

Illawarra Coal

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17 December 2010

Department of Planning
GPO Box 39
SYDNEY NSW 2001
Attn: Clay Preshaw

Dear Clay

**Response to Submissions
Department of Environment, Climate Change and Water (DECCW)
Appin Vent Shaft No 6 Project (00-0079)**

Thank you for providing the DECCW submission on 8 December 2010. The Environmental Assessment was on public exhibition between 19 October 2010 and 18 November 2010. Illawarra Coal has considered the matters raised in the DECCW submission and our response is provided in Appendix A.

Illawarra Coal has concern with the nature of several matters raised by DECCW where they make reference to activities and outcomes at other mining facilities that are operated by other companies. Illawarra Coal is aware of the issues at other facilities and has undertaken considerable engineering design of the proposed Appin No 6 Vent Shaft to ensure that these issues are avoided or are mitigated.

We look forward to Project Approval as soon as possible. If you have any queries please contact the undersigned.

Yours sincerely,



Bruce Blunden
Manager – Environmental Approvals

Appendix A

Illawarra Coal response to Submissions

Department of Environment, Climate Change and Water

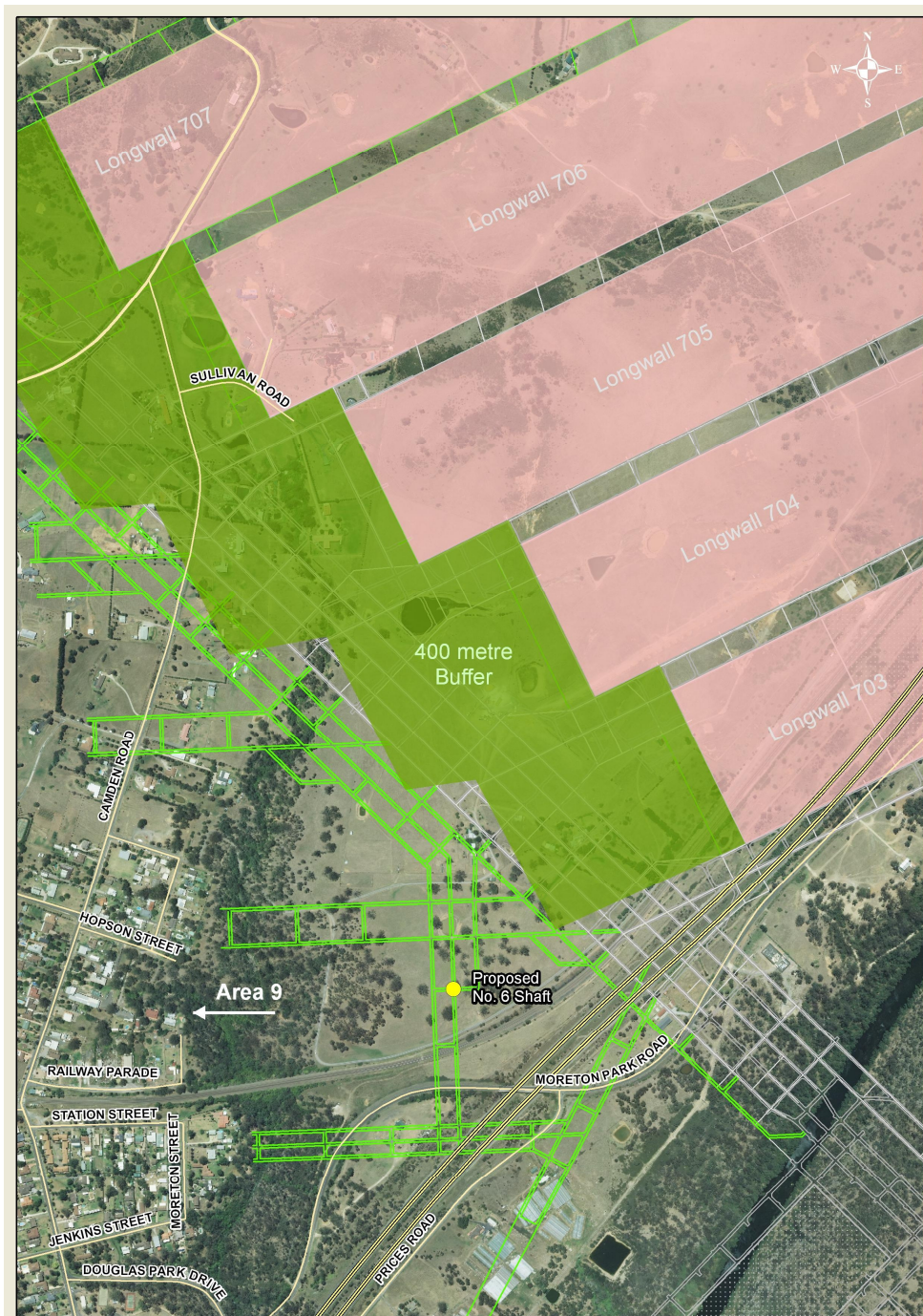
Alternative Vent Shaft Locations

Detailed justification of the project for which Illawarra Coal is seeking approval is provided in Chapter 7 of the Environmental Assessment. This justification, including an assessment of the alternatives considered, was prepared in accordance with the Director Generals Requirements issued on 16 July 2010. This includes an assessment of alternative ventilation strategies that were considered and locations upon which an upcast ventilation shaft(s) could be constructed and operated. It is important to note that the primary purpose of the proposed Appin No 6 Ventilation Shaft (VS#6) is to provide underground ventilation capacity for Appin Area 9, with ancillary ventilation benefit to be provided to Appin Area 7. As such, the proposed shaft must be located within close proximity to Area 9 to achieve efficient and effective ventilation that will maximise mine productivity and minimise safety risks.

In addition to surface constraints, prime determinants of the location of a ventilation shaft are the location of underground workings and extraction areas, as well as geological/geotechnical properties of the strata that influence shaft stability. Geological issues that have been considered in the citing of VS#6 include;

- presence and influence of geological structure such as faults, and
- in situ magnitude and direction of stress within the strata

Proximity to longwall goaf area is also an important geotechnical consideration. As a general rule, shafts should be at least a distance described by the 35 degree angle of draw from the closest longwall. The Bulli Seam is ~530 m below the surface at the proposed VS#6 location. As such, any shaft must be located greater than ~400m from the actual or proposed goaf. The approved Appin Longwalls 702-704 are immediately to the east of the proposed VS#6 location. The 400m standoff distance from these longwalls is shown in the figure below.



