Our reference: Dco12-22423

Mr David Kitto
Manager Mining Projects
Department of Planning and Infrastructure
GPO Box 39
Sydney NSW 2001

1 June 2012

Dear Mr Kitto,

The Office of Environment and Heritage (OEH) has reviewed the exhibited Coalpac Consolidation Project (10-0178, the Project) Environmental Assessment (EA) with regard to impacts on biodiversity. Previously, OEH provided the Department of Planning and Infrastructure (DPI) with a review of the preliminary EA (October 2010), and for two other draft EAs reviews of their adequacy for exhibition (July 2011 and January 2012, respectively). Throughout this time, OEH have liaised directly with the proponent and its consultants in response to concerns raised by OEH and to requests from the proponent.

OEH retains considerable reservations regarding the merits of the Project. Chief amongst these concerns include the significant encroachment of the proposed Project footprint on a previously relatively undisturbed portion of Ben Bullen State Forest, the whole of which has long been identified by OEH as being of suitably high conservation value for future reservation under the *National Parks and Wildlife Act*. Proposals for future reservation of part of Ben Bullen State Forest also have the support of numerous environment groups including the Colong Foundation for Wilderness and the Blue Mountains Conservation Society. OEH has been working with other agencies to maximise positive reservation outcomes in the Gardens of Stone area, including Ben Bullen State Forest.

Moreover, OEH consider the Biodiversity Offset Proposal (BOP) to be inadequate in terms of the quantum of offset area. OEH notes that the proponent has acknowledged that shortfall and offers a monetary component in the State of Commitments (No. 24, p. 256); however, OEH does not believe supplementary measures or indirect offsets such as management funding should be considered by DPI unless it can be demonstrated that appropriate offset properties are not available. OEH has supplied details of additional properties that may be appropriate as offsets.

These concerns and others relating to the assessment of impacts are detailed in the attached enclosure. Should you have any questions regarding this matter please contact me on 02-6883-5347.

Yours sincerely,

Peter Christie
Co-ordinator
Conservation and Regulation Division

Enclosure 1. OEH Review of Biodiversity Impacts.

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Enclosure 1. OEH Review of Biodiversity Impacts

Unless otherwise stated, citations refer to Appendix J *Ecological Impact Assessment* of the Exhibited EA.

ASSESSMENT OF BIODIVERSITY IMPACTS

The proponent cites impacts on biodiversity resulting from the Project footprint of 957.98ha (Table 4.1, p. 4.3), which would include the removal of:

- 835ha (834.62ha) of native vegetation (p. 4.2);
- 18.44ha of *TSC Act* listed Box-Gum EEC (including 16.48ha of *EPBC Act* listed CEEC) (p. 4.14);
- 278ha of *Eucalyptus cannonii* habitat (or an estimated 19,219 individuals) (p. 4.24);
- 3.28ha of *Persoonia marginata* habitat (or an estimated 321 individuals) (p. 4.25);
- 835ha of threatened and protected fauna habitat (pp. 4.26-4.35).

The proponent states that the remaining 123ha within the disturbance boundary includes Derived Native Grassland (DNG) "in various conditions" (p. S.6) and asserts that "Low Diversity Derived Native Grassland/Exotic provides very little ecological value" (p. S.6) and excludes these areas from the impact assessment; consequently, such areas "will not be offset" (p. 6.3). While the latter statement may be justified, other areas of higher diversity DNG which include Box-Gum EEC may indeed have ecological value. OEH therefore notes the following DNG impact totals, derived from Table 4.1 (pp. 4.2-4.3):

- Total DNG (including high and low diversity DNG, and Box-Gum EEC) = 123.35ha
- Total higher diversity DNG (including Box-Gum EEC) = 79.78ha
- Total non-EEC higher diversity DNG (excluding Box-Gum EEC) = 77.55ha
- Total Box-Gum EEC DNG = 2.23ha

The corresponding impact on native vegetation excluding all DNG is 834.62ha, and excluding only "Low Diversity" is DNG 914.4ha. The proponent has therefore excluded 79.78ha of DNG that is not "Low Diversity" from consideration as an impact, which includes 2.23ha of Box-Gum EEC. OEH again recommends that the proponent provide justification for not including this area of higher diversity DNG in their calculation of impacts, and asserts that as a minimum impacts on native vegetation should include the DNG portion of Box-Gum EEC, which would increase the impact to 836.85ha.

