

APPENDIX E: ADDITIONAL INFORMATION PROVIDED BY WCPL

1. Response to OEH Submissions dated 28 June 2016
2. Letter from Hydro Simulations dated 7 July 2016
3. Letter regarding biodiversity offset matters dated 9 September 2016

**Table 1
Response to OEH Submission (16 June 2016) – Wilpinjong Extension Project (SSD 6764)**

OEH Comments (16 June 2016)	Summary of Issues	WCPL Response
<p>1. Reporting requirements of the FBA</p> <p>1.1 WCPL provide OEH with all digital shape files, spatial data and plot data (excel and field data sheets) relating to the Wilpinjong Extension Project.</p> <p>Appendix 7, Reporting requirements of the FBA, provides the minimum information requirements for the Biodiversity Assessment Report. OEH notes a number of omissions of these minimum information requirements from the BAR for the Wilpinjong Extension Project. OEH is unable to complete a full assessment of impacts of the development until these are received.</p> <p>Omissions of information required include:</p> <ul style="list-style-type: none"> • Landscape value score components; • Digital shape files for maps and spatial data; • Plot and transect field data; and • Maps showing state, regional and local biodiversity links. 	<p>1. Provision of digital shape files (spatial data) for all maps in the BARBOS that are required by the FBA.</p> <p>2. Provision of plot data (excel and field data sheets).</p> <p>3. Provision of landscape value score components, including:</p> <ul style="list-style-type: none"> - Identification of the method applied - Percent native vegetation cover in the landscape - Connectivity value 	<ul style="list-style-type: none"> • Provided 28 June 2016. • Already provided (in the BARBOS, and subsequently on the 12 May 2016 and 28 June 2016). • Dr Colin Driscoll provided the plot data in the Biodiversity Assessment Report and the BARBOS (Appendix 3 – Biometric Data in Attachment C of the BARBOS). • Dr Colin Driscoll submitted the BioBanking calculator on the 12 May 2016, which contains the plot data. • Dr Colin Driscoll's field data sheets were provided to the Department of Planning & Environment (DP&E) and Office of Environment and Heritage (OEH) on 28 June 2016. <p>-</p> <ul style="list-style-type: none"> • Already provided (in the BARBOS and subsequently on the 12 May 2016). • Section 2.1.4 of the BARBOS states that the linear/multiple fragmentation module was used. • Dr Colin Driscoll submitted the BioBanking calculator (for the development site) on the 12 May 2016, which contains the method applied. • Already provided (12 May 2016). • Dr Colin Driscoll submitted the BioBanking calculator (for the development site) on the 12 May 2016, which contains the percent native cover. • The percent native cover is 46-50% before and 36-40% after. • Already provided (12 May 2016). • Dr Colin Driscoll submitted the BioBanking calculator (for the development site) on the 12 May 2016, which contains the landscape value score components. • The landscape value score is 11.2.

Table 1 (Continued)
Response to OEH Submission (16 June 2016) – Wilpinjong Extension Project (SSD 6764)

OEH Comments (16 June 2016)	Summary of Issues	WCPL Response
<p>As above.</p>	<p>- Patch size</p>	<ul style="list-style-type: none"> • Already provided (12 May 2016). • Dr Colin Driscoll submitted the BioBanking calculator (for the development site) on the 12 May 2016, which contains the patch size. • The maximum patch size (1,001 hectares [ha]) was adopted as the patch size incorporates the Nature Reserve and National Park. • A map showing the patch size is not required because maximum patch size (1,001 ha) was adopted.
	<p>- Area to perimeter ratio</p>	<ul style="list-style-type: none"> • Already provided (12 May 2016). • Dr Colin Driscoll submitted the BioBanking calculator (for the development site) on the 12 May 2016, which contains area to perimeter ratio. The area to perimeter ratio is 130 metres (m).
	<p>4. Provision of maps showing state, regional and local biodiversity links.</p>	<ul style="list-style-type: none"> • Already provided (in the BARBOS). • Figure 3 of the BARBOS shows the stream orders and buffers. • As described in Section 2.1.3 of the BARBOS, OEH has not yet developed plans showing State or regional significant biodiversity links.
	<p>Additional Information Request (23/6) - Map of species polygons for species that cannot withstand loss</p>	<ul style="list-style-type: none"> • Species that cannot withstand loss are not relevant to the Wilpinjong Extension Project (i.e. they are not a decision threshold – Section 9 of the Framework for Biodiversity Assessment [FBA]). • Section 2.3.5 of the BARBOS states that <i>Ozothamnus tessellatus</i> is the only relevant species and it is mapped on Figure 10.
<p>2. Calculation of Ecosystem Credits 2.1 The credit calculation be re-calculated using the site based landscape value assessment method. As indicated in our previous submission, the landscape value score has been incorrectly calculated using the linear based development landscape value assessment method in the credit calculator. This method is to be used for linear major projects such as coal seam gas, pipe lines and electricity transmission lines. The landscape value score should have been calculated as a site based development. OEH notes WCPL's claim that OEH advised that the linear assessment method was acceptable for this project however OEH has been unable to locate any record of such advice.</p>	<p>5. Recalculation of the Credits using Site-based Development.</p>	<ul style="list-style-type: none"> • No need to re-run the calculator as the method was agreed with BioBanking team - John Seidel. • The linear module of the Credit Calculator is for <u>multiple fragmentation impacts</u>. • Colin Driscoll met with John Seidel (OEH) on 17 February 2015 at the OEH Newcastle Honeysuckle office. • John Seidel (OEH) confirmed the meeting outcome (see email provided 28 June 2016).

**Table 1 (Continued)
Response to OEH Submission (16 June 2016) – Wilpinjong Extension Project (SSD 6764)**

OEH Comments (16 June 2016)	Summary of Issues	WCPL Response
<p>3. Impacts to Munghorn Gap Nature Reserve</p> <p>3.1 <i>A buffer of 50 m is maintained between any open cut mining operations or infrastructure and the adjacent Munghorn Gap Nature Reserve.</i></p> <p><i>A 50 m buffer is required to minimise connectivity impacts and to buffer Munghorn Gap Nature Reserve from impacts. Similarly stage 2 of the Moolarben Coal Project has a condition of consent imposing a 50 m buffer between the open cut operations and the nature reserve.</i></p>	<p>6. Maintain a 50 Buffer to Munghorn Gap Nature Reserve.</p>	<ul style="list-style-type: none"> • WCPL does not consider that a nominal 50 m buffer distance from the open cut is warranted. • The approved Wilpinjong Coal Mine does not operate to such a limit. • The pits would be progressively mined and rehabilitated to minimise the potential short-term edge effects from the Project. • A key objective of the mine rehabilitation in the long-term is to increase the continuity of woodland vegetation. • In the order of 618 ha of company-owned land will be added to the Munghorn Gap Nature Reserve (Offset Areas 1 and 2) in perpetuity. • The offset would result in a material gain to the reserve system, that would be expected to far outweigh any temporal impacts along small sections. • WCPL is prepared to accept a setback of some 20 m between the surveyed boundary of the Munghorn Gap Nature Reserve and the limit of the open cut in the Project open cut extension areas. • Project development within the 20 m buffer would be limited to access tracks, upslope drainage and other ancillary development activities that are typically located on pit boundaries.
	<p>- Estimate of Coal Sterilisation in the 50 m buffer</p>	<ul style="list-style-type: none"> • Provided in the Response to Submission (May 2016) • Some 350,000 tonnes of run-of-mine (ROM) coal would be sterilised along approximately 2 kilometres (km) of pit if a 50 m buffer was applied to the crest of the mining pit and infrastructure such as safety berms, roads, pipes and drains allowed within this buffer. • Subject to detailed design, should no infrastructure be allowed in the buffer, the pit crest would need to be set back by up to a further 25 m. In this case an additional 430,000 ROM tonnes would be sterilised bringing the total resource not mined to 780,000 ROM tonnes.
	<p>- Mapping Showing BAR Footprint within 50 m of the Reserve</p>	<ul style="list-style-type: none"> • Provided 28 June 2016 • Figure 1 shows the BAR Footprint within 50 m of the Munghorn Gap Nature Reserve.