Other consideration in regard to the specific location of VS#6 include; surface slope and topography in order to minimise the cut/fill requirements for site establishment, and proximity to the heritage listed buildings to the north east of the proposed location.

The proximity of Appin Area 7 significantly limits the extent to which a shaft can be located to the north and east of the proposed VS#6 location. To relocate VS#6 in either of these directions would mean that it is on the Area 7 side of the Douglas Mains which would severely compromise the primary objective of this shaft to provide adequate ventilation for Area 9. Similarly, the shaft would be subject to geotechnical instability from its close proximity to longwalls which would give rise unacceptable operational and safety concerns. To achieve effective and efficient ventilation for Area

9, the VS#6 must be located on the western side of Douglas Mains. As shown in the figure above, the Douglas Mains will have an additional two ventilation roadways to connect to the VS#6 and to provide the ventilation connection to Area 9. The proposed location provides for effective ventilation of Area 9 whilst optimising the distance from Douglas Park as well as other site environmental considerations.

This effectively means that the only viable direction to locate an alternative site for the VS#6 is in a north westerly direction as generally described in Figure 7.1 in the Environmental Assessment. Table 7.2 in the Environmental Assessment described the constraints and opportunities of moving the shaft in this north westerly direction.

Table Error! No text of specified style in document..1 – Constraints and Opportunities presented by Moving Shaft in Specified Directions

Direction	Opportunities	Constraints
1. North West	1. Close to proposed development roadways. 2. In some areas construction access will be easier. 3. Land use conducive to vent shaft development.	1. Moves closer to main Township of Douglas Park. 2. Increased visual impacts due to location higher on slope. 3. Increased noise impacts to some receivers. 4. Increased air quality and odour impacts to some receivers. 5. Surface ground progressively becomes steeper and more difficult to construct shaft. 6. Increased depth of cover to coal seam (up to 800 m). 7. Vent shaft moving into areas of higher geological stress zones with increased potential goaf induced stresses and risk to shaft stability. 8. Significant areas of coal sterilised (i.e. unable to be mined). 9. Moves progressively into areas of land not under BHPBIC tenure. 10. Increased difficulty in accessing the land for construction and operations in some areas. 11. Reduced potential for other functions to be located in close proximity (e.g. service boreholes). 12. Need to develop more headings to access shaft. 13. Potential delay in the internal BHPBIC project approval process (greater than 12 months) while tenure and VS#6 Part 3A issues resolved.

As described in the Table 7.2 from the Environmental Assessment for the North West alternative direction, there are numerous and significant environmental, community, construction and economic constraints that render citing in this direction sub-optimal.

Illawarra Coal has carefully considered a range of alternative ventilation strategies and alternative shaft locations in the Environmental Assessment. The opportunities and constraints of these options have been discussed. Illawarra Coal has selected the location of the proposed VS#6 on the basis of environmental, community, and operational considerations. Further, we have recognised issues that have arisen at other sites and have acted to address these issues in the engineering design of the proposal. These include:

- Fan discharge to emit noise and air in a north easterly direction adjacent to the uninhabited rail/freeway infrastructure corridor. This will avoid or minimise impact on residential premises in Douglas Park. The closest residential premises to the proposed shaft location in a north easterly direction are in excess of 1 km away, on the other side of the rail/freeway corridor, and shielded by local topography. Impacts on these receivers have been assessed as negligible.
- Best practice specifications for the fan design have been developed in order to minimise noise. Similarly, structural engineering of the fan foundations has been undertaken to minimise any low frequency noise or vibration issues.
- Mitigation measures such as the implementation of a noise barrier and underground dust collection screens.

The impacts of the preferred location of VS#6 have been comprehensively assessed in the Environmental Assessment and demonstrated to meet contemporary standards published by the NSW Government.

At the proposed shaft location, the placement of surface infrastructure during both the construction and operational phases has been optimised to locate as many of the disturbance activities in the cleared area or within the area of improved pasture so as to minimise impact on the low condition Cumberland Plain Woodland. For example, the sediment control ponds, clear water diversion bunding and some of the access roads were located to avoid the Cumberland Plain Woodland. Further, activities which through necessity must be located close to the shaft (such as the shaft liner storage area) have been designed to avoid all existing trees and be confined to the secondary grassland areas. By optimising the site construction layout, the highest quality components of the Cumberland Plain Woodland adjacent to the site have been avoided.

Air Quality Impact Assessment

Illawarra Coal has undertaken a quantitative air quality impact assessment in accordance with the Director Generals Requirements as well as in consideration of the recommendations made by DECCW in their letter to the Department of Planning on 28 June 2010. The input odour concentration used in the quantitative odour impact assessment was determined from direct odour sampling and measurement taken from Appin No 3 Shaft on 18 June 2010. Appin No 3 Shaft is an upcast shaft that ventilates the current Appin longwall and development panels. Appin Mine is currently extracting Longwall 703. Given that Appin Area 9 is immediately adjacent to Area 7, is in the same coal seam, and has similar coal and geological properties, we consider that the contemporary odour sampling and its use in the odour impact assessment for VS#6 is the most appropriate and defensible method to assess odour impacts surrounding the proposed facility.

The odour impact assessment demonstrated that the odour goals prescribed in the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW will be achieved given the predicted emissions from VS#6 using contemporary odour emission data. Under all scenarios that were assessed, the predicted odour concentration that would occur at various residential receiver locations (including Douglas Park Public School) were less than 1.7 (OU), where the odour goal prescribed in the Approved Methods is 3 (OU) for the residential area of Douglas Park. A predicted

odour concentration of 3 (OU) was predicted to occur on elevated areas to the west and north of Douglas Park. These are sparsely populated areas that would have odour impact assessment criteria of 6-7 (OU) if taken in isolation from the residential area of Douglas Park. PAEHolmes conclude that “the levels of odour predicted to occur as a result of the operation of VS#6 would not be expected to be detectable or distinguishable at the receiver locations”.