In Section 6, in the proponent's discussion of offsets, Table 6.2 (p. 6.7) cites different impact totals to those presented in Table 4.1, namely: 818.71ha of "Non-C/EEC (native only)" compared with 818.41ha, respectively; and a total disturbance of 837.15ha compared with 834.62ha. These figures are stated to exclude "areas of low diversity native grassland and exotic grasslands" (p. 6.7), when in fact, elsewhere in the EA, the proponent's figure of 835ha obviously excludes <u>all</u> areas of DNG, including Box-Gum EEC, and not just "low diversity" areas.

OEH assert that consideration of all impacts and conversely, justification for excluding certain impacts from consideration, is essential, particularly as it relates to determining the adequacy of offsets (see below).

Broad-headed Snake

At the request of OEH, the proponent has included consideration of the impact on the Broad-headed Snake in the EA, given that the species relies in equal measure on both rocky winter habitat and woodland forest areas containing hollow-bearing trees in summer. However, the proponent considers that the Project has "potential to have a significant short-term impact" only (p. I.117). Given the duration required for eucalypts to develop hollows (120-150 years, as cited by the proponent on p. 4.16), OEH consider that the Project would have a long-term impact on this species, particularly so considering: the population's potential isolation (the nearest record is 11km away); the species' propensity for high site fidelity to fixed and exclusive home ranges; and the limited dispersal of juveniles. Further, the proponent states that in "summer the species typically migrates about 200m from the sandstone escarpments to hollows in large trees below" (pp. I 114-115). OEH notes that such movements by the Broad-headed Snake have been measured at up to 780m, with a mean of 318m (Webb and Shine 1997). As a result, impacts 50m from winter habitat may greatly affect the summer movements of these snakes.

Adequacy of Flora Surveys

The EA cites the following threatened flora species that were targeted during surveys: *Derwentia blakelyi*, *Eucalyptus aggregata*, *E. cannonii*, *E. pulverulenta*, *Grevillea evansiana*, *G. obtusiflora*, *Persoonia marginata*, and *Prostanthera cryptandroides* (curiously, two species - *Leionema sympetalum* and *Persoonia hindii* - cited in a previous EA (July 2011) have now been excluded from this list). OEH note that the likelihood of occurrence of different threatened flora species has now been reappraised by the proponent in Appendix E. As a result, species identified by the proponent as having a "low" likelihood of occurrence (c.f. "moderate") have not been targeted for survey, irrespective of the occurrence of suitable habitat within the Project boundary. The following species that were identified in a previous EA (July 2011) as "could potentially occur" but which were not targeted for survey are: *Acacia bynoeana*, *Prostanthera stricta*, *Darwinia peduncularis*, *Persoonia acerosa*, *Thesium australe* and *Euphrasia arguta*. Although for each of these species the proponent states "Not detected during past or current surveys", highly cryptic species that occur at low densities such as *Acacia bynoeana* are extremely unlikely to be detected unless they are targeted for survey.

Indirect Impacts and Edge Effects

In addition to the direct impacts resulting from the removal of native vegetation and habitats, there will be indirect impacts (as conceded by the proponent): "ecological impacts of the open cut could extend beyond the areas to be cleared and into areas of forest and woodland that are being retained" (p. 4.19); "Clearing of vegetation may increase edge effects on the retained portion of Box Gum Woodland" (p. 4.13); "fragmentation and edge effects will have consequences for the integrity of the remaining hollow-bearing forest" (p. 4.16); and "fragmentation and associated edge effects reduce the availability and quality of refugia for native fauna and increase feral access" (p. 4.39) (note that this is at odds with the proponent's assertion that "the Project is not likely to increase the presence of effects of feral species" (p. 4.39)). While the proponent allows a 20m area of influence around the edge of the *P.*

marginata habitat to be removed, which increases the impact by 0.19ha, no other such recalculation of impact is presented.