Table 1 (Continued)
Response to OEH Submission (16 June 2016) – Wilpinjong Extension Project (SSD 6764)

OEH Comments (16 June 2016)	Summary of Issues	WCPL Response
<p>As above.</p> <p>4. Potential impacts to Eastern Bentwing-bats</p> <p>4.1 <i>A monitoring program, employing remote cameras and ultrasonic detectors, be established to determine whether the mine adit is used all year round (or purely as a maternity site) and to assess the impact of blasting vibration on bats utilising the adit.</i></p> <p>4.2 <i>WCPL provide details of their proposed engineering solution(s) to main a long-term opening to the adit.</i></p> <p>4.3 <i>That WCPL's proposed reduced blasting vibration measures be employed in the vicinity of the adit to minimise disturbance to bats.</i></p> <p>Table 8 of Attachment D of the BAR (Wilpinjong Extension Project Terrestrial Fauna Baseline Report) indicates that late or post-lactating female Eastern Bentwing-bats as well as sub-adult (juvenile) females were captured at the adit. This report concluded that the adit is potentially used as a maternity roost for Eastern Bentwing-bats.</p>	<p>- Quantification of EEC and Regent Honeyeater Habitat in the 50 m Buffer</p>	<ul style="list-style-type: none"> • There is 11 ha of native vegetation in the BAR Footprint within 50 m of the Munghorn Gap Nature Reserve. • There is no EEC within 50 m of the Munghorn Gap Nature Reserve. • The 11 ha of native vegetation is potential habitat for the Regent Honeyeater (40% is White Box – Black Cypress Pine shrubby woodland of the Western Slopes [BVT HU824, PCT1610]). • There is 2 ha of cleared land in the BAR Footprint within 50 m of the Munghorn Gap Nature Reserve. • The native vegetation within 50 m of the Munghorn Gap Nature Reserve is offset in the offset package.
<p>7. A bat monitoring programme be established.</p>	<p>7. A bat monitoring programme be established.</p>	<ul style="list-style-type: none"> • The existing Blast Management Plan would be revised to reflect the Project, monitoring and performance criteria for the adit and the conditions of any Development Consent. • Any additional monitoring of the bats or the adit is not considered warranted given: <ul style="list-style-type: none"> - Blasting is already undertaken and/or approved in the vicinity of the adit. - The Eastern Bentwing-bat in the locality is unlikely to be dependent on the adit, since a wide variety of alternative natural caves and associated structures occur in the surrounds. - The offset areas include approximately 2 km of sandstone escarpment with numerous caves (Offset Area 3). No credit is given for these habitat features under the FBA.
<p>8. Provide details of their proposed engineering solution(s).</p>	<p>8. Provide details of their proposed engineering solution(s).</p>	<ul style="list-style-type: none"> • The Biodiversity Management Plan would include details for the management of the adit with respect to bats. • The historical adit is a mining-related man-made structure that will collapse at some stage, irrespective of the Project. • The current stability of the adit appears to be adversely affected by a large tree root which is breaking through the adit roof and causing rockfall around the entrance. • To mitigate the potential for future collapse of the entrance, a concrete or steel pipe would be installed to help maintain an opening in the event of any further rockfall around the entrance

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<p>Eastern Bentwing-bats are dependent upon maternity caves that have very specific structural characteristics that allow heat and humidity to build up. It is very rare for sandstone caves to provide the very specific microclimate required for a maternity site. It is also unusual for Eastern Bentwing-bats to select a sandstone adit as a maternity site. That such a site has been selected indicates that the very specific microclimate factors required are present. There are few known maternity sites for Eastern Bentwing-bats in the Hunter Valley. The loss of specialized maternity sites may place regional populations at risk.</p> <p>The adit is located 152 m from the proposed Pit 8. The BAR (Section 3.1.3) acknowledges that "At this distance, it is possible that the nearby blasting vibration may quicken the collapse of the adit or cause bats to exist the adit during the day". WCPL suggest a commitment to implementing an engineering solution to maintain an opening to the adit. While OEH welcomes this commitment as few maternity sites for the Eastern Bentwing-bats are known in the Hunter Valley, further details on the proposed engineering solution are required.</p> <p>WCPL indicates a commitment to minimize the potential for disturbance to Eastern Bentwing-bats by reducing blasting vibration intensity. OEH accepts that reducing blast vibration intensity may be a satisfactory solution. However, a detailed monitoring program will be required to determine the impact of reduced blasting vibration intensity on the bats.</p>	<p>9. OEH accepts that reducing blast vibration intensity may be a satisfactory solution.</p>	<ul style="list-style-type: none"> Noted.
<p>5. Potential impacts to the Regent Honeyeater</p> <p>5.1 WCPL provide OEH with the credit files from the revised FBA assessment, including the xml files from credit calculator, as required by the FBA, for the impact and offset areas.</p> <p>OEH met with WCPL's consultants in April 2016 and arrived at a consensus regarding potential Regent Honeyeater habitat on the development and offset sites. In order to complete a review of the offset requirements OEH requests access to the credit files from the revised FBA assessment, including the xml files from credit calculator, for the impact and offset areas.</p>	<p>10. WCPL provide OEH with the credit files from the revised FBA assessment.</p>	<ul style="list-style-type: none"> xml files are not relevant to the NSW Biodiversity Offset Policy for Major Projects (Offset Policy)/FBA. The Credit Calculator no longer uses xml files since it was made an online application in 2012. Dr Colin Driscoll submitted the BioBanking calculator (for the development site) on the 12 May 2016 and the BioBanking calculator (for the offset sites) on the 28 June 2016.