At the suggestion of DECCW, other components of the mine ventilation air, including higher hydrocarbons that may be expected to arise from mining in the Bulli Seam, were assessed in Section 9.3 and Appendix E of the Environmental Assessment. Contemporary underground gas concentration data sampled in mine ventilation returns during the extraction of Appin Longwall 703 was used in this assessment. This assessment concluded that the predicted higher hydrocarbon concentrations in ambient air at receiver locations around VS#6 are many orders of magnitude below the relevant air quality goals.

We believe that the air impact assessment for VS#6 has been undertaken in a rigorous manner using contemporary data developed from extraction in the same coal resources that will be ventilated by this shaft. This inherently takes into account odourous compounds such as higher hydrocarbons that are present in the mine ventilation air.

Further to this assessment, Illawarra Coal is proposing to undertake extensive pre and post mining gas extraction using a combination of underground and surface techniques. These techniques will reduce the concentration of gas (including higher hydrocarbons that may be present in sandstone strata near the Bulli Seam) that enters the mine ventilation air. This will minimise the emission of odourous compounds in the mine ventilation air.

As outlined in the Environmental Assessment and in DECCWs submission, various contingency measures are available in the unlikely event that odour impacts are greater than predicted. These will be investigated if the need arises.

Threatened Species

1. Impacts on Cumberland Plains Woodland

No more than 3.5 ha of low condition Cumberland Plains Woodland will be disturbed by the proposed project. The area that will be disturbed has been heavily impacted by grazing, clearing, the introduction of pasture species and wood collection that has taken place since European settlement began in the area. Grazing has long been recognised as a major contributor to the degradation and the suppression of rehabilitation process within ecosystem remnants. It is likely that the continuation of these existing activities would lead to the removal of the low condition

Cumberland Plains Woodland from this area over time. Indeed the ecological assessment of the vegetation to be disturbed by the current proposal identified the vegetation to have low resilience. In the absence of the Project, ongoing grazing of the area would lead to further degradation of the site such that resilience is lost altogether with the loss of any natural regeneration potential.

With regards to the connectivity of the Cumberland Plains Woodland that will be disturbed by the proposal to the Nepean River Corridor, the photos below present clear evidence of the fact that the Cumberland Plains Woodland is highly fragmented and arguably without functional connectivity in its current form for all but highly mobile fauna.

The area to be disturbed has been thoroughly surveyed, including using BioBanking quadrads, to determine the presence of threatened species. No threatened species are present in the area to be disturbed. As shown in the photographs below, the area to be disturbed has no native understory.



VS#6 Area to be Disturbed – Looking east

(Note: intact patch of Cumberland Plains Woodland on the right will be retained)



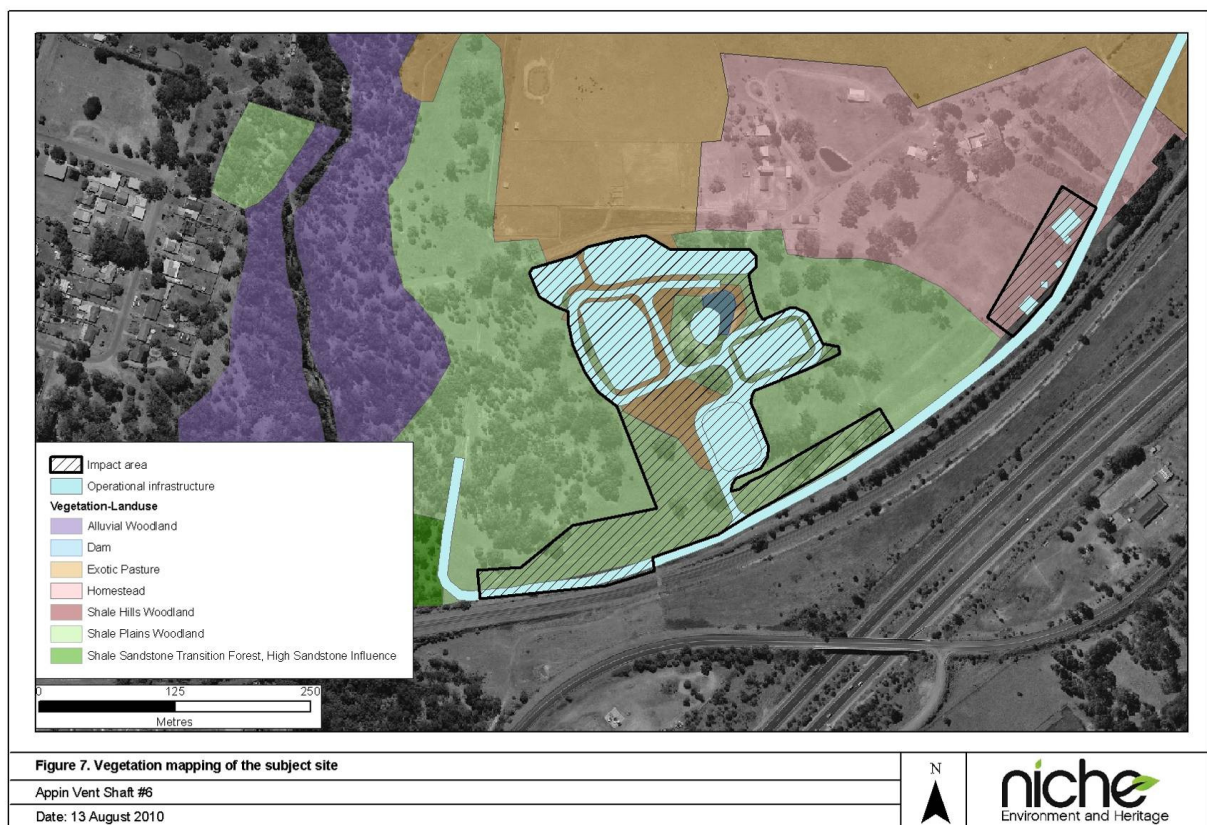
VS#6 Area to be Disturbed – Looking west