The proponent states that edge effects will be mitigated by the implementation of "best practise measures to control impacts from erosion, sedimentation and associated weed invasion" (p. 4.19), in addition to the development of a Biodiversity Management Plan that would include feral animal control (p. 4.39). As stated above, however, an accurate estimation of the full impact of the Project remains essential.

BIODIVERSITY OFFSET PROPOSAL (BOP)

Financial Contributions as a Component of the BOP

OEH notes that the proponent is willing to contribute management funds for the development, implementation and management of GOS2 at a rate linked to coal production. This offer is different to situations where management funds are paid to manage offset land bought by the proponent and transferred to OEH for reservation under the National Parks and Wildlife Act (that is, the land transfer to OEH is conditional on suitable management funds being provided). OEH's position is that any contribution to general parks management funding, whether or not linked to a land transfer, would need to be paid as an upfront lump sum or paid by instalments. If paid by instalments this must be backed up by a suitable form of security such as a bank guarantee. Moreover, any general parks management funding would need to be calculated on a measure that is not linked to coal production levels; the biocertification credit converter (OEH 2012) is available to calculate potential credit short falls and the amount of compensatory area and funds required to meet such short falls.

OEH acknowledge that up to 2.5 Million tonnes of coal p.a. of the total 3.5 Million tonnes p.a. of estimated production by the Project is intended for supply to the Mt Piper Power Station (EA Main Report, p. 216). In relation to this specific proposal, however, OEH does not believe supplementary measures or indirect offsets such as management funding should be considered by DoPI until it has been determined that no appropriate offset properties are available. OEH has provided details of potentially suitable properties to the proponent's consultants.

Interpretation of Offset to Impact Ratios

As alluded to previously, OEH considers that there is still considerable uncertainty as to the actual biodiversity impacts of the Project, chiefly: the encroachment of edge effects on adjacent and retained vegetation and habitats; and the removal of DNG not classified as "Low Diversity".

An absence of data that can accurately and readily be used under the Biobanking Assessment Methodology (BBAM) precludes a quantitative estimate of the credits required to offset biodiversity impacts arising from the Project. OEH has nevertheless calculated offset to impact ratios (offset ratios) using raw area figures under different offset scenarios (Table 1). The following scenarios offer different interpretations of both the amount of impact and the amount of biodiversity proposed to be offset.

Scenario 1
Takes into account all areas with vegetation, including DNG at the Project site.

- Total offset ratio = 1.8

Scenario 2 (best case scenario)
As presented by the Proponent, DNG is excluded from consideration as an impact, but not as an offset; the Proponent includes the future rehabilitation of such areas in the BOP.

- Total offset ratio = 2.1
- EEC offset ratio = 13.7

Scenario 3
Excludes all DNG from consideration as an impact and an offset; the future rehabilitation of such areas is thus excluded from the offset ratio and only areas with an intact canopy are included. Similar to Scenarios 4 and 5 (below), this compares the current ecological condition of both the Project and Offset sites.

- Total offset ratio = 1.3
- EEC offset ratio = 3.0

Scenario 4
Only considers native vegetation that retains trees or areas of Box-Gum DNG EEC, and therefore excludes all future rehabilitation of non-EEC areas from the BOP.

- Total offset ratio = 1.5
- EEC offset ratio = 12.0

Scenario 5
Considers impacts and offsets for all areas that retain trees, areas of Box-Gum EEC, and all areas of DNG that were not typed as "Low Diversity" and which therefore retain tangible ecological value.

- Total offset ratio = 1.5
- EEC offset ratio = 12.0

OEH supports the proponent's intention to rehabilitate previously cleared and disturbed lands that constitute the BOP. However, the BOP currently depends on a high proportion of future rehabilitation (38.4%, 672.11ha), and this is emphasized when under Scenario 3 in the absence of rehabilitation the total offset ratio decreases to only 1.3, and the offset ratio for Box-Gum EEC decreases to only 3.0. OEH considers that the proponent's interpretation of the offset ratio (Scenario 2) is very low and does not account for "time-lag effects, and the uncertainties and risks associated with actions such as revegetation", as cited under Principle 6 in the OEH *Principles for the use of biodiversity offsets in NSW*. To account for such risks and to compensate for the considerable time lag in achieving a net improvement in biodiversity, a higher ratio is required.