**Table 1 (Continued)
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OEH Comments (16 June 2016)	Summary of Issues	WCPL Response										
<p>6. Suitability of the Offset Strategy for the Regent Honeyeater</p> <p>6.1 OEH recommends that WCPL find additional areas preferably of predominantly mature Regent Honeyeater habitat to fulfil its credit requirement for this species.</p> <p>The transitional period FBA requires an offset requirement for the Critically Endangered Regent Honeyeater. OEH notes that WCPL states that it could ultimately decide to satisfy this credit requirement through a combination of additional land-based offsets secured by a BioBanking agreement, contributing money to supplementary measures or establishing a fund (OEH assumes this means payment into the NSW Biodiversity Offsets Fund for Major Projects). As the Regent Honeyeater is a species for further consideration supplementary measures cannot be used.</p> <p>The use of mine rehabilitation is not considered appropriate to offset the impacts for regent honeyeater in this instance due to the time required for mine rehabilitation areas to produce mature trees with high nectar flows being too great given the high extinction risk of the Regent Honeyeater.</p> <p>However, at some point in the future mine rehabilitation areas may provide suitable habitat for the Regent Honeyeater. At that time species credits could be generated for the Regent Honeyeater and be sold on the market or used for other WCPL projects. OEH has not been provided with the FBA Rehabilitation Calculator files used for this project and therefore relies on the text provided in 4.4.5 of the BAR. OEH notes that 610ha of mine rehabilitation is proposed and that the species richness score has been increased beyond that allowed under the FBA Rehabilitation Calculator from 1.0 to 1.5. This increases the credits generated from 2939 to 3415. This is not appropriate.</p>	<p>11. Additional areas of Regent Honeyeater habitat.</p>	<ul style="list-style-type: none"> The following table lists WCPL's current understanding of the proposed offset package for the Regent Honeyeater. <table border="1" data-bbox="470 190 651 1025"> <thead> <tr> <th></th> <th>Regent Honeyeater Species Credits</th> </tr> </thead> <tbody> <tr> <td>Impact Area</td> <td>14,630</td> </tr> <tr> <td>Offset areas 1 to 5</td> <td>4,228</td> </tr> <tr> <td>Proposed Mine Rehabilitation</td> <td>3,230</td> </tr> <tr> <td>Remainder</td> <td>7,172</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The transitional period FBA was applied during the transitional period and under the previous offsetting principles the offset requirement was significantly less. In the context of the quality of the 190 ha of Regent Honeyeater habitat to be removed by this Project, WCPL contend that the additional offset credits for the Regent Honeyeater should not be required as the ratio (1:10.8) is a perverse outcome (as identified may potentially occur in the transitional period for the Offset Policy). The recently approved [February 2014] Wilpinjong Coal Mine Modification 5 offset provided an offset ratio of approximately 5:1 for the Regent Honeyeater and was deemed adequate by OEH and DP&E. Figure 2 shows the Regent Honeyeater habitat in BAR Footprint (as revised in consultation with OEH). Figures 3a and 3b show the Regent Honeyeater habitat in the offset areas (as revised in consultation with OEH). The habitat in the offset areas is twice as large as that in the Project open cut extension and infrastructure areas. The offset area contains records of this species whereas the development site contains no records, only potential habitat. 		Regent Honeyeater Species Credits	Impact Area	14,630	Offset areas 1 to 5	4,228	Proposed Mine Rehabilitation	3,230	Remainder	7,172
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Impact Area	14,630											
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**Table 1 (Continued)
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OEH Comments (16 June 2016)	Summary of Issues	WCPL Response
As above.	As above.	<ul style="list-style-type: none"> • The transitional period FBA does not give consideration to: <ul style="list-style-type: none"> - the quality of the habitat being impacted or offset (some habitat in the offset areas is known to be used by the Regent Honeyeater whereas the habitat in the development site is only potential habitat). - the strategic location of proposed offset areas (NSW National Parks and Wildlife Service [NPWS] estate). - following excessive credits in the offset areas will be given up when the offset areas are provided to the NSW reserve system: <ul style="list-style-type: none"> o 22,292 credits for <i>Ozothamnus tessellatus</i>; o 355 credits for the Scant Pomaderris; o 14 credits for <i>Tylophora linearis</i>; and o 308 credits for the Koala. • The Commonwealth Offset Areas 1 to 5 meet the requirements of the EPBC Act <i>Environmental Offsets Policy</i>.
	12. Regent Honeyeater is a species for further consideration and supplementary measures cannot be used.	<ul style="list-style-type: none"> • The transitional period FBA was applied during the transitional period and supplementary measures have been used for the Regent Honeyeater for other recent approvals.
	13. Mine Rehabilitation is not appropriate to offset impacts for the Regent Honeyeater.	<ul style="list-style-type: none"> • The transitional period FBA and Offset Policy allow mine rehabilitation for species credits. • There will always necessarily be a time lag for using rehabilitation for any species. • The offset package is a combination of habitat in offset areas (which exist and would be enhanced) and mine rehabilitation. • Overall more Regent Honeyeater habitat would be established than would be removed.

**Table 1 (Continued)
Response to OEH Submission (16 June 2016) – Wilpinjong Extension Project (SSD 6764)**

OEH Comments (16 June 2016)	Summary of Issues	WCPL Response
<p>OEH notes that approximately 75 per cent of the 610 ha (455ha) will be targeted towards the Regent Honeyeater habitat generating 3271 credits. This area should target locally represented species from the priority list from the National Recovery Plan. OEH notes separately a comment that Black Cypress pine would be included as a co-dominant and does not regard this as appropriate for areas targeting Regent Honeyeater due to their invasive nature and competition for water and nutrients.</p> <p>The National Recovery Plan for the Regent Honeyeater offers the following advice. Key tree and mistletoe species for the regent honeyeater include:</p> <ul style="list-style-type: none"> • Mugga (or Red) Ironbark, <i>Eucalyptus sideroxylon</i> • Yellow Box, <i>E. melliodora</i> • White Box, <i>E. albens</i> • Yellow Gum, <i>E. leucoxylo</i> • Spotted Gum, <i>Corymbia maculata</i> • Swamp Mahogany, <i>E. robusta</i> • Needle-leaf Mistletoe, <i>Amyema cambagei</i> on River Sheoak, <i>Casuarina cunninghamiana</i> • Box Mistletoe, <i>A. miquelii</i> • Long-flower Mistletoe, <i>Dendrothoe vitellina</i> <p>Other tree species may be regionally important. For example the Lower Hunter Spotted Gum forests have recently been demonstrated to support regular breeding events of regent honeyeaters. Flowering of associated species such as thin-leaved stringybark (<i>E. eugenioides</i>) and other stringybark species, and broad-leaved ironbark (<i>E. fibrosa</i>) can also contribute important nectar flows at times.</p> <p>Mature, large individual trees tend to be more important as they are more productive, particularly on highly fertile sites and in riparian areas (Webster & Menkhorst 1992; Oliver 2000). Trees in such areas tend to grow larger (Soderquist & MacNally 2000) and produce more flowers (Wilson & Bennett 1999).</p>	<p>14. OEH has not been provided with the FBA Rehabilitation Calculator files.</p>	<ul style="list-style-type: none"> • Provided 28 June 2016.

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Table 1 (Continued)