(Note: intact patch of Cumberland Plains Woodland on the left will be retained)

a. Measures to Avoid or Mitigate Impacts on Cumberland Plains Woodland

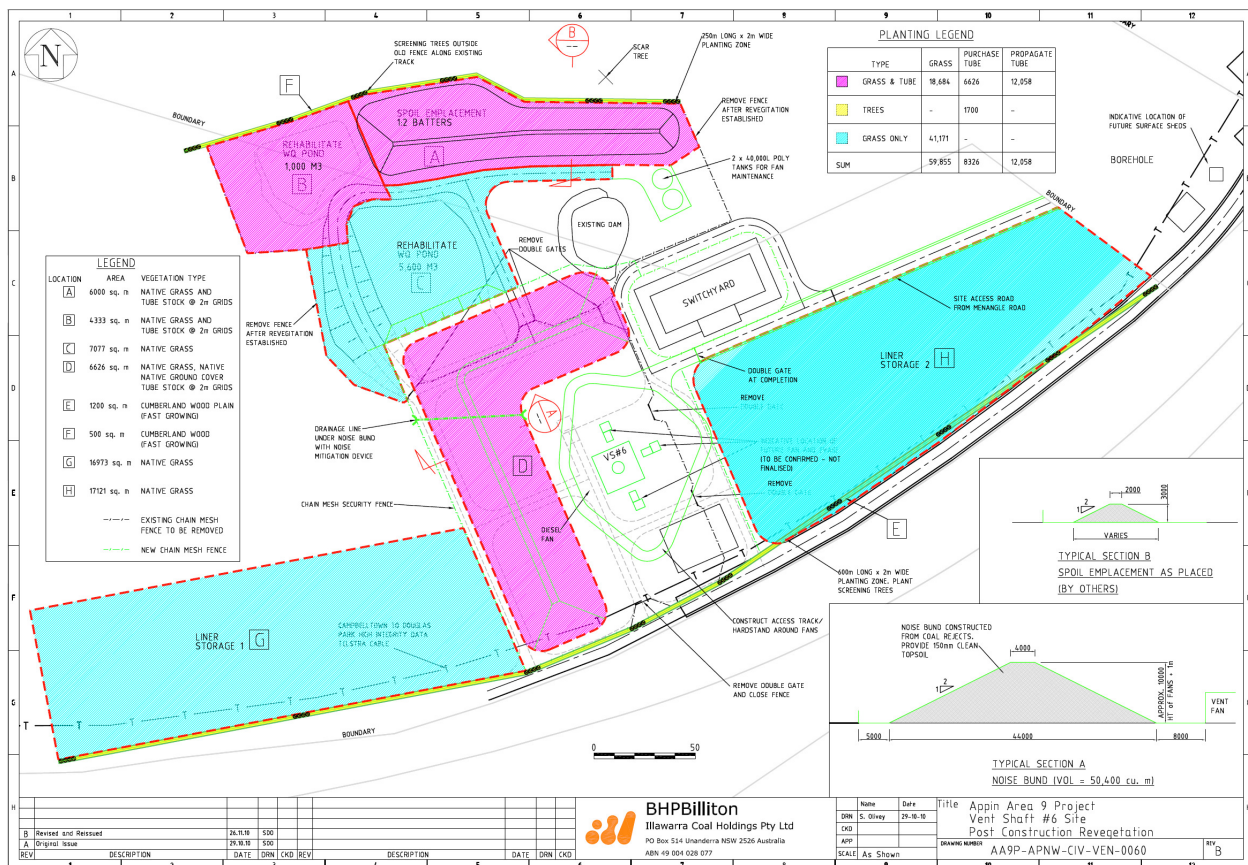
As discussed above the site of VS#6 has been selected on the basis of optimising environmental, community, mine planning and geotechnical considerations. It is not possible from a geotechnical or mine ventilation perspective to relocate the VS#6 to the east or north, whilst maintaining the primary objective of ventilating Area 9.

The layout of the proposed VS#6 has been designed to avoid disturbing Cumberland Plains Woodland that is in good condition and connected to the vegetated corridor along Harris Creek. The layout of the VS#6 in respect to vegetation is shown below.



The area to be disturbed has been consolidated to as small an area as possible to reduce the requirements for dirty water management and to minimise impact on Cumberland Plains Woodland. Approximately 20 individual isolated trees will be required to be cleared. All cleared vegetation will be salvaged and used in either Post Construction Rehabilitation of the disturbed area or in revegetation of the proposed offset area.

At the completion of the shaft construction, a substantial part of the disturbed area will be rehabilitated. This rehabilitation will be undertaken with Cumberland Plains Woodland species that are endemic to the site. A Post Construction Rehabilitation Plan was provided to the Department of Planning in our Response to Submissions dated 7 December 2010. A figure showing the Post Construction Rehabilitation is shown below.



Further, the area in which the shaft and ancillary infrastructure will be located will be fenced to exclude stock. This will ensure that the re-establishment of Cumberland Plains Woodland from the Post Construction Rehabilitation, as well as any natural regeneration that occurs from adjacent Cumberland Plains Woodland, can take place in the absence of grazing pressures.

A copy of the BioBanking Assessment and Credit report is provided in Appendix C. A summary of the BioBanking calculations is provided below.

Summary of findings for Offset Calculations for Cumberland Plain Woodland at Appin Vent Shaft # 6 are described below.

Impact Site (Biobanking Credit Report - 23 September 2010)

Veg Type	Impact Area	Credits Required	Credits Required per hectare	Biobanking Plots conducted (Y/N)
HN529: Grey box – forest red gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin	0.4	26	65	Y
HN528: Grey box – forest red gum grassy woodland on flats of the Cumberland Plain, Sydney Basin	3.1	77	25	Y