Reservation Considerations

Suitability of Proposed Offset Sites for Incorporation in the National Parks and Reserves System

OEH sought internal advice from its Parks and Wildlife Group (PWG) regarding the suitability of the four offset properties in the BOP for future reservation in the National Parks and Wildlife Service Estate. PWG advised that at this point in time, none of the four properties would be suitable for this purpose. Consequently, OEH recommend

that another form of in perpetuity conservation covenant would be required over all potential offset tenure.

OEH understand that some confusion has arisen regarding previous discussion around the suitability of one of the four offset blocks "Hyrock-Hartley" for addition to the reserve system. OEH note that in its comments on the July 2011 draft EA (24 August 2011), OEH provided specific advice on only the "Yarran View" property. Further, in OEH's advice on additional potential offset areas (email to Cumberland Ecology, 9 December 2011), in which the "Hyrock-Hartley" site was noted, it was emphasized "that more detailed assessment would of course be required before consideration as reserve additions … [and that] this advice purely concerns the priority of these properties as potential additions to the NPWS estate". Upon further consideration, given current concerns over discontinuity between this block and the existing reserve, PWG advised that this block is not suitable for reservation, at this time.

OEH acknowledges the proposed east-west link that the Hillcroft property would contribute to once rehabilitated and managed for conservation. OEH notes that the rehabilitated mine site would be needed to complete the link post-mining. OEH acknowledges that the maximum potential conservation gains of this offset vision will be best realised by rehabilitation aiming to maximise conservation outcomes and to have all parcels under one land manager in the future.

Suitability of Rehabilitated Mine Sites for Incorporation in the National Parks and Reserves System

Given the level of biodiversity loss and topographical change as a result of mining, OEH has strong doubts that the proposed rehabilitation of the mine site will contribute to the achievement of a Gardens of Stone Stage 2 reservation proposal. Accordingly, OEH does not support the addition of the rehabilitated areas to the national parks and reserves system at this time (see comment above).

Extent of Gardens of Stone Stage 2 reservation proposal

The environment groups' GoS2 reservation proposal which is referred to in the EA omits an area of Ben Bullen State Forest west of the Castlereagh Highway and north of Cullen Bullen. OEH confirms that its conservation interest is in the entirety of Ben Bullen State Forest, including areas not shown in the environment groups' proposals.

Pagodas

The sandstone pagodas around the top of the edges of the plateaus in the area are significant geodiversity features which provide a range of crevice, cave and other refugia habitat types for biodiversity. The pagodas on the boundary of the proposed mining area are good examples of a distinctive landform found only in the "Pagoda country", a 50 kilometre long (600 km^2) belt centred on the western edge of Wollemi National Park, Gardens of Stone National Park and Ben Bullen State Forest. A substantial part of the main Pagoda area is not reserved within parks. The pagodas in the Blue Mountains are recognised as distinctive features (with limited distribution) that are significant on a national level.

In recognition of the high scenic values of the plateau edge and pagodas it is important that: mining operations do not degrade the scenic amenity/vistas of the prominent line of dissected sandstone clifflines and pagodas in Ben Bullen State Forest and a sandstone plateau on the western side of the Castlereagh Highway

north of Cullen Bullen; and mining operations/blasting will not cause collapse/subsidence cracks to the sandstone plateau edge, clifflines and pagodas. OEH notes that although the open-cut will not extend to within 50 metres of pagodas and escarpment areas, highwall mining will reach up to 300 metres beneath these features.

OEH notes that the report does not contain a detailed assessment/survey of geological and geodiversity values on the plateau edge and within the proposed mining area. However, mitigation and management measures are outlined in various sections of the report. OEH seeks clarification of the meaning and agreed definitions for pagodas, cliff lines, rock outcrops and other geodiversity elements, as interpreted by the Proponent.

References

OEH (2012) http://www.environment.nsw.gov.au/biocertification/index.htm)

Webb JK, Shine R (1997) A field study of spatial ecology and movements of a threatened snake species, *Hoplocephalus bungaroides*. *Biological Conservation* **82**, 203-217.

Table 1. Offset Scenarios for Proposed Impacts on Native Vegetation.