OEH Comments (16 June 2016)	Summary of Issues	WCPL Response																																																							
<p>The following table lists our current understanding of the proposed offset package for the Regent Honeyeater.</p> <table border="1" data-bbox="454 638 694 974"> <thead> <tr> <th></th> <th>Regent Honeyeater Species Credits</th> </tr> </thead> <tbody> <tr> <td>Impact Area</td> <td>14,630</td> </tr> <tr> <td>Offset areas 1 to 5</td> <td>4,271</td> </tr> <tr> <td>Credit Shortfall</td> <td>10,359</td> </tr> <tr> <td>Proposed Mine Rehabilitation</td> <td>3,230</td> </tr> </tbody> </table> <p>The proposed offset package for the Regent Honeyeater is inadequate. A further 10,359 species credits are required for the Regent Honeyeater. Potential benefits from mine rehabilitation for the Regent Honeyeater will not be generated for at least 20 years after rehabilitation areas are planted and therefore OEH does not consider that as an appropriate offset for this mine's impact.</p> <p>OEH notes that WCPL has indicated that if required, they are confident additional on-ground offsets that will generate species credits for the Regent Honeyeater could be identified and included in the offset package.</p>		Regent Honeyeater Species Credits	Impact Area	14,630	Offset areas 1 to 5	4,271	Credit Shortfall	10,359	Proposed Mine Rehabilitation	3,230	<p>15. It is not appropriate to increase species richness from 1 to 1.5.</p>	<ul style="list-style-type: none"> The transitional period FBA was applied during the transitional period and onsite evidence shows a score of 1.5 is achievable. <p>Table 1- Summary of Native Plant Species Richness Benchmarks for HU824</p> <table border="1" data-bbox="486 683 726 1019"> <thead> <tr> <th></th> <th>1</th> <th>1.5</th> <th>2</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>Benchmark (HU824)</td> <td>Between 10-50% of Benchmark</td> <td>Between 50% and 75% of Benchmark</td> <td>Between 50% and 100% of Benchmark</td> <td>Greater than 100% of Benchmark</td> </tr> <tr> <td>Native Plant Species Richness</td> <td>Over 2.5 and less than 13 native plants</td> <td>Over 13 and less than 19 native plants</td> <td>Over 13 and less than 25 native plants</td> <td>Greater than 25 native plants</td> </tr> </tbody> </table> <ul style="list-style-type: none"> The current rehabilitation monitoring results show an average number of native plant species greater than 13 native plants. Therefore a score of 1.5 is achievable. <p>Table 2- Wilpinjong Rehabilitation Monitoring Plot Data (Report – Ecological, 2016)</p> <table border="1" data-bbox="837 1176 1173 1646"> <thead> <tr> <th>Plots</th> <th>Site</th> <th>Native Plant Species Richness</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>R1_C</td> <td>16</td> </tr> <tr> <td>2</td> <td>R2_C</td> <td>15</td> </tr> <tr> <td>3</td> <td>R3_C</td> <td>16</td> </tr> <tr> <td>4</td> <td>R5_C</td> <td>3</td> </tr> <tr> <td>5</td> <td>R8</td> <td>11</td> </tr> <tr> <td>6</td> <td>R10</td> <td>18</td> </tr> <tr> <td>7</td> <td>R11</td> <td>20</td> </tr> <tr> <td></td> <td>Average</td> <td>14.1</td> </tr> <tr> <td></td> <td>Average minus R5_C</td> <td>16</td> </tr> </tbody> </table>		1	1.5	2	3	Benchmark (HU824)	Between 10-50% of Benchmark	Between 50% and 75% of Benchmark	Between 50% and 100% of Benchmark	Greater than 100% of Benchmark	Native Plant Species Richness	Over 2.5 and less than 13 native plants	Over 13 and less than 19 native plants	Over 13 and less than 25 native plants	Greater than 25 native plants	Plots	Site	Native Plant Species Richness	1	R1_C	16	2	R2_C	15	3	R3_C	16	4	R5_C	3	5	R8	11	6	R10	18	7	R11	20		Average	14.1		Average minus R5_C	16
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OEH Comments (16 June 2016)	Summary of Issues	WCPL Response
<p>As above.</p>	<p>16. Black Cypress Pine as a co-dominant.</p>	<ul style="list-style-type: none"> • FBA requires natural vegetation communities (BVTs/PCTs) to be targeted as part of a rehabilitation proposal. • <i>White Box – Black Cypress Pine shrubby woodland of the Western Slopes</i> (BVT HU824, PCT1610) is the name of a BVT and is recognised by OEH as Regent Honeyeater habitat. • Black Cypress Pine is a component of the natural vegetation community, and occurs in the BAR Footprint. • BVT HU824 occurs in the BAR Footprint (98 ha) and is generating the offset requirement. • The Mining Operations Plan would provide completion, performance and monitoring criteria for rehabilitation areas that are to provide habitat for the Regent Honeyeater.
<p>7. Suitability of inclusion of existing agricultural land in offset areas OEH understands that WCPL and Parks & Wildlife Group are currently involved in discussions regarding the suitability of certain areas of the proposed offset package for inclusion into the reserve system. OEH notes that WCPL have indicated that it may consider removing the exotic pasture/cultivation areas from the offset package and replace them with remnant vegetation of a similar credit value.</p>	<p>17. Suitability of inclusion of existing agricultural land in offset areas.</p>	<p>Noted.</p> <ul style="list-style-type: none"> • Approximately 93 ha of land (of which 83 ha is cleared land) will be removed from the offset package as requested by NPWS. • Figure 4 shows the revised NSW offset area boundaries. • Figures 5a and 5b show the vegetation communities in the revised NSW offset area boundaries. • WCPL may consider the potential to identify supplementary areas of remnant vegetation that would provide a similar number of potential offset credits to the area that may be excised.



Date: 07 July 2016

**NPM Technical
PTY LTD**

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Manager Project Development &
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From: Will Minchin and Dr Noel Merrick

will.minchin@hydrosimulations.com

Re: **Wilpinjong Extension Project – Response to Residual Matters
Raised by DPI Water**

Your Ref: DPI Water letter date 08/06/2016

Our Ref: WIL006-HC2016/30c

This letter is provided in response to an information request from the NSW Department of Planning and Environment (DP&E) regarding the NSW Department of Primary Industry (DPI) Water's Comment on the Response to Submissions Report dated 08/06/2016 ("DPI Water Letter"). The DPI Water Letter acknowledges that the Department's earlier comments related to community consultation and make good provisions for the Wilpinjong Extension Project (the Project) have been largely resolved, with recommendations for ongoing measures and/or Development Consent Conditions for consideration by Peabody Energy Australia (Peabody) and DP&E. DP&E's information request is outlined below:

- Clarification on potential take from the Upper Goulburn River Water source.
- The complete raw dataset as presented in the EIS in relation to salinity trends and the complete dataset for the Wilpinjong Creek and Cumbo Creek stream gauges.
- Detail on times and volume of RO plant discharge.
- Mean river salinity prior to mining, during mining and post mining;
- Demonstrate that impacts can be categorised as Category 1 by:
 - Providing statistical analysis rather than a visual appraisal is used and this should be applied to both the data as presented during the Environmental Assessment
 - Providing statistical analysis of the updated 'complete' data presented within the RTS.

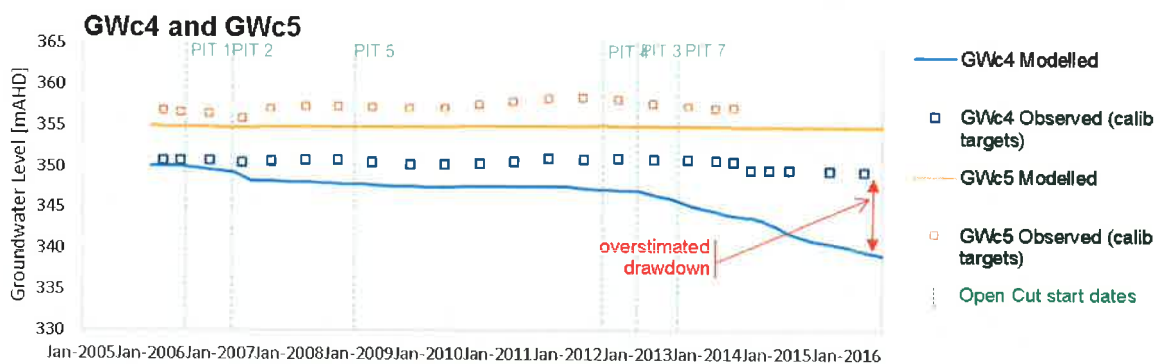
This letter should be read in conjunction with the raw data files (Wilpinjong and Cumbo Creeks - Raw Dataset_HSv1 (RES00751400).xlsx) provided separately. A salt balance accounting for predicted reduction in baseflow contribution to Wilpinjong Creek has been undertaken in order to demonstrate that impacts on Wilpinjong Creek are within the Level 1 Minimal Impact Consideration.

Clarification of Take from the Upper Goulburn River Water Source

Section 7.1.1 of the Wilpinjong Extension Project Groundwater Assessment (HydroSimulations, 2015) states:

The predicted takes from the alluvium associated with the Goulburn River, the Sydney Basin – Macquarie Bogan and Oxley Basin (Jurassic deposits) GMAs are negligible.

Modelled groundwater levels in the Ulan Coal seam (Figures 5-7 and 5-8 of the Groundwater Assessment) are a good match to observed, including the simulated drawdown around the WCM mine area (including at GWc28, GWc29). The model simulates that some drawdown will occur in the Ulan Coal seam extending north and east toward the Goulburn River (Figure 6-5 of the Groundwater Assessment). However, drawdown in the Ulan Seam is known to be an overestimate of observed drawdown at GWc4 (see Figure 5-8 – an update showing more recent data is included below), which is the bore furthest to the northeast of the WCM/WEP.



