along the northern boundary of the subject site), which contains a band of Drooping Red Gum, which may have warranted its separate delineation. However, OEH acknowledges that Kleinfelder, the authors of the revised ecological report, have undertaken a complete revision of the vegetation on the subject site. This revision utilised the BBAM to inform the Plant Community Types (PCT) present (as per OEH's Vegetation Information System [VIS] Classification database) and included a reassessment of the boundaries of these communities. A revised vegetation map for the subject site is presented in Figure 1 of Appendix 4, and the associated vegetation descriptions, which includes their PCT equivalents, is detailed in Appendix 2 of the document. OEH has checked the veracity of these vegetation communities, based on BBAM plot data and a number of site inspections, and we are of the opinion the communities described provide an accurate account of the vegetation present on the subject site.
- OEH previously requested that it had a preference for the use of BBAM to describe and assess the biodiversity values of a subject site, as well as defining vegetation communities. Under this scenario we requested the communities be aligned to their appropriate PCT equivalents. As described above, the vegetation component of the EIS has been completely revised in accordance with OEH's request. OEH is of the opinion the vegetation communities presented for the subject site are an accurate account of the vegetation present.

Threatened Species Assessment

OEH previously disagreed with some of the specific threatened species assessments in the EIS which did not provide adequate justification for the loss of a known/potential species and/or its habitat, including the lack of suitable offset and/or mitigation measures. In particular, OEH had concerns with respect to *Eucalyptus parramattensis* subsp. *decadens*, Koala and to some extent the Wallum Froglet. OEH is now of the opinion the revised ecological assessment has largely addressed these concerns as outlined below. OEH offers additional comment on two other significant species detected on, or have the potential to, occur the subject site as a result of this revised assessment, namely *Eucalyptus camfieldii* (Camfield's Stringybark) and the Mahoney's Toadlet (a recently described new species of *Uperoleia*).

Koala

OEH noted that the original ecological assessment report (authored by Umwelt) and 'Appendix E - TSC Act Assessment of Significance' concluded that "the Project is considered likely to result in a significant impact on the Koala", further noting the project will: (i) likely contribute to the viable local population being placed at the risk of extinction, (ii) result in the loss of 48.1 hectares (ha) of habitat considered to be critical to the survival of the species, (iii) sever and/or fragment adjoining connective habitats (i.e.

the quarry footprint may create a barrier to movement), (iv) remove and/or modify significant and known Koala habitat within the broader locale, and (v) is inconsistent with overall objective of the NSW 'Recovery Plan for the Koala (*Phascolarctos cinereus*)' (DECC 2008), which aims at reversing the decline of the Koala in NSW through maintenance and protection of habitat. In light of these statements, OEH had considerable reservations about the suitability of the project and its overall impact on Koala. The revised ecological assessment (including the appendices) has alleviated these concerns, on the basis of:

- The proponents have reduced the overall development footprint (from 53.9 ha to 42.25 ha) and as such the overall impact on Koala habitat (both preferred and supplementary) has been minimised, with a greater area of habitat to be retained within the on-site biodiversity offset area. This biodiversity offset area will be afforded long-term protection and management under a BioBanking Agreement (under the *Threatened Species Conservation Act 1995* [TSC Act]). OEH supports this conservation mechanism.
- Kleinfelder have revised the Koala habitat mapping on the subject site, including the areas to be retained. They note in their revised assessment that their field assessments and vegetation mapping surveys indicate the Port Stephens Council Koala habitat mapping for the subject site was inaccurate, with a larger amount of preferred and supplementary habitat being identified on site following the revision. However, the updated map indicates that the impacts to preferred Koala habitat are not as large as originally assessed in the Ecological Assessment conducted by Umwelt, as the areas of supplementary Koala habitat (i.e. Coastal Sand Apple – Blackbutt forest) were misidentified as preferred Koala habitat. Appropriate justification for this revision is supplied in Section 4.3.1.1 (Koala: Habitat Mapping within the Subject Land), which OEH has not found fault with. As such OEH is of the opinion the overall impact to preferred Koala habitat has been reduced and that the proposal is unlikely to lead to significant impact, such that the species will be put at risk of extinction within the local region.