SCENARIOS		IMPACT[1]	Hillcroft Offset[2]	Yarran View Offset[3]	Hillview Billabong Offset[4]	Hyrock Hartley Offset[5]	OFFSET	OFFSET RATIO	Description
1	**Total Area**	**957.98**	989.46	443.05	83.35	236.09	**1751.95**	1.8	Scenario 1 takes into account ALL areas with veg (including DNG at the Impact site).
2	**Total Veg** (excluding all DNG at Impact but including at Offset)	**834.62**	989.46	443.05	83.35	236.09	**1751.95**	2.1	Scenario 2 is presented by the Proponent i.e. DNG is excluded from consideration as an Impact, but not as an Offset (the Proponent includes rehab. of such areas in the Offset).
3	**Total Veg with trees** (excluding all DNG from both Impact and Offset)	**834.62**	534.15	262.76	46.84	236.09	**1079.84**	1.3	Scenario 3 excludes ALL DNG from consideration as an impact AND an offset (the rehab. of such areas is thus excluded from the Offset ratio and only areas with an intact canopy are included).
4	**Total Veg with trees &/or EEC** (excluding all DNG except Box-Gum EEC DNG at both Impact and Offset)	**836.85**	534.15	406.53	76.18	236.09	**1252.95**	1.5	Scenario 4 only considers native veg that retains trees or areas of Box-Gum DNG EEC (and therefore excludes all non-EEC rehab. areas from the Offset).
5	**Total Veg of ecological value** (excludes only Low Diversity DNG at both Impact and Offset)	**914.4**	665.19	406.53	83.35	236.09	**1391.16**	1.5	Scenario 5 considers impacts and offsets for all areas that retain trees, areas of Box-Gum EEC, and all areas of DNG that were not typed as "Low Diversity" and which therefore retain tangible ecological value.
2a	**TSC Box Gum EEC** (excluding all DNG at Impact but including at Offset)	**16.21**	0	186.78	34.87	0	**221.65**	13.7	Scenario 2a assesses the separate Offset Ratios for EEC and non-EEC native veg under Scenario 2 i.e. that presented by the proponent.
	Non-EEC Native Veg (excluding all DNG at Impact but including at Offset)	**818.41**	989.46	256.27	48.48	236.09	**1530.3**	1.9	

SCENARIOS		IMPACT[1]	Hillcroft Offset[2]	Yarran View Offset[3]	Hillview Billabong Offset[4]	Hyrock Hartley Offset[5]	OFFSET	OFFSET RATIO	Description
3a	**TSC Box Gum EEC with trees** (excluding all DNG from both Impact and Offset)	**16.21**	0	43.01	5.53	0	**48.54**	**3.0**	Scenario 3a assesses the separate Offset Ratios for EEC and non-EEC native veg under Scenario 3.
	Non-EEC Native Veg with trees (excluding all DNG from both Impact and Offset)	**818.41**	534.15	219.75	41.31	236.09	**1031.3**	**1.3**	
4a	**TSC Box Gum EEC** (excluding all DNG except Box-Gum EEC DNG at both Impact and Offset)	**18.44**	0	186.78	34.87	0	**221.65**	**12.0**	Scenario 4a assesses the separate Offset Ratios for EEC and non-EEC native veg under Scenario 4.
	Non-EEC Native Veg with trees (excluding all DNG except Box-Gum EEC DNG at both Impact and Offset)	**818.41**	534.15	219.75	41.31	236.09	**1031.3**	**1.3**	
5a	**TSC Box Gum EEC** (excludes only Low Diversity DNG at both Impact and Offset)	**18.44**	0	186.78	34.87	0	**221.65**	**12.0**	Scenario 5a assesses the separate Offset Ratios for EEC and non-EEC native veg under Scenario 5.
	Non-EEC Native Veg of ecological value (excludes only Low Diversity DNG at both Impact and Offset)	**895.96**	665.19	219.75	41.31	236.09	**1162.34**	**1.3**	

[1] From Table 4.1, Vol.3.

[2] From Table 6.3, Vol.3.

[3] From Table 6.6, Vol.3.

[4] From Table 6.7, Vol.3.

[5] From Table 6.9, Vol.3.