Extract from Figure 5-8 (updated to 2016) – Comparison of Modelled versus Observed GWLs

The raw model results suggested that the take from the Goulburn River alluvium would be small, with a maximum take of some 10 ML/a. Given the degree to which the drawdown in the Ulan Seam is overestimated to the north of the mine (see GWc4 hydrograph above), it is considered that the take in practice would be much less than the modelled maximum take of 10 ML/a, probably less than 1-2 ML/a given the difference in drawdown as shown on the above figure, which for licensing purposes is considered to be negligible. For comparison, the average Water Access Licence entitlement in the Upper Goulburn River Water Source is 104.4 ML/a (obtained from the NSW Water Register¹).

Notwithstanding the overestimate of drawdown, for licensing purposes, the recommended requirement for the Wollar Creek alluvium (Table 7-1 in the Groundwater Assessment) includes an extra 10 ML/a based on the logic that if the model overestimates take from the Goulburn River Water Source, then that water would have to be derived from the more proximal aquifer.

Aquifer Interference Policy Minimal Impact Considerations for Water Quality in Wilpinjong Creek

The *Water Management Act, 2000* defines an 'aquifer interference' activity as that which involves any of the following (NSW Government, 2012):

- the penetration of an aquifer;
- the interference with water in an aquifer;
- the obstruction of the flow of water in an aquifer;

¹ <http://www.water.nsw.gov.au/water-licensing/registers>

- ❑ the taking of water from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations; and
- ❑ the disposal of water taken from an aquifer in the course of carrying out mining or any other activity prescribed by the regulations.

The AIP includes the following Level 1 Minimal Impact Consideration for water quality in both highly productive and less productive water sources:

No increase of more than 1% per activity in long-term average salinity in a highly connected surface water source at the nearest point to the activity.

The most credible mechanisms by which an aquifer interference activity such as this Project could potentially result in a long-term increase in the salinity of Wilpinjong Creek or other downstream watercourses are:

- ❑ reduction in baseflow contributions from a *less* saline aquifer; and
- ❑ the discharge of *more* saline water to local watercourses.

The second of those will not occur at the WCM/WEP. The first of these will occur.

The maximum expected reduction in groundwater discharge or baseflow to nearby streams due to the Project was modelled and is presented in the Groundwater Assessment. A summary of these results is provided in **Table 1**.

Table 1 Maximum Modelled Baseflow Impacts (ML/day)

Catchment	Existing/Approved Wilpinjong Coal Mine	Wilpinjong Coal Mine including the Project	Increase in Baseflow Loss due to the Project
Wilpinjong Creek to Wollar Creek confluence	0.37	0.37	<0.005
Wollar Creek to Goulburn River confluence	0.37	0.40	0.03
Goulburn River to Hunter River confluence	0.37	0.41	0.04

Baseflow capture is cumulative along the watercourse, e.g. Wollar Creek to the Goulburn River includes the predicted Wilpinjong Creek baseflow capture.

The Project would have no discernible incremental effect on baseflow contributions to Wilpinjong Creek, and only a very small incremental increase in the baseflow losses of Wollar Creek and the Goulburn River (**Table 1**). The reason that the incremental effect on Wilpinjong Creek is negligible is that most of the Wilpinjong Creek frontage of the WCM lease has been approved for mining already. The Project open cut extensions are largely further away from the creek and would increase the mine footprint adjacent to the creek only slightly, and so not increase the maximum loss of water from the creek. The Project would increase the duration over which such losses occur, due to the extended duration of mining.

The Project would therefore have negligible incremental effect on the long-term average salinity of Wilpinjong Creek, Wollar Creek or the Goulburn River (i.e. consistent with a Level 1 Minimal Impact Consideration under the AIP).

Notwithstanding, assessment of the impacts of the existing/approved Wilpinjong Coal Mine incorporating the Project on long-term (i.e. post-mining) salinity in Wilpinjong Creek is presented below. This assessment has conservatively adopted the maximum predicted baseflow reduction (0.35 ML/d) however in practice the actual long-term reduction is expected to be in the order of 0.1 to 0.2 ML/d (Figure 6-8 of the Groundwater Assessment).

Baseline Salinity of Wilpinjong Creek and Contributing Baseflow

Baseline salinity (electrical conductivity [EC]) data for Wilpinjong Creek from 2006 to 2015 is presented in **Table 2**. The complete raw data set will be provided separately.

Table 2 Baseline Salinity Data for Wilpinjong Creek

Location	Sample Count	Minimum EC (µS/cm)	Maximum EC (µS/cm)	Average EC (µS/cm)	Average EC (mg/L)
Wilpinjong Creek – Downstream (WILD, WILD2, WILNC, WIL2)	231	310	7,550	2,758	1,674
Wilpinjong Creek – Upstream (WILU, WILU2, WILPC, WIL1)	188	150	12,190	1,665	1,000

Data: X:\HYDROSIM\WILPINJONG\WIL006\Tech\WaterQuality\WEP - Long Term Salinity Analysis (RES00746780).xlsx

The average salinity in both is therefore considered to be 'marginal' to 'brackish'. At the upstream sites, the maximum observed EC is 730% of the average, while at the downstream sites the maximum is 275% of the average, illustrating the significant variation in salinity (also shown on **Figure 1**)².

Note that the statistics presented above are based on the full dataset to current day. Salinity before and immediately after the commencement of mining was actually higher than during mining salinity in Wilpinjong Creek as shown in **Figure 1** and in the accompany data file².

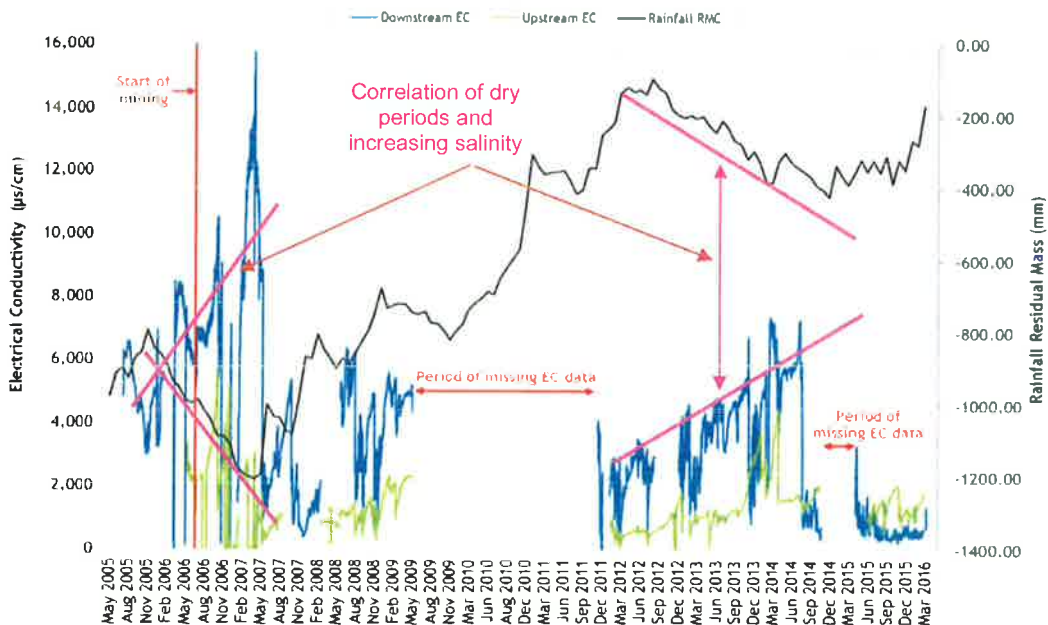


Figure 1 Electrical Conductivity trends in Wilpinjong Creek

The average downstream salinity of Wilpinjong Creek has been adopted as the benchmark for evaluating impacts. This results in a conservative estimate of the % change in salinity for assessment against the AIP.