The revised ecological assessment indicates a total of 101.94 ha of preferred Koala habitat occurs within the subject site, of which 19.19 ha occurs within the development footprint. The remaining 82.75 ha (which typically represents higher quality vegetation) of preferred habitat will be retained within the onsite biodiversity offset area, with residual offset requirements targeting preferred Koala habitat offset within the Tomago Sandbeds koala mapping unit (KMU). Similarly the offset areas will contain areas of good-quality supplementary habitat. Details of conserved Koala habitat are provided in Appendix 4.

With respect to the Tomago Sandbeds KMU, Kleinfelder have shown that the proposal will only remove 1.01% of preferred and 0.78% supplementary Koala habitat. As such OEH concurs with the overall Koala assessment that this loss does not represent a significant impact. Furthermore, the proposal will not sever or significantly reduce any connective linkages within the KMU, and thus will not adversely impact on the movement ability of animals between areas of preferred and supplementary habitat within this unit.

- Additionally, with respect to the preferred habitat within the development footprint, a large portion is 'rehabilitated Coastal Sand Apple – Blackbutt forest' with replanted *Eucalyptus parramattensis* subsp. *decadens*, which is a known Koala food tree and as such helps define these areas into the preferred habitat category. The revised ecological assessment indicates that a large portion of the proposed development area has been previously sand mined and has no current Koala occupancy (based on SAT surveys undertaken by Umwelt), and thus would be considered limited resident habitat in its current format. OEH acknowledges that this, coupled with recent bushfire activity (2013), has reduced the sites suitability to sustain an independent resident Koala population. This is supported by the 'no activity' result in the SAT surveys. Previous surveys which targeted Koalas support the current SAT analysis in that following the 2013 bushfire event, only seven records of the species had been detected. None of these were located within the development footprint. The most recent record on subject site is in 2011 (and prior to that 2008, and historically all [7] pre-1992), from the southern portion within a Swamp Mahogany forest. This vegetation community (and known site) will be retained within the on-site biodiversity offset. Although, OEH concurs with Kleinfelder's assumption that the general area is still likely recovering from the 2013 fire event and Koala re-colonisation is still ongoing, it is probable based on historic records that the site has always had a low carrying capacity / occupancy, even pre-fire. As such, OEH is of the opinion the proposed

on-site offset areas will conserve the more important and higher quality habitats on-site, which will compensate any short-term loss of lower quality habitat.

Although OEH acknowledges that the proposal will remove some known / potential Koala habitat (both preferred and supplementary), on balance OEH supports the removal of some lesser quality habitat, given that the much larger residual and higher quality habitat (including a larger percentage of preferred habitat) will be retained and managed in perpetuity under a BioBanking agreement. Furthermore, additional offsets will be achieved offsite that will target Koalas and their habitat. This is a good outcome as it manages land under a long term conservation mechanism, which previously had limited protection.

- OEH acknowledges that the Port Stephens local government area (LGA) is considered to represent one of the strongholds for Koalas in New South Wales (Lunney *et al.* 2007), with the Tomago Sandbeds cited as a “*known important area for Koalas in the Port Stephens region*” (PSC 2002). This was supported in the state-wide Koala survey undertaken in 1986-87 which identified the population of Koala in the Port Stephens LGA as the most significant southerly population of the species (Reed *et al.* 1990). Nevertheless, over the last twenty years there is community concern that the Port Stephens population, particularly the Tilligerry (of which Tomago is considered part of) and Tomaree Peninsula population/sub-populations (Hunter Koala Preservation Society pers. comm.) are in decline. This is in part supported by the perceived lack of or reduction of recent records found on OEH’s ‘Atlas of NSW Wildlife’ database.