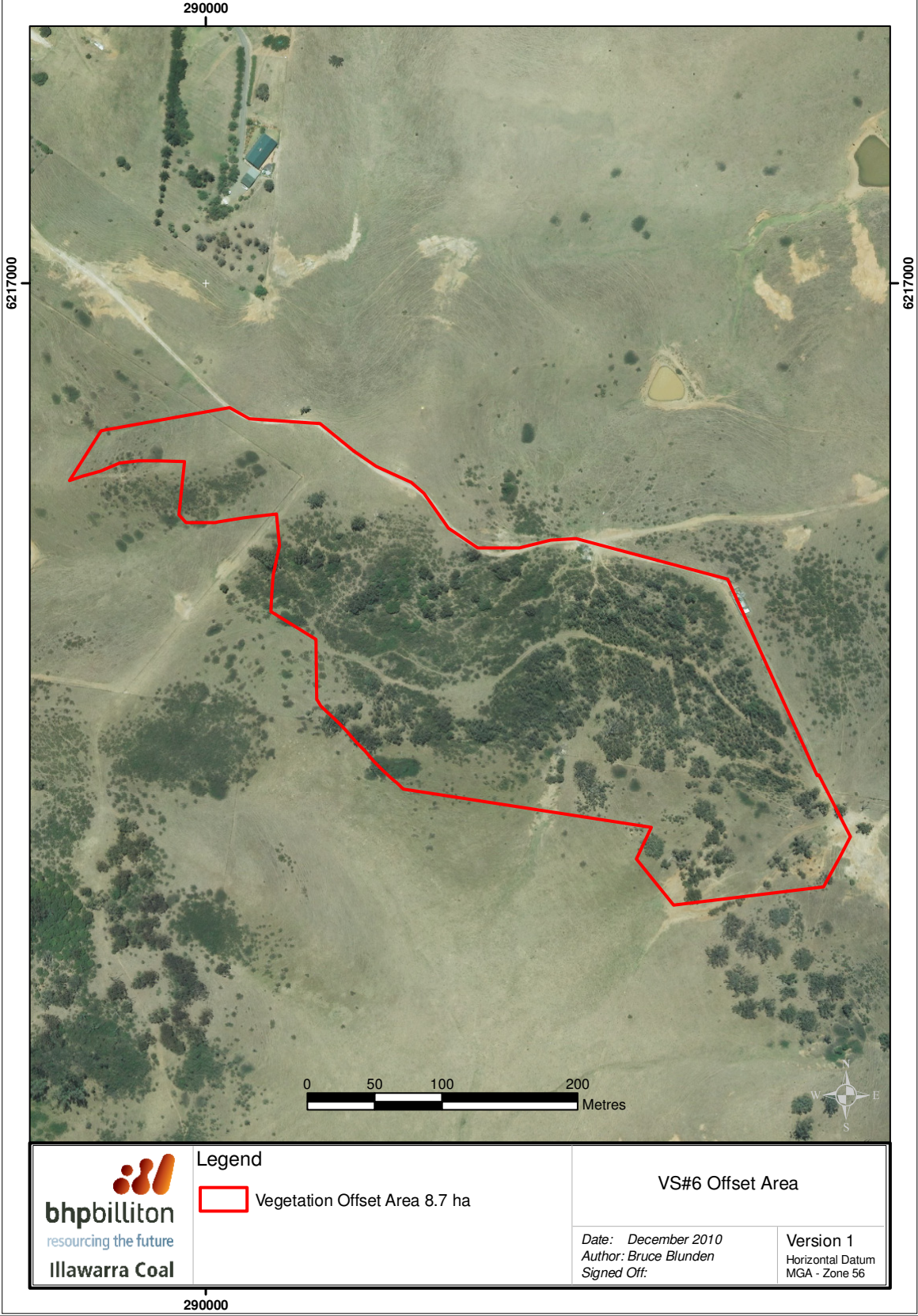
Offset Site (Biobanking Credit Report - 6 December 2010)

Veg Type	Offset Area	Credits Required	Credits Generated per hectare	Biobanking Plots conducted (Y/N)
HN529: Grey box – forest red gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin	8.1	98	12.01	Y

Calculation of Offset Ratio

Veg Type	Impact Area	Credits Required per hectare at Development Site	Credits Generated per hectare at Offset Site	Offset Ratio	Area Required as Offset (ha)
HN529: Grey box – forest red gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin	0.4	65	12.01	5.4	2.16
HN528: Grey box – forest red gum grassy woodland on flats of the Cumberland Plain, Sydney Basin	3.1	25	12.01	2.1	6.51
Total Offset Required					8.67

On the basis of more detailed surveying in the offset area (rather than relying on the reference condition), a revised offset area of 8.67 ha has been calculated. Illawarra Coal has revised the Statement of Commitments (see Appendix B) to account for the revised calculation. A map of the revised offset area is provided below.



Illawarra Coal has committed to the establishment of the offset as part of the Statement of Commitments provided in the Environmental Assessment. The Statement of Commitments will form part of the Project Approval. In conjunction with the post construction rehabilitation and exclusion of grazing from the vent shaft area, the project will give rise to a substantial improvement of the condition and resilience of Cumberland Plains Woodland on the property. Illawarra Coal does not support encumbrances on the land that may restrict its value or use at some future time.

2. Impacts on Threatened Flora and Fauna Species and their Habitats

a. Targeted Threatened Flora and Fauna Surveys

Comprehensive meandering surveys as well as BioBanking quadrats were undertaken in the area to be disturbed. No threatened species were identified during these surveys. Given the degraded state of the existing Cumberland Plains Woodland in the area to be disturbed, the complete absence of any native understory, and the predominance of pasture grass ground cover, we believe that the threatened species identified by DECCW as potentially occurring at this site are not present. Justification for this position is provided below.

With regards to the timing of threatened species surveys identified by DECCW (point 2 part a), it should be noted that either; these plants are not cryptic in nature and therefore are readily detected even when not flowering, or the habitat for the species identified is not present within the development footprint. This is significant as the submission notes that the assessment was undertaken at an inappropriate time of year to detect them. The following should be noted:

1. Sydney Plains Greenhood (*Pterostylis saxicola*) has not previously been recorded within 10km of the study area (see Figure 3 of the Ecological Assessment). Habitat for the species as identified in point 3 of the Final Determination to list the species as Endangered on the Threatened Species Conservation Act 1995 is described as follows:

"Pterostylis saxicola is most commonly found growing in small pockets of shallow soil in depressions on sandstone rock shelves above cliff lines. The vegetation communities above the shelves where *Pterostylis saxicola* occurs are either shale/sandstone transitions or shale communities".

Such habitat may occur within the Nepean River gorge and possibly the Harris Creek gorge but such habitat is not present within the study area.

The species is not entirely cryptic in nature. That is even when not flowering the plants exist as a basal rosette on the soil surface. No *Pterostylis* rosettes were recorded within the study area.

2. Bynoe's Wattle (*Acacia bynoeana*). The threatened species profile for this species describes the habitat for *A. bynoeana* as:

"A. bynoeana occurs mainly in heath and dry sclerophyll forest. The substrate is typically sand and sandy clay, often with ironstone gravels and is usually very infertile and well-

drained. The species seems to prefer open, sometimes slightly disturbed sites such as trail margins, edges of roadside spoil mounds (from grading) and in recently burnt open patches.”

