Cardno HRP
Shaping the Future

CLARIFICATION OF GROUNDWATER DEPENDENT ECOSYSTEMS AND TERRESTRIAL FAUNA MATTERS

ATTACHMENT

C

ADDITIONAL INFORMATION:
ENVIRONMENTAL IMPACT STATEMENT

BORAL CONSTRUCTION MATERIALS
Build something great™

References

- Ecosure. 2008. *Green heart reserves draft literature review*. Prepared on behalf of Gold Coast City Council.
- Ezzy, L. 2010. *Boobook - journal of the Australasian raptor association*. Volume 28 Number 1
- O'Donnell, W.B., and S.J.S. Debus. 2012. *Nest-sites and foraging of the White-bellied Sea-eagle Haliaeetus leucogaster on the subtropical eastern coast of Australia*. Australian Field Ornithology 29:149-159.
- So, I.W. and Lee, W.H. 2010. *Breeding ecology of White-bellied sea eagle (Haliaeetus leucogaster) in Hong Kong – A review and update*. Hong Kong Biodiversity, Issue No. 18. Agriculture, Fisheries and Conservation Department Newsletter.
- Trimper, PG., Standen, NM, Lye, LM., Lemon, D., Chubbs, TE. and Humphries, GW. 1998. *Effects of low-level jet aircraft noise on the behaviour of nesting osprey*. Journal of Applied Ecology, 35:122-130.

KEY MATTER 3: NATURE CONSERVATION – IMPACTS ON NOCTURNAL FAUNA

- *Identify potential impacts of night time maintenance activities on nocturnal fauna and detail mitigation measures to address identified impacts.*

Maintenance activities will occur both inside and outside of quarry operating hours. Prior to the construction of the proposed workshop (i.e. during the construction phase of the quarry) this will occur in the open. Maintenance will not be a 24hr operation and will only occur on an as needs basis.

Following the construction of the proposed workshop maintenance activities will be largely contained within structures. The Acoustics RB report forming part of the EIS notes the following with regard to maintenance noise generated prior to the construction of the workshop:

> The "*…control of noise emission arising from such maintenance events is achieved by application of specific provisions within the Construction Noise Management Plan and appropriate mitigation measures to be adopted in the event of out-of-hours maintenance activities being necessitated*"

Therefore noise impacts on wildlife resulting from maintenance activities are likely to be minimal or absent because:

- Maintenance will only be conducted as needed (most maintenance activities will be conducted in day time hours);
- Maintenance will largely be housed within structures; and
- The noise of maintenance during construction will be mitigated through implementation of a management plan.

Gleeson and Gleeson (2012) note that there have been few studies of artificial lighting impacts on Australian fauna. The Lighting Report prepared by Multi Tech Solutions as part of the EIS (refer to Appendix T of the EIS, "Lighting Report for Electrical Services at Boral Gold Coast Quarry") noted the following in relation to minimising lighting impacts:

- Use of lighting control system, localised lighting and lighting fittings to minimise spill lighting. Spill lighting will comply with the relevant standards (AS4282). And therefore illumination of vegetation areas will be limited in time and intensity;
- Use of a lighting control system that will automatically switch off lighting at predetermined times to minimise effect on flora and fauna; and
- Overall the lighting around the site will be restricted to specific localised lighting around the buildings and on the processing plant.

The report identifies that light spill is largely contained within the proposed development footprint with relatively low light levels (<2 lux) spilling into vegetation at the immediate edge of clearing.

Based on the persistence of nocturnal wildlife at other Boral operations where night-time maintenance occurs in lit workshops it is evident the two can co-exist. For example, surveys conducted at Boral's Ormeau working quarry recorded the nocturnally active Koala, Yellow-footed Antechinus, Feathertail Glider, Fawn-footed Melomys and Bush Rat in trap lines in vegetation associated with a drainage line located approximately 200m from a workshop (BAAM, 2008). While not identical, a similar suite of species were recorded across the Gold Coast Quarry study area as part of investigations conducted for the EIS. The proposed workshop is located approximately 140m from the edge of a drainage line located in the proposed buffer area.

Conclusion - Given the proposed lighting, the relatively low levels of light spill into a small portion of the wooded buffer and evidence from other quarry operations that a broad suite of native animals persist in similar environments there is very little likelihood of lighting having an impact on native wildlife.

References

- Biodiversity Assessment and Management. 2008. *Terrestrial Fauna Assessment Ormeau Quarry: Crushing and Screening Plant Upgrade*. Prepared for Chenoweth EPLA.
- Gleeson, J. and Gleeson, D. 2012. *Reducing the Impacts of Development on Wildlife*. CSIRO Publishing.

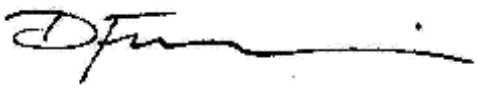
Overall Conclusion

We were requested to review the nature conservation items of the key matters raised in relation to the Gold Coast Quarry EIS specifically including potential impacts on groundwater ecosystems, potential impacts of industrial noise on the white-bellied sea-eagle nest and potential impacts of site lighting on nocturnal wildlife. We have considered a range of scientific and anecdotal evidence as part of assessment and note:

- There are no GDEs within the study area and no GDEs external to the study area that will be adversely affected as a consequence of quarrying operations;
- It is not anticipated that there will be a significant impact on the study area's white-bellied sea-eagle nest site resulting from industrial noise; and
- It is unlikely lighting will have an impact on native wildlife using the proposed buffer area.

If we can be of further assistance or are required to meet to discuss the contents of our correspondence in more detail please contact me on 3877 6909.

Yours faithfully



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