EC concentrations observed in groundwater along the northern part of Wilpinjong Coal Mine and near to Wilpinjong Creek are summarised in **Table 3**.

² Some statistical analysis of the variation in salinity is provided in the accompanying Excel file: Wilpinjong and Cumbo Creeks - Raw Dataset_HSV1 (RES00751400).xlsx [WilpCk_GrabSampleStats]

Table 3 Baseline Groundwater Salinity Data for Bores in the Immediate Vicinity of Wilpinjong Creek

Location	Sample Count	Minimum EC (µS/cm)	Maximum EC (µS/cm)	Average EC (µS/cm)
Alluvial Monitoring Bores				2,780
GWa2	109	810	3,300	1,454
GWa3	101	630	2,970	1,758
GWa4	107	730	4,860	2,392
GWa6	94	30	13,220	5,529
Coal Seam Monitoring Bores				2,290
GWc1	109	1,225	3,420	2,184
GWc2	108	500	1,400	1,130
GWc3	110	1,640	5,140	3,557

The average coal seam salinity (2,290 µS/cm) in the vicinity of Wilpinjong Creek has been adopted as the salinity of baseflow to Wilpinjong Creek because:

- ❑ It is considered to be most representative of the water that the Wilpinjong Coal Mine (incorporating the Project) would remove from the system (even though some take from Wilpinjong Creek alluvium will occur).
- ❑ It provides a lower contributing EC than the average alluvial EC and is therefore more conservative for the purposes of assessment.
- ❑ It is less susceptible to climatic variation than the alluvial groundwater (e.g. less influenced by rainfall and evapotranspiration, at least in the short-term) and therefore is considered to best approximate the long-term average.

Water Treatment Facility Operation and Effect on Wilpinjong Creek Salinity

WCPL continues to undertake approved water discharges from the water treatment facility in accordance with EPL 12425. The EPL criteria (500 µS/cm) have been selected such that released water is generally similar to or better than the receiving water quality (WRM Water and Environment, 2015).

Historical discharges from the on-site RO plant are presented in the Response to Submissions document. Review of gauging station data and these historical discharges confirms that salinity in Wilpinjong Creek, downstream of the Wilpinjong Coal Mine, typically decreases during periods of RO plant discharge due to the rigorous discharge salinity criteria stipulated in the EPL.

Water balance modelling undertaken by WRM Water and Environment (2015) has determined the potential for controlled releases from the water treatment facility during the life of the Project (**Table 4**). During mining, any potential short-term salinity increases in Wilpinjong Creek associated with baseflow reduction would be typically counteracted by these controlled releases of treated water which has a salinity of less than 500 µS/cm³. Some releases are predicted to occur at all modelled stages under median conditions (**Table 4**).

³ As per Conditions P1.3 and L2.4 of the Wilpinjong Coal Mine EPL (12425): <http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=38389&SYSUID=1&LICID=12425>

Table 4 Forecast Water Treatment Facility Discharges

Operational Period	Annual Water Treatment Facility Discharge (ML/year)				
	1%ile (Very Wet)	10%ile (Wet)	50%ile (Median)	90%ile (Dry)	99%ile (Very Dry)
Phase 1 (Year 2015-2016)	280 to 790	270 to 700	270 to 560	265 to 545	250 to 535
Phase 2 (Year 2017-2018)	1,275 to 1,280	1,270 to 1,275	1,000 to 1,250	0 to 540	0 to 300
Phase 3 (Year 2019-2021)	1,275 to 1,280	1,270 to 1,275	425 to 770	0	0
Phase 4 (Year 2022-2025)	1,275 to 1,280	1,260 to 1,265	220 to 410	0	0
Phase 5 (Year 2026-2030)	1,275 to 1,280	1,260 to 1,275	360 to 660	0	0
Phase 6 (Year 2031-2033)	1,275 to 1,280	1,275 to 1,280	550 to 1,280	0	0

Source: Table 7.4 of WRM Water and Environment (2015).

Cumulative Impact of the Existing/Approved Wilpinjong Coal Mine and the Project on Long-Term Average Salinity of Wilpinjong Creek

Consideration is now given to the post mining (long-term) cumulative effects of the existing/approved Wilpinjong Coal Mine and the Project on salinity in Wilpinjong Creek, when controlled releases from the treated water facility will cease.

The long-term cumulative effects of the existing/approved Wilpinjong Coal Mine and the Project on salinity in Wilpinjong Creek has been calculated by multiplying the reduced mean annual flow (i.e. considering the reduction in baseflow) by the average salt load in this water that would no longer report to the creek (i.e. considering salt removed in the reduced baseflow). For the purposes of determining salt loads, EC ($\mu\text{S}/\text{cm}$) has been converted to TDS (mg/L) using a 'rule of thumb' factor of 0.64 (as suggested by OEH⁴).

A summary of these calculations is provided in **Table 5**.

Based on conservative assumptions outlined above, the increase in long-term average salinity of Wilpinjong Creek due to the existing/approved Wilpinjong Coal Mine incorporating the Project would be 0.8% (i.e. within the Level 1 Minimal Impact consideration of 1%).

⁴ <http://www.environment.nsw.gov.au/salinity/basics/units.htm>

Table 5 Increase in Long-Term Average Salinity of Wilpinjong Creek due to the Existing/Approved Wilpinjong Coal Mine (Incorporating the Project)

Location	Value	Units	Description
<i>Summary of Key Baseline Assumptions</i>			
Baseline Wilpinjong Creek salinity	1,674	mg/L	Adopted from Table 2 and converted to mg/L using factor of 0.64.
Wilpinjong Creek mean annual flow	2,910	ML/yr	Provided by WRM Water and Environment using AWBM runoff model.
Salinity of baseflow	1,470	mg/L	Adopted from Table 3 and converted to mg/L using factor of 0.64.
Wilpinjong Creek mean annual salt load	5,135	Tonnes/yr	Wilpinjong Creek mean annual flow multiplied by baseline salinity.
Impact due to the Existing/Approved Wilpinjong Coal Mine			
Long-term reduction in baseflow	135	ML/yr	Maximum modelled baseflow reduction has been conservatively adopted (Table 1). In practice, the reduction in baseflow would reduce in the long-term as the groundwater system recovers.
Reduction in salt load	199	Tonnes/yr	Salinity of baseflow multiplied by long-term reduction in baseflow.
Adjusted Long-term Average Salinity of Wilpinjong Creek			
Adjusted Wilpinjong Creek mean annual salt load	4,936	Tonnes/yr	Baseline salt load minus reduction.
Adjusted Wilpinjong Creek mean annual flow	2,774	ML/yr	Baseline mean annual flow minus reduced baseflow.
Adjusted long-term average salinity of Wilpinjong Creek	1,779	mg/L	Adjusted annual salt load multiplied by adjusted mean annual flow.
Increase in long-term average salinity of Wilpinjong Creek due to the Existing/ Approved Wilpinjong Coal Mine	0.8	percent (%)	

The sensitivity of this assessment to alternative baseline assumptions is summarised as follows:

- ❑ The choice of EC-TDS conversion factor (currently 0.64, but could be 0.5-0.75) is not a sensitive input to the calculations;
- ❑ Using a baseline salinity for Wilpinjong Creek that is lower than the adopted salinity (e.g. based on the salinity at the Wilpinjong Creek upstream monitoring sites) would result in a less conservative assessment (i.e. the percentage change in salinity due to the Wilpinjong Coal Mine would be lower, to the point of actually *reducing* average salinity by 2-3%);
- ❑ Using a baseflow salinity that is higher than the adopted (coal seam) salinity, such as by using measured alluvial EC, would also result in a less conservative assessment (i.e. a lower % increase, and possibly a reduction to in-stream salinity).
- ❑ Using the predicted long-term baseflow capture, i.e. 0.1-0.2 ML/d (rather than 0.37) results in 0.2-0.4% increase in salinity, rather than 0.8%.