This statement is supported by the distribution of the species within 10km of the study area as outlined in Figure 3 of the Ecological Assessment. Records for the species are known from the sandstone environments near Appin and Wilton in particular. Such habitat is not present within the study area as the soils are derived from Wiannamatta Shales. This statement is supported by the fact that the vegetation of the study area is Cumberland Plains Woodland which is not a sandstone soil tolerant vegetation community.

Further the authors of the ecological assessment have been responsible for the vast majority of *Acacia bynoeana* records detected from the Appin Area and from within the Metropolitan Water Catchment in the past decade and have recorded the species at all times of the year (refer to records from Biosis Research between 1998 and 2009).

3. Bargo Geebung (*Persoonia bargoensis*). Habitat for this species includes:

“Woodland or dry sclerophyll forest on sandstone and on heavier, well drained, loamy, gravelly soils.” These soils are not present within the study area.

Further, this species is not at all cryptic and would have been detected within the disturbance footprint if present.

4. Brown Pomaderris (*Pomaderris brunnea*): Section 3.2 of the ecological assessment identifies this species as occurring in close proximity to the study area and also discounts its presence and likely presence within the disturbance footprint based on the absence of potential habitat.
5. Nodding Geebung (*Persoonia nutans*). Habitat for this species is described as:

“Confined to aeolian and alluvial sediments and occurs in a range of sclerophyll forest and woodland vegetation communities, with the majority of individuals occurring within Agnes Banks Woodland or Castlereagh Scribbly Gum Woodland.”

Such soil types are not present within the study area/disturbance footprint.

Further, this species is not at all cryptic and would have been detected if present within the study area.

In relation to threatened species surveys, it should be noted that subsequent surveys of the offset site that were undertaken in December 2010 have revealed a population of the Endangered Species *Pimelea spicata*. Section 3.2 of the ecological assessment states that the species while not recorded in the study area and not previously recorded within 10 km of the site was considered to have a moderate likelihood of occurrence in the area based on habitat presence. The individual plants recorded in the offset area were not flowering at the time of detection (early December 2010).

The outcomes of the BioBanking Assessment undertaken for the area to be disturbed is provided in Appendix C. This demonstrates that no threatened species were recorded in this area.

In contrast, the Biobanking Assessment undertaken within the offset area has identified a significant population of the endangered species *Pimelea spicata*. *Pimelea spicata* has not been recorded

within 10 km of the site and represents a range extension for *Pimelea spicata*. The recording of *Pimelea spicata* has been incorporated into the BioBanking Assessment calculations that are provided in Appendix C.

Given the absence of threatened species in the area to be disturbed, further consideration of point b (vii) is unwarranted. However, a significant population of *Pimelea spicata* has been recorded in the proposed offset area. This offset area will be managed in accordance with the Vegetation Management Plan that accompanies the Environmental Assessment.

Appendix B

Revised Statement of Commitments

Objective	Commitment
Working Hours – Construction	
Minimise impacts on the local area from construction and site implementation operations.	- BHPBIC will undertake construction of the access road during daylight hours, six (6) days per week (Monday – Saturday) for a period of approximately six (6) months. Some works such as; cutting in the access road into Menangle Road, line marking the intersection and installation of the asphaltic concrete may be implemented over a number of weekends and/or involve nightshift work where the traffic volumes are reduced. - BHPBIC will carry out the sinking of the VS#6 by blind boring 24 hours a day, seven (7) days a week. It is anticipated that the shaft sinking be complete after a period of approximately 18 months. - If VS#6 is unable to achieve the required depth using the 'blind bore' methodology, BHPBIC will construct the remainder of the VS#6 using the conventional sink method. No change in the impacts predicted to occur will result from this contingency, although the construction period may increase. - Lining of the shaft will occur on a 24 hours a day, seven (7) days a week basis. Grouting of the shaft liners will occur during daylight hours.
Working Hours – Operation	
Minimise impacts on the local area from operation of VS#6.	- The VS#6 and associated infrastructure (including fan facilities) will operate 24 hours per day, seven (7) days per week until such time as upcast ventilation is no longer required in the mining domains it is servicing. The anticipated life of the operational phase is ~30 years. - BHPBIC will undertake the delivery of materials to the site during daylight hours, except in times of emergency. - The operation of the service supply boreholes will occur during daylight hours where they may be audible at any residential premises.
Public Consultation	
- Keep local residents informed of BHPBIC operations. - Provide a public opportunity to comment on ongoing operations.	- BHPBIC will continue to liaise with and provide information to the local Douglas Park community via the Douglas Park Advisory Panel or other such community reference group that is deemed appropriate. - BHPBIC will seek to liaise regularly with community representatives regarding traffic management. This is proposed to be done via the establishment of a traffic management sub-committee of the Douglas Park Advisory Panel which will meet as required. - BHPBIC will continue to support the Appin Area Community Working Group (or other such community reference groups that are deemed appropriate) and associated liaison activities to ensure the broader community have an opportunity to raise any questions regarding the VS#6 Project. - BHPBIC will continue to operate the Appin community office (or similar) and maintain a presence also at Douglas Park (currently this is done via twice monthly attendance at the Douglas Park Community Hall) to allow for any public comments or enquiries. - BHPBIC will continue to operate the 24-hour telephone line to provide an alternative method for public information.
Noise	
Minimise noise impacts from the construction	BHPBIC has prepared and will implement a Noise Management Plan for both the construction and operational phases of the VS#6 Project.