In response to this perceived reduction in numbers and uncertainty with respect to the population density, Port Stephens Council commissioned a study to examine aspects of koala distribution and abundance across the Port Stephens LGA (Biolink 2016). This study looked at generational persistence as one of its parameters, and concluded that the LGA contained a number (although limited) of populations that sustained a long-term generation persistence over six generations. It is these persistent populations that are key to ensuring the long-term survival of the Koala in the LGA, along with the maintenance of connective links and areas of suitable foraging habitat (i.e. good quality preferred and supplementary habitat). The Generational Persistence Assessment undertaken by Biolink (2016), indicates the proposal is situated between two significant Koala populations which have this persistence. These are located in the Tomago and Medowie-Tilligerry areas. The proposal will not sever any habitat linkages between these areas, and nor will it significantly reduce the ability for animals to move freely between these areas.

The subject site is not identified as an area of generational persistence, however, it is acknowledged historically the site was once occupied and that this has likely been adversely impacted upon by recent bushfire activity and historic sand mining. OEH acknowledges that the site may support future populations once the habitat becomes more suitable, however, on balance the retention of the higher quality foraging habitats and the focus of the development on the prior disturbed lands is considered a good compromise. The proposed revegetation will be based on the current vegetation and include similar species mix, such as Earp’s Gum, the recognised feed species on-site. As such it will eventually provide foraging habitat in the future.

- The cumulative impacts of the proposal have been adequately addressed in (i) Section 4.3.1.2 (Koala Habitat Assessment within the Tomago Sandbeds KMU) of the revised assessment, which indicates (as stated above) the proposal will remove only small amounts of available preferred and secondary habitat, and (ii) Section 5.2 (Cumulative Impacts), which shows that two recently approved major projects within a 20 kilometre radius (Sandvik Machine Manufacturing Project and AGL Gas Storage Facility) have impacted upon Koala habitat. However, these projects also only impacted on relatively small areas of habitat compared to that existing within the KMU. As such it appears that the proposal will not result in a significant cumulative impact. It is noted both these two projects were required to obtain suitable biodiversity offsets that were commensurate with the development footprint.
- The development footprint and the proposed on-site offset areas have been assessed under the BBAM (including the biodiversity credit calculator). This was used to determine the type and quantum of credits that will be required to be offset for the proposal. The proposal has generated specific ‘ecosystem’ and ‘species’ credits, as detailed in Appendix 5 (Biodiversity Offset Strategy [BOS]) of the revised assessment. OEH supports the use of BBAM to inform the BOS, and as such acknowledges that the Koala habitat will be specifically offset via the retirement of Koala ‘species’

credits. These credits will be generated via the on-site and off-site offsets (as outlined in the BOS). As indicated below, OEH is of the opinion the credit calculator and BBAM have been applied correctly.

- The proposed Koala specific mitigation strategies, except the biodiversity offset strategy, are ancillary mitigation measures designed to minimise on-site / *insitu* impacts to the species not contribute to the reduction of habitat loss or the long-term conservation of the species. Many of these measures, such as pre-clearing surveys, wildlife-friendly fencing, reduction in speed limits and tree-felling procedures are 'industry standards' that would typically form the basis of most development consents. The revised assessment report now acknowledges this.
- With respect to pre-clearing surveys and tree felling procedures, the EIS stated that any captured / displaced animals would be released into nearby secure habitats. The previous assessment (EIS) failed address how displaced fauna would be relocated (e.g. utilisation of adjacent or on-site retained habitats), or where these nearby habitats were. Section 6.1 (Koala Specific Mitigation Measures) of the revised assessment adequately addresses OEH previous concerns, clearly detailing the procedures and monitoring requirements for any displaced / translocated animals. It is proposed, that the on-site offset areas will be utilised for any re-location, given that the suitable foraging habitat and likely low occupancy rates. As the SAT results indicate low occupation (if any) for the subject site the implementation of this policy is considered unlikely and possibly only for transient animals (not resident ones).