There are assumptions, such as using slightly different time periods for calculating averages from the observed surface water or groundwater EC datasets that would change the result in both directions, from up to >2% (increase) to -3% (reduction). However, given the already conservative assumptions in the calculation of the 0.8% increase, this estimate is considered appropriate for the assessment of the AIP minimal harm criteria.

Water Quality and Salinity Triggers

The Wilpinjong Coal Mine Water Management Plan was prepared in consultation with DPI Water and approved by DP&E.

The Wilpinjong Coal Mine Surface Water Management and Monitoring Plan (Appendix 5 of the Water Management Plan) establishes trigger values for water quality in Wilpinjong Creek and Cumbo Creek. These trigger values have been established using the 20th and 80th percentile baseline data values in accordance with the approach recommended in ANZECC & ARMCANZ (2000) for developing site-specific trigger values for highly disturbed ecosystems. These trigger values are summarised in **Table 6**.

Table 6 Water Quality Trigger Values for the Existing/Approved Wilpinjong Coal Mine

Creek	Monitoring Site	Parameter	Trigger
Wilpinjong Creek (downstream)	WILNC, WILD, WILD2 and WIL2	EC	If recorded value at the monitoring site is greater than 5,166 µS/cm for 3 consecutive readings.
		Turbidity	If recorded value at the monitoring site is greater than 24 NTU for 3 consecutive readings.
		pH (lower)	If recorded value at the monitoring site is less than 6.9 pH for 3 consecutive readings.
		pH (upper)	If recorded value at the monitoring site is greater than 7.7 pH for 3 consecutive readings.
Cumbo Creek (downstream)	CC1	EC	If recorded value at the monitoring site is greater than 7,510 µS/cm for 3 consecutive readings
		Turbidity	If recorded value at the monitoring site is greater than 77 NTU for 3 consecutive readings
		pH (lower)	If recorded value at the monitoring site is less than 7.5 pH for 3 consecutive readings
		pH (upper)	If recorded value at the monitoring site is greater than 8.2 pH for 3 consecutive readings

The Wilpinjong Coal Mine Surface Water and Groundwater Response Plan (Appendix 7 of the Water Management Plan) includes Trigger Action Response Plans (TARPs) that have been developed by WCPL to address potential impacts to surface water and/or groundwater that may arise from mining activities. A Surface Water Quality TARP has been developed in the event that one of the triggers outlined in **Table 6** is met.

The existing Water Management Plan would be reviewed and revised to incorporate the Project subject to the conditions of any Development Consent for the Project. This review would be undertaken in consultation with DPI Water.

Conclusion

Two key residual issues were raised by DPI Water relating to quantification of the negligible water take from the Goulburn River and confirmation of the Level 1 Minimal Impact Consideration under the AIP.

Hydrographs of modelled versus observed groundwater levels for the Ulan Seam show that the model performs well in simulating drawdown in the vicinity of the mine workings, but overestimates drawdown at bore GWc4 to the northeast of the WCM/WEP. This overestimation of drawdown in this area means that the model will over-estimate any take from shallow systems to the northeast, including from the Goulburn River. The model suggested that the maximum take from the Goulburn River would be relatively small at 10 ML/a, so when considering the overestimated drawdown in this area, the take is more likely in the order of 1-2 ML/a, or a negligible amount in comparison with the predicted take from the Wilpinjong Creek alluvial source.

The Project would have no incremental effect on baseflow contributions to Wilpinjong Creek, and only a very small incremental increase in the baseflow losses from Wollar Creek and the Goulburn River (**Table 1**).

Because of the approved and incremental change in baseflow capture along Wilpinjong Creek, as well as the high background salinity, it was anticipated that the Project would have negligible incremental effect on the long-term average salinity of local watercourses.

Notwithstanding, an assessment of the impacts of the existing/approved Wilpinjong Coal Mine (incorporating the Project) on long-term salinity in Wilpinjong Creek has been undertaken. Based on conservative assumptions adopted for this assessment, the increase in long-term average salinity of Wilpinjong Creek due to the existing/approved Wilpinjong Coal Mine incorporating the Project would be 0.8% (i.e. within the Level 1 Minimal Impact consideration under the AIP).

Yours sincerely

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x:\hydrosim\wilpinjong\wil006\wplagency_submissions\responses\hc2016-30c_wep - response to residual dpi water issues (res00751397).docx

References

- Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.
- HydroSimulations (2015) *Wilpinjong Extension Project Groundwater Assessment*. Report for Wilpinjong Coal / Peabody.
- New South Wales Government (2012) *Aquifer Interference Policy*.
- WRM Water and Environment (2015) *Wilpinjong Extension Project Surface Water Assessment*.



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9 September 2016

NSW Department of Planning and Environment
22 – 33 Bridge Street
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Attention: Mike Young
Director, Resource Assessments

Dear Mike,

**RE: WILPINJONG EXTENSION PROJECT (SSD 6764) – BIODIVERSITY OFFSET
(REHABILITATION) MATTERS**

Following our meeting with the Department on 26 August 2016 regarding the proposed Wilpinjong Extension Project biodiversity offset package, the following articulates Wilpinjong Coal Pty Ltd (WCPL)'s response to the Government's revised advice regarding use of mine site rehabilitation for species credit generation for biodiversity offsets.

The Department has reiterated to WCPL in a number of forums that it is the NSW Government's strong preference that all Wilpinjong Coal Mine landforms are rehabilitated to native woodland vegetation to enable a conservation land use post-mining, thereby connecting the Munghorn Gap Nature Reserve and Goulburn River National Park.

As described in our correspondence of 12 August 2016, this revised rehabilitation objective was accepted by WCPL provided that the company was afforded suitable biodiversity offset credits for the additional revegetation. Consistent with the Framework for Biodiversity Assessment (FBA), WCPL has previously calculated potential ecosystem credits generated by mine site rehabilitation with an upper bound of 5 ecosystem credits per hectare of native revegetation (i.e. approximately 50% of the credits obtained from equivalent non-mined offsets) and the default 7.1 species credits per hectare of relevant species habitat to be created (e.g. Regent Honeyeater habitat).

WCPL's correspondence to the Department on 12 August 2016 committed to additional rehabilitation to woodland to address the biodiversity credit shortfall remaining after the retirement of Biodiversity Offset Areas 1-5. The additional cost associated with this rehabilitation commitment was accepted by WCPL, on the basis that 100% of the species credits generated for the Regent Honeyeater would be available to WCPL for the rehabilitated areas (in accordance with the FBA).

On 26 August 2016 the Department advised that the NSW Government will now only permit upfront calculation of some 50% of the species credits generated by the Office of Environment and Heritage's (OEHs) published calculator "*Framework for Biodiversity Assessment (FBA) section 12.2: Generating biodiversity credits for ecological rehabilitation of previously mined land*" (July 2015) that is available from the following links:

http://www.environment.nsw.gov.au/resources/biodiversity/FBA_Rehab_Cal_July2015.xls

<http://www.environment.nsw.gov.au/biodivoffsets/biooffsetspol.htm>

This reduces the incentive for proponents to establish successful native revegetation that provides meaningful habitat to the key threatened species, and is more likely to result in existing land based offsets being adopted in preference to on-site rehabilitation at greenfield mine sites.