Objective	Commitment
and operational phases of the VS#6 Project on receivers.	• BHPBIC will undertake construction of the VS#6 using the blind boring method as the first preference, which will minimise noise impacts. • BHPBIC will orientate the VS#6 fans to discharge away from receivers in the Douglas Park Township. • BHPBIC will install a noise mitigation barrier between the VS#6 fan facilities and Douglas Park Township prior to the commencement of the operational phase of the VS#6 Project. • BHPBIC will specify relevant fan noise levels in tender (or contract) documents to achieve compliance with the determined project specific noise criteria. • BHPBIC will undertake quarterly noise monitoring at specified receiver locations in Douglas Park for the first two years of the VS#6 operation. Where compliance with the project specific noise criteria is demonstrated, monitoring will continue on an annual basis.
Air Quality	
• Minimise impacts from dust on surrounding properties during the construction phase. • Minimise impacts from potential emissions of odour and particulate matter during the operational phase.	• BHPBIC will ensure construction activities are managed to minimise the generation of dust. • BHPBIC shall undertake dust suppression activities (such as the use of a water cart) if and when conditions dictate it to be appropriate. • BHPBIC will seal the access road to minimise dust emissions from its use during the construction and operational phases of the VS#6 Project. • BHPBIC will ensure disturbed areas are rehabilitated or treated appropriately to minimise the potential for dust generation. • BHPBIC will orientate the VS#6 fans to discharge away from sensitive receivers in the Douglas Park Township. • BHPBIC will orientate the VS#6 fans at an angle of ~45 degrees to the vertical to minimise the possibility of air quality impacts during the operational phase.
Greenhouse Gas Emissions	
• Minimise impacts to the environment associated with GHG emissions.	• BHPBIC will ensure all plant and operating equipment is maintained appropriately to minimise fuel consumption and associated emissions. • BHPBIC will minimise electrical power consumption during the operational phases of the VS#6 Project where at all practicable.
Water Resources	
• Minimise impacts on: ○ Surfacewater Quality ○ Surfacewater Supply ○ Groundwater.	• BHPBIC has prepared and will implement a Soil and Water Management Plan for both the construction and operational phases of the VS#6 Project to ensure the appropriate management of water resources during project. • BHPBIC will ensure that stormwater runoff, soil and erosion control measures will be managed in accordance with guidelines detailed in the Landcom Publication, <i>"Soils and Construction" Volume 1, 4th Edition</i>, dated March 2004. • BHPBIC will construct surface water management measures to such a standard as will contain and treat the runoff of a one in 10 year 72 hour storm for the entire construction phase dirty water catchment. • Surface water captured in the sedimentation pond and farm dam will be reused for shaft drilling, other construction purposes, or treated and discharged from the site. • BHPBIC will source water for the VS#6 Project from the Nepean River in accordance with the requirements of the <i>Water Sharing Plan 2010</i> (DECCW 2009) and the <i>Water Management Act 2000</i>. • BHPBIC commit to sourcing water from the Nepean River to an upper limit of 50 ML/year and will do so only by the transfer of existing water access rights from another licensed pump within the Menangle Water Management Zone. • BHPBIC will ensure that additional water required for the VS#6 Project will be sourced from an Authorised Sydney Water supply or from the Appin Mine water

Objective	Commitment
	filtration plant. • The VS#6 will be lined using a combination of concrete and steel to preclude interaction between the shaft and groundwater resources during the operational phase. • BHPBIC will ensure the service supply boreholes are cased with steel and grouted from the ground surface to below the depth of any known regionally significant aquifers. • Drilling process pond waste water will be managed in the underground water management system.
Biodiversity	
• Minimise impacts on native flora, fauna and habitat by appropriate management of: ○ Vegetation Clearing ○ Cumberland Plain Woodland.	• BHPBIC has prepared and will implement a Vegetation Management Plan (VMP) for both the construction and operational phases of the VS#6 Project. • BHPBIC will set aside and manage an offset area of Cumberland Plain Woodland in accordance with the requirements of the VMP. The size of the offset area will be at least 8.67 ha. • BHPBIC will minimise the amount of clearing of native vegetation and mature trees at the site where are all possible. • BHPBIC will undertake a two-stage clearing process for the felling of any hollow bearing trees. • BHPBIC will use vegetation species representative of the Cumberland Plain Woodland in rehabilitation activities where at all practicable.
Heritage (Aboriginal)	
• Minimise impacts on Aboriginal cultural heritage.	• BHPBIC has prepared and will implement a Heritage Management Plan (HMP) for the VS#6 Project. • BHPBIC will ensure that Aboriginal cultural sites will be temporally fenced and avoided during construction where possible. • BHPBIC will ensure that any Aboriginal cultural sites which may be impacted during construction will be managed in accordance with the HMP and in consultation with registered Aboriginal Stakeholders.
Heritage (European)	
• Minimise impacts on non-Aboriginal cultural heritage.	• BHPBIC will manage and conserve the Mountbatten Group in manner consistent with its heritage values. • BHPBIC will ensure that any relics which may be discovered during construction will be assessed and documented by an appropriately qualified cultural heritage expert. Where it is relevant to do so, relics will be retrieved and managed in accordance with any recommendations made by the cultural heritage expert. • BHPBIC will ensure the sympathetic placement of new buildings and structures on the property will continue to be implemented throughout the construction and operational phases of the development. • BHPBIC will ensure that sympathetic finishes and vegetation screening will be used to screen and separate the new buildings and structures from the heritage items. • BHPBIC will ensure that vegetation clearing will be minimised, and should not include historical plantings in the vicinity of the Morton Park: Mountbatten Group. • A management plan for the construction phase of the project has been developed to: ○ describe procedures for the discovery of suspected archaeological relics during the construction phase of the project; ○ describe procedures for heritage impact assessment in the case of unforeseen contingencies that may impact heritage significance beyond