Wallum Froglet

OEH is now satisfied that the preferred Wallum Froglet habitat is not being impacted upon given the reduction in the development footprint. All suitable habitat for this species on the subject site is being retained within the on-site biodiversity offsets.

Mahony's Toadlet (*Uperoleia mahonyi*)

A newly described species of Australian frog, the Mahony's Toadlet (*Uperoleia mahonyi*) (as described in Clulow *et al.* 2016) has the potential to occur on the subject site. This species was recently discovered at Oyster Cove and inhabits coastal sandplains of the mid-north NSW coast, from the Port Stephens area to the Central Coast. The species is known to occur quite close to the Cabbage Tree Road site on Hunter Water Corporation land to the north and near Masonite Road to the northwest. It is closely related to *U. laevigata*, which was recorded on the subject site during the Umwelt 2015 surveys, and as such the identity of this frog is in doubt. Clulow *et al.* (2016) describe this species as a "a habitat specialist, inhabiting coastal ephemeral and semi-permanent swamps and swales, and occasionally man made dams, in heath or wallum habitats almost exclusively on a substrate of white/leached sand". As such suitable habitat exists on the subject site. The species is not currently listed under the TSC Act, but there is the potential for emergency listing given its potential conservation status and known threats (including sand mining).

Although, the potential habitat on the overall subject site (i.e. wallum heath and swamp forest) will be conserved within the on-site biodiversity offsets, it has been recorded away from water (as detailed in Clulow *et al.* 2016), and there is community concern regarding the impacts on this species. As a precaution the Department of Planning and Environment have recommended that targeted surveying be undertaken to determine absence or presence. OEH supports this approach and have advised the Department that Mahony's Toadlet would be currently breeding (spring: October to November [Clulow *et al.* 2106], and thus conducive to surveying (i.e. male frogs are calling). OEH recommends that surveying be conducted by a suitable qualified amphibian specialist and in accordance with OEH guidelines (DECC 2009), that is following rain, over two consecutive nights, and for three hours duration.

Drooping Red Gum (Earp's Gum) (*Eucalyptus parramattensis* subsp. *decadens*)

The previous ecological assessment undertaken by Umwelt concluded that "the Project is considered likely to result in a significant impact on the Earp's Gum (*Eucalyptus parramattensis* subsp. *decadens*", noting further that the project would: (i) likely contribute to the viable local population being placed at

the risk of extinction, (ii) result in the loss of 38.14 ha of habitat and 284 individuals which is considered important to the long-term survival of the species in the locality (i.e. the wider population on the Tomago Sandbeds), and (iii) increase fragmentation and isolation for the species. As such OEH considered that there had to be appropriate justification to warrant the removal of significant habitat and individuals. The revised ecological assessment (including the appendices) has alleviated these concerns, on the basis of:

- The original surveys undertaken by Umwelt to determine the number of *Eucalyptus parramattensis* subsp. *decadens* that were being impacted upon utilised specific counts, which is consistent with OEH recently published *NSW Guide to Surveying Threatened Plants* (OEH 2016). However, the original EIS did not detail cumulative impacts and assess the impact to the overall Tomago Sandbed meta-population. To inform the revised impact assessment and impacts to the overall local population, Kleinfelder undertook additional surveys off-site. The local population was regarded as the RAAF Williamstown West Sub-population (as defined by Bell 2006). An estimation of this local population was undertaken by Kleinfelder, based on density calculations for suitable habitat (i.e. Clay Wallum Heathland and Earp's Gum Sedge Woodland). These density calculations were derived florist plots undertaken at specific sub-population locations, and from known individuals during the area searches. The revised assessment indicated that the proposal will impact 0.57% of the local population (i.e. 230 individuals will be removed from a sub-population estimation of 40,214 plants). As such OEH is satisfied that the proposal will not significant impact on the local population or the greater meta-population at large on Tomago Sandbeds. The remainder of the 864 plants on the subject site (i.e. 630) will be retained in the on-site biodiversity offset.
- The impact to *Eucalyptus parramattensis* subsp. *decadens* on the development footprint in the revised assessment has now been assessed under the BBAM (including the biodiversity credit calculator). Under this process, *Eucalyptus parramattensis* subsp. *decadens* is a 'species' credit species. As indicated in the credit profile report in Appendix 3 (Development Site Credit Report) of the BOS, the quantum of 'species' credits required to be retired is 3,220 credits. In comparison, the credit profile report for the on-site biodiversity in Appendix 4 (BioBank Site Credit Report) indicates this site generates 4,501 species credits. This means the BioBank site will fully compensate the number of *Eucalyptus parramattensis* subsp. *decadens* being removed for the proposal, with an overall net surplus of credits. As such OEH is satisfied the species is adequately offset.
- Many of the specimens of this species which occur within the previously sand mined area are replanted specimens as a result of the revegetation program. As such the proposal will generally remove specimens previously introduced to the site, where the provenance of remains unknown. Most specimens which are presumed endemic to the site will be retained in the on-site biodiversity offsets.

Camfield's Stringybark (*Eucalyptus camfieldii*)

An additional threatened plant, Camfield's Stringybark (*Eucalyptus camfieldii*), was detected on the subject site during surveys for the revised assessment, which were not found during the Umwelt surveys. This is confirmed by National Herbarium of New South Wales (as per correspondence in Appendix 3 [Letters from the Royal Botanic Gardens, Sydney]), who identify voucher specimens sent in as *E. camfieldii*. As such Kleinfelder undertook a detailed survey utilising belt transects (in accordance with OEH 2016) to determine the population size on the subject site and adjacent lands. A total of 1,868 individuals were identified on the subject site (predominantly in Coastal Sand Wallum Woodland-Heath); 227 within the development footprint and 1,641 within the on-site offset area. The majority within the development footprint likely represent specimens that have been replanted post sand mining. A further 395 individuals were identified on surrounding land. As such the estimated total population was 2,263, with approximately 10 per cent being removed for the proposal. Although OEH acknowledges that not all available habitat (or rehabilitated lands) in the general locale was surveyed, and there is the potential for genetic material to spread large distances and establish (Potts & Woinarski 1997), the proposal will result in a significant impact on the species and as such will require suitable offsetting.

The impact to *Eucalyptus camfieldii* on the development footprint in the revised assessment has also been assessed under the BBAM (including the biodiversity credit calculator) and OEH major project

offset policy (OEH 2011). Under this process, *Eucalyptus camfieldii* is a 'species' credit species. As indicated in the credit profile report in Appendix 3 (Development Site Credit Report) of the BOS, the quantum of 'species' credits required to be retired is 17,479 credits. In comparison, the credit profile report for the on-site biodiversity in Appendix 4 (BioBank Site Credit Report) indicates this site generates 11,651 species credits. This means there is a short fall of specific *Eucalyptus camfieldii* species credits on the BioBank site. The BOS (Appendix 1 of the revised assessment) states that the on-site BioBanking site fulfils 67% of the species credits required to offset the loss of *Eucalyptus camfieldii* from the development footprint. As such this document offers the following strategy:

- retirement of all species credits for *Eucalyptus camfieldii* on the BioBanking offset site, which equates to a 67 per cent fulfilment
- retirement of the residual *Eucalyptus parramattensis* subsp. *decadens* and all *Grevillea parviflora* subsp. *parviflora* species credits (724) on the BioBanking site. Under OEH Interim Major Project Policy (OEH 2011) – Tier 3 Negotiation (Mitigated Net Loss Outcome) 'species' credits for species with the same or greater conservation status can be traded (as per Variation Criteria B). As such this scenario would be permitted, coupled with the fact that suitable credits cannot be found in the general locale or are not available on the credit registry. This would result in the fulfilment of 78 per cent of the species credits required
- all additional fauna species credits generated on the BioBank site, namely Eastern Osprey (717) and Wallum Froglet (606). Although in the strict sense of the policy this is generally not permitted, the fact that the majority of the species credits generated on the development footprint are from planted specimens (and following sand mining, these species will again be replanted), this would result in a reasonable conservation outcome. The retirement of all residual fauna credits would result in over 80 per cent of the overall credit requirement being achieved. OEH is of the opinion this is a reasonable outcome, but recommends if there are additional species credits found on the off-site offset these should also be retired to meet the development footprint shortfall.