The NSW Government's change to the interpretation of the FBA with respect to the percentage of species credits available for rehabilitation, and the imposed change in the site rehabilitation objective to establish woodland vegetation across the whole site, has implications for WCPL's consideration of previous and future post-mining land use commitments as follows:

- The recent change in the NSW Government's interpretation of the FBA will require twice the area of Regent Honeyeater habitat to be established at Wilpinjong to achieve the same species credits via mine site rehabilitation.
- The requirement to rehabilitate the entire mine site to native woodland requires WCPL to incur additional cost to rehabilitate large areas that were previously approved to be a pasture with some scattered woodland, to an all woodland (conservation) outcome within the approved mine footprint, including approximately 200 ha that has already been rehabilitated to pasture to date.
- The requirement to commit to all woodland revegetation will limit the post-mining land use options for the site.

The transitional status of the application of the Biodiversity Offsets Policy for Major Projects to the Wilpinjong Extension Project and the NSW Government's evolving interpretation of how this Policy will be implemented through the FBA for the Project is a significant concern to WCPL.

WCPL can, however, accept the proposed change to the interpretation of the FBA and revegetation requirements in this particular case on the following basis:

- any mine rehabilitation vegetation communities within the approved open cut and contained infrastructure area (or ancillary development areas) at the mine that provide Regent Honeyeater habitat can be used to satisfy the offset credit requirements for this species (i.e. to provide maximum operational flexibility);
- an agreed upfront residual credit shortfall can be addressed by staged annual payments at an agreed price to a Regent Honeyeater recovery fund; and
- the staged annual payments and the operation of the recovery fund can be reviewed prior to the cessation of the payments by WCPL and the Department, with a view to evaluating whether WCPL should continue to make annual payments to the recovery fund at the same species credits rates, thereby continuing to support the recovery fund and further reducing its Regent Honeyeater species credit requirements to be satisfied post mine closure.

WCPL notes that Section 4.8.2 of the original Wilpinjong Coal Project Environmental Impact Statement (WCPL, 2005) stated the following with respect to establishment of habitat in the approved woodland revegetation areas:

- *Revegetation in the rehabilitation areas ... would include the use of native species characteristic of the Project area and surrounds, with the potential to offer habitat resources for native wildlife (e.g. breeding, roosting/nesting or foraging resources), including threatened fauna species. For example, the use of winter flowering eucalypts such as White Box (E. albens) for the Swift Parrot and Box, Ironbark and She-oak species for species such as the Regent Honeyeater...*

However, WCPL would incur significant additional rehabilitation costs and take on significant additional completion criteria risk in committing to establish Regent Honeyeater habitat under the FBA, rather than establishing woodland with a native seed mix that includes plant species known to provide habitat for threatened species.

This step change in the standard that may be required under the FBA can be illustrated as follows:

- The most recent Independent Environmental Audit (AECOM Australia Pty Ltd, 2015), conducted in accordance with Condition 9 of Schedule 5 of Project Approval 05-0021 at Wilpinjong included a review of the adequacy of rehabilitation activities and concluded rehabilitation has noticeably progressed, and overall rehabilitation completed to date is of a high standard.
- Conversely, at a site visit in August 2016, WCPL was advised by OEH that the existing woodland rehabilitation areas that have been established at the Wilpinjong Coal Mine would not meet completion criteria requirements being imposed under the FBA, without significant vegetation clearing and subsequent replanting.

WCPL is prepared to adopt an aggressive rehabilitation target of revegetation of a large proportion of the site to Regent Honeyeater habitat, based on comparison to analogue vegetation community benchmarks established in local vegetation, in combination with staged annual payment into a recovery fund. In order to pursue this aggressive target, all of the open cut and contained infrastructure areas and ancillary development areas at the mine must be available for WCPL to provide operational flexibility in targetting Regent Honeyeater habitat establishment.

WCPL therefore provides the following draft conditions to address the Regent Honeyeater and lesser ecosystem credit shortfall, when adopting the NSW Government's proposed change to the interpretation of the FBA (i.e. only allowing 50% of species credits for mine site rehabilitation) and the woodland revegetation requirement.

Contribution to Regent Honeyeater Recovery Fund

- X1** *Commencing one year after mining under the Development Consent begins, the applicant shall make five annual payments of \$ 100,078 to the OEH for use in the Regent Honeyeater recovery fund to address a residual credit shortfall of some 1,296 Regent Honeyeater species credits.*

Prior to the cessation of the annual payments required by this Condition, the applicant and the Secretary may agree to continue these annual payments at the same monetary and species credits rates and thereby correspondingly reduce the Regent Honeyeater credits required to be satisfied following mine closure.

Each annual payment on the date of commencement of mining under the Development Consent will be indexed to CPI for the December Quarter of the previous calendar year.

Rehabilitation Offsets

- X2** Within 15 years of the completion of mining operations under this consent, or an alternative period as agreed by the Secretary, the Applicant shall retire ecosystem credits and species credits of a number and class in Table X1 to the satisfaction of the Secretary.

The retirement of these credits must be carried out in accordance with the NSW Biodiversity Offsets Policy for Major Projects (NSW Government, 2014), by retiring credits generated by mine rehabilitation (or the alternative mechanisms in Condition X3).

Table X1
Residual Credit Shortfalls to be Addressed by Site Rehabilitation

Aspect	Code (BVT)	Credits Required	Approximate Area in Hectares of Suitable Mine Rehabilitation	BVTs able to be Retired	Offset Location
Fuzzy Box woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion**	HU547**	37	9	**HU547	Kerrabee IBRA subregion or adjoining IBRA subregions
Rough-barked Apple grassy tall woodlands of the Brigalow Belt South**	HU981**	3,716	880	** HU981, HU547, HU714, HU675, HU683, HU732, HU690, HU823, HU901, HU907, HU909	
White Box - Black Cypress Pine shrubby woodland of the Western Slopes**	HU824**	2,417	575	** HU824, HU882, HU923	
Regent Honeyeater	—	9,063	2,553*	Vegetation communities that provide Regent Honeyeater habitat – including HU618, HU690, HU697, HU732, HU801, HU824, HU843, HU886, HU890, HU891, and HU 910.	NSW

* Can be, but does not need to be, inclusive of the ecosystem credit rehabilitation areas.

** Or an alternative community agreed with OEH that also provides Regent Honeyeater habitat.

- X3** If the Project rehabilitation areas do not meet the relevant criteria within 15 years of the completion of mining operations, or an alternative period as agreed by the Secretary, the Applicant shall retire the number of biodiversity offset credits for the relevant shortfall to the satisfaction of the Secretary in accordance with the NSW Biodiversity Offsets Policy for Major Projects (NSW Government, 2014), which can be achieved by:

- acquiring or retiring credits under the biobanking scheme in the TSC Act; or
- making payments into an offset fund that has been established by the NSW Government; or
- providing supplementary measures (for ecosystem credits).

X4 *The Secretary may vary the requirements of Condition X2 or X3 to reflect adverse climatic conditions or other major regional events [e.g. bushfires] that may have occurred since the commencement of the Project, that may have adversely affected the applicant's opportunities to meet the relevant criteria, or to reflect an alternative revegetation outcome that is agreed between the Applicant and OEH.*

The Secretary may also vary Condition X2 to reflect a revised period of annual payments under Condition X1 and a corresponding reduction in the Regent Honeyeater species credit requirements in Table X1.

Please do not hesitate to contact me on (02) 6370 2528 if you would like to discuss.

Yours sincerely,

A handwritten signature in black ink that reads "Ian Flood". The signature is written in a cursive, slightly slanted style.

Ian Flood
Manager Project Development & Approvals
Wilpinjong Coal Mine
Peabody Energy Australia Pty Ltd