OEH supports the above proposal and acknowledges that it is generally in accordance with the OEH Interim Major Project Policy (OEH 2011), but recommends any additional species credits found on off-site biodiversity offset areas must be retired to compensate for any shortfalls.

Provision of Biodiversity Offsets / Compensatory Habitat Package

Previously the EIS did not contain a biodiversity offset strategy, and only noted that one would be required. OEH considered this a major shortfall of the original proposal and questioned the conservation mechanism to be used and requested details of management plans. The revised ecological assessment, indicates that all biodiversity offset lands, both on-site and any purchased off-site, will be subject to a BioBanking Agreement under the TSC Act. This offsetting mechanism is supported by OEH. Under this option OEH acknowledges that detailed management plans will be developed as part of the process and OEH will have direct consultative role in the development of these plans. Given this approach OEH acknowledges that there is no need to provide specific management details within the Response to Submissions document. OEH will review such details when a BioBanking application for the offset lands is lodged.

The revised ecological assessment includes a BOS, which indicates that the development footprint and the proposed on-site offset areas have been assessed under the BBAM (including the biodiversity credit calculator) and OEH Interim Major Projects Policy (OEH 2011). These were used to determine the type and quantum of credits that will be required to be offset for the proposal. The proposal has generated specific 'ecosystem' and 'species' credits, as detailed in Appendix 5 (Biodiversity Offset Strategy [BOS]) of the revised assessment. OEH supports the use of BBAM to inform the BOS, and as such is of the opinion this strategy provides a suitable conservation outcome for the proposal based on the following:

- The strategy as outlined in the BOS is preferably implemented prior to development approval (if supported), however, if the Department provides conditional approval, then the strategy must be finalised prior to construction / clearing occurs (i.e. all biodiversity credits are retired and the BioBank sites are approved by OEH).

- All offset sites must be registered BioBank sites, as stipulated within the BOS, and appropriate Management Plans developed as part of this process must be implemented, and where required suitable contractors are utilised (e.g. bush regenerators for weed management, qualified ecological staff for monitoring).
- The proposed BioBanking Agreement Site on the subject site must be supported and approved by Port Stephens Council (who are the landowners) prior to any approval is given.
- OEH acknowledges that the on-site offset only provides 54 per cent of the over biodiversity credits required, the revised ecological assessment indicates that further off-site biodiversity offsets are required and the proponent is committed in obtaining these. Specifically further offsets will be required for both ecosystem and species credits (notably the Koala). The proponents have suggested that as part of a negotiated outcome they will aim for an 80-85 per cent overall credit retirement, either via purchasing additional credits from the register or generating an additional offset site. OEH has stipulated to the proponents for this to be acceptable the off-site offset would have (i) exceptionable site qualities, (ii) be in good condition, (iii) represent high conservation values (e.g. adjoin existing conservation estate, part of a Regional Corridor or State link etc.), (iv) represent regional conservation priorities, (iv) contain other threatened entities (other than the candidate species), and (vi) be appropriately located (i.e. within the Tomago Sandbeds area). If this is unachievable, then OEH would be of the opinion the off-site offset area would have retire all the residual credits (certainly greater than 85 per cent).
- OEH will have a consultative role in the development of these offset sites through the formal review of the BioBanking Agreement applications (including the associated management plans). Ultimately it will be OEH who approves these applications.
- OEH is of the opinion the credit calculator (based on the BOS) and BBAM have been applied correctly; and the application of the Interim Major Project Policy (OEH 2011) with respect to credit trading has been also used properly.
- OEH has assessed the veracity of the data used in the credit calculator and is of the opinion it represents an accurate account of site condition, landscape values and plant communities present. OEH conducted a number of site inspections with the proponent, their consultants and the Department of Planning and Environment, and this alleviated any concerns OEH previously had and verified the information contained in the revised ecological assessment (including the BOS).

References

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- Biolink Ecological Consultants Pty Ltd (2016) *Aspects of the distribution and abundance of koalas in the Port Stephens Local Government Area 1920 – 2015*. Final Report to Port Stephens Council, October 2016, unpublished report.
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ABORIGINAL CULTURAL HERITAGE

OEH has reviewed both Section 6.1.7 (7): *Aboriginal and Cultural Heritage* and Appendix 16: *Response to Aboriginal Heritage Issues* in Kleinfelder 2016, *Response to Submissions Cabbage Tree Road Sand Quarry (SSD 13_6125) 398 Cabbage Tree Road, Williamtown, NSW*. OEH notes the following in regard to the Aboriginal cultural heritage matters contained in Kleinfelder 2016:

1. The questions addressed in Kleinfelder 2016 regarding the Aboriginal cultural heritage assessment are substantially different to those detailed by OEH in correspondence to the Department of Planning and Environment on 15 January 2016 (DOC15/491264-2);
2. The information provided in Kleinfelder 2016 does not address the five key Aboriginal cultural heritage assessment issues identified by OEH in DOC15/491264-2; and
3. OEH requires a detailed response to the previously identified issues in order to complete the Aboriginal cultural heritage review of this project.

OEH reiterates the original issues identified in correspondence dated 15 January 2016 (DOC15/491264-2) and requests a response on how the proponent intends to rectify/has addressed these issues:

1. Section 1.5 of the Aboriginal Heritage Impact Assessment (AHIA) report has identified the project as being considered as a State Significant Development under the *Environmental Assessment and Planning Act 1979*. Importantly, the AHIA report did not include the Director General's Requirements (DGRs) for the assessment of Aboriginal cultural heritage, or OEH's recommendations for the same DGRs which detail the specific Aboriginal cultural heritage assessment requirements for the project's EIS.
2. Sections 1.6, 1.9 and 9.3 of the AHIA mistakenly advised that the Aboriginal Heritage Impact Permit (AHIP) process is relevant to the protection of Aboriginal object within the project area. This advice is incorrect and all registered Aboriginal parties (RAPs) need to be advised of the correct assessment pathway and statutory mechanisms that apply to this State Significant Development.

The omission of Aboriginal cultural heritage specific DGRs and the inclusion of AHIP requirements within the AHIA report has potentially misinformed and/or caused confusion regarding:

- a. the assessment pathway of the project
 - b. the statutory mechanism in place to protect Aboriginal cultural heritage within the project area
 - c. further consultation requirements through an AHIP application prior to any future disturbance in the project area.
3. Section 6.7.6 of the AHIA report states that "...there remains a high potential for additional open artefact evidence to occur in the areas currently obscured by vegetation...". This statement is at odds with the assessment that the project area does not contain any areas of Potential Archaeological Deposits (Section 9.2 of the AHIA). OEH requests clarification on the assessment of the high potential areas that were obscured by vegetation.
 4. Section 8.1 of the AHIA report states that a detailed description of project impacts is detailed in Section 1.5 of the AHIA. This is not the case and detailed project impacts are not detailed in the

AHIA report. In this regard, OEH Standard Requirement 3 (identification of project related impacts) has not been met. OEH requires evidence that the RAPs have been consulted in regard to the extent of impacts related to the entire project area.

5. The cumulative impact to Aboriginal cultural values of the project area is discussed in reference to the one identified archaeological site. The cumulative impact of the project area needs to be discussed in the context of intergenerational equity as requested in OEH Standard Requirement 7. OEH recommends further consultation with the RAPs to determine the potential impacts that this project may have on the intergeneration equity values of the region.

It is noted that point 5 above has been partially addressed in Appendix 16 of Klienfelder 2016. OEH notes that the response contains a partial archaeological perspective and does not evidence either community consultation on intergenerational equity or an assessment of intergenerational cultural values that may be effected by the proposed project. This assessment was required by Point 7 of the Aboriginal cultural heritage DGRs supplied by OEH and reproduced below:

*7. If impacts on Aboriginal cultural heritage values are proposed as part of the final development, an assessment of the proposed impacts in the context of 'inter generational equity' and cumulative impact **must** be undertaken. **This assessment must examine both cultural and archaeological perspectives equally** (emphasis added) at both the local and regional levels, with consideration given to the site level and broader landscape level.*

OEH requests a detailed response to the previously identified issues in order to complete the Aboriginal cultural heritage review for this project.

FLOODING AND FLOODPLAIN MANAGEMENT

The proponent has provided additional flooding information in Appendix 6 of the Response to Submission Report in a report by Umwelt (Australia) Pty Limited titled '*Cabbage Tree Road Quarry, Potential for Sand Extraction to Increase Flooding Impacts in Surrounding Area, Final, October 2016*'. This report primarily focuses on the impact of the development on groundwater flows and recharge rather than surface water management. However, additional information is provided on the existing and proposed topography, location of access roadways and flood affection of Cabbage Tree Road. Mapping for the Williamstown/Salt Ash Floodplain risk management study and plan (FRMS&P) has also progressed to include this area.

OEH is satisfied that Cabbage Tree Road provides adequate access in a 1% Annual Exceedance Probability event under current conditions. Sufficient flood free land is also available for shelter in place in extreme floods based on topographic data provided and mapping from FRMS&P.

It is also noted that berms are proposed to be used to contain sediment on the land. Bunds of two to five metres in height are also proposed as sound mitigation measures. Details of these items have not been provided and detailed design should ensure that these landform changes together with any changes due to construction of access roadways do not cause diversion of surface water to adjoining properties or prevent flood flows from entering the subject property. The usual criteria with regard to flood impacts is there must be no significant adverse flood impacts on properties owned by others as a result of the proposed works.

Recommended Conditions of Consent for Flooding

1. Detailed design of stormwater management, access roads and sound mitigation measures must ensure that surface water is not diverted from or to adjoining properties as a result of the proposed works. The proponent is to ensure that there are no adverse flooding impacts on property owned by entities other than the proponent as a result of the works.
2. The occupation and use of this site should place no extra requirements on the NSW State Emergency Service for assistance during flood times

NATIONAL PARK ESTATE

OEH previously noted that the northwest corner of the proposed area of disturbance is on the boundary of Tilligerry State Conservation Area (SCA), and as such requested an appropriate buffer zone to protect the conservation values of the SCA. National Parks and Wildlife Service (NPWS) have noted that the project has adopted a 50 metre buffer, which was allegedly based on consultation with NPWS. Section 6.3.3 of the Report to Submissions document states that a copy of this consultation is included within Appendix 3, however, OEH was unable to find this document. OEH recommends that this documentation be provided. Typically, OEH would consider that 50 metres is an appropriate buffer to minimise edge effects on retained native vegetation of the SCA.

OEH also notes in its previous correspondence that Tilligerry SCA is jointly managed between the NPWS and Hunter Water Corporation, which restricts public access. OEH expressed concern that the proposed mining activity could facilitate illegal access by 4WD vehicles, motorbikes and quad bikes, during and after the active mining phase, and as such requested appropriate site security measures to effectively control the potential for illegal access. The Response to Submissions document appears not to have addressed this concern. OEH recommends further commentary on how the proposal will address these concerns needs to be provided.

OEH – DECEMBER 2016