Objective	Commitment
	that assessed in this report.
Traffic	
- Reduce the potential for traffic associated with the proposed development to create congestion. - Minimise potential traffic impacts to the Douglas Park Township from the VS#6 Project. - Protect road safety.	- BHPBIC has prepared and will implement a Traffic Management Plan (TMP) for both the construction and operational phases of the VS#6 Project to minimise traffic impacts and ensure continued road safety. - BHPBIC will construct a site access road and intersection to reduce traffic impacts on Menangle Road as approved by the RTA and/or WSC. - BHPBIC will ensure the Contractor/s implement appropriate warning signs and traffic control measures as required by the TMP. - BHPBIC will ensure a Journey Management Plan is developed by the Contractor/s and approved by the BHPBIC Project Manager prior to the commencement of any works. This plan will guide appropriate controls for movement of drill rigs and other heavy vehicles. - BHPBIC will advise local residents of the commencement of construction works, any related possible disruptions to local traffic through traffic management sub-committee of the Douglas Park Advisory Panel.
Risks and Hazards	
Minimise potential risks to public safety from the proposed development.	- BHPBIC will ensure the Contractor/s abide by the Company HSEC Policies and EMS. - BHPBIC will ensure that the Contractor/s undertake the appropriate investigations with regards to underground service locations prior to the commencement of any excavation works. - BHPBIC will ensure that diesel storages and pipelines on the VS#6 Site are constructed and maintained in accordance with the appropriate Australian Standards (including the installation of bunding and pumps). - BHPBIC will ensure that the appropriate risk management equipment (such as fire fighting facilities and spill kits) are present and maintained on the VS#6 Site and that staff are trained in their use. - BHPBIC will install safety fencing around all excavations and high risk areas of the site (e.g. the switchyard) to mitigate the risks associated with unauthorised access. Vehicular accesses will be gated and locked when not in use.
Waste	
Minimise impacts on the environment associated with waste generation and disposal.	- BHPBIC will minimise waste generation through the emplacement of the shaft spoil material on site for later re-use in shaft rehabilitation. - BHPBIC will beneficially re-use borehole drilling spoil and other excavated material at locations that may include: - On-site for construction purposes - On-site in the shaft spoil emplacement area for rehabilitation purposes - On-site for construction of the noise barrier - At West Cliff Emplacement Area for site capping or rehabilitation. - BHPBIC will appropriately capture and transfer waste to suitable re-use, recycling or disposal locations.
Visual Amenity	
- Minimise the potential visual impact of the development on the surrounding landscape. - Minimise the exposure of offsite receivers to night lighting during the construction phase.	- BHPBIC will minimise the amount of clearing of native vegetation and mature trees at the site where at all possible. - BHPBIC will avoid the use of highly reflective materials and/or colours which are not commensurate with the surrounds in the supply and installation of VS#6 infrastructure. - BHPBIC will include screening trees in any revegetation works, as and where appropriate.

Objective	Commitment
	- BHPBIC will minimise the use of floodlighting to the construction phase of the project where reasonably practical and safe to do so. - BHPBIC will minimise the spill of lighting off-site by directing lighting away from sensitive receivers, ensuring that lights do not shine above the horizontal and ensuring lighting is turned off when not required.
Rehabilitation	
- Reduce long term effects from the proposed development on the natural and cultural heritage of the site. - Ensure public and/or private safety following completion the operation of the VS#6 and boreholes.	- BHPBIC will undertake rehabilitation of any areas disturbed by the VS#6 Project to ensure the environment is returned as close as possible to the pre-development condition and/or to meet landowner specific requirements. - BHPBIC will ensure that the de-commissioning of the boreholes and the shaft will be undertaken in accordance with the requirements of the relevant government department (currently I&I).
Construction Management	
- Minimise impact on environment from construction work. - Ensure employee safety during construction.	- BHPBIC will ensure the Contractor/s abide by the Company HSEC Policies and EMS. - BHPBIC will ensure the successful Contractor/s conduct a Construction Risk Assessment and prepare safe work method statement/s for approval by BHPBIC at the relevant stages of the site work prior to work commencing. - BHPBIC will ensure the Contractor/s will maintain equipment to a safe standard and ensure secure storage. - BHPBIC will ensure all works conducted in accordance with relevant construction legislation and industry leading practice. - BHPBIC will ensure that the Contractor's work force receives the necessary training as per the relevant construction legislation and industry leading practice prior to commencing work on site.

Appendix C

BioBanking Assessment and Credit Report



Step 1a - Enter Assessment Circles

Done

Assessment Circle Number / Name	CMA Subregion	Calculate landscape value score	
A	Cumberland	Enter Threatened Species Sub Zones	
% Native Vegetation Cover in 1000ha Circle:	Before Biobank 31-40%	After Biobank 41-50%	Status: Completed
% Native Vegetation Cover in 100ha Circle:	41-50%	61-70%	
Connectivity Value	Before Biobank >100m-500m	After Biobank >100m-500m	Landscape score: 17.6
Width:			
			Delete this Assessment Circle and Related Threatened Species Sub Zones

Condition:

☒ **Woody vegetation types**

Before Biobank

After Biobank

Over-storey condition:

PFC >25% of lower BM

PFC at BM

Mid-storey or groundcover condition

PFC mid-storey/ground cover >25% of lower BM

PFC of mid-storey/ground cover at BM

☐ **Non woody vegetation types**

Before Biobank

After Biobank

Grassland veg condition:

Add Assessment
Circle



Step 1b - Enter Threatened Species Sub Zones

[Done](#)

Assessment Circle: A

Threatened Species Sub Zone Number: Condition class: Status: Completed

TS Sub Zone Area: ha Ancillary Code: (optional)

Adjacent Remnant Vegetation Area: ha Vegetation Zone: HN528_Moderate/Good

Patch Size, Including Low Condition Veg: ha

[Delete This Sub Zone](#)

Veg Formation:

Choose veg type from the drop-down menu

Veg Type:

Veg Type Name: Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin

Threatened Species Sub Zone Number: Condition class: Status: Completed

TS Sub Zone Area: ha Ancillary Code: (optional)

Adjacent Remnant Vegetation Area: ha Vegetation Zone: HN529_Moderate/Good

Patch Size, Including Low Condition Veg: ha

[Delete This Sub Zone](#)

Veg Formation:

Choose veg type from the drop-down menu

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Veg Type:

Veg Type Name: Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin

Threatened Species Sub Zone Number: Condition class: Status: Completed

TS Sub Zone Area: ha Ancillary Code:

Adjacent Remnant Vegetation Area: ha Vegetation Zone: HN526_Moderate/Good

Patch Size, Including Low Condition Veg: ha

Delete
This Sub
Zone

Veg Formation:

Choose veg type from the drop-down menu

Veg Type:

Veg Type Name: Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin

Threatened Species Sub Zone Number: Condition class: Status: Completed

TS Sub Zone Area: ha Ancillary Code:

Adjacent Remnant Vegetation Area: ha Vegetation Zone: HN556_Moderate/Good

Patch Size, Including Low Condition Veg: ha

Delete
This Sub
Zone

Veg Formation:

Choose veg type from the drop-down menu

Veg Type:

Veg Type Name: Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin

Add New Sub Zone

veg type field
definitions

Export TS sub-
zone data

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Step 2 - Identify Geographic and Habitat Features

[Print Form](#)[Done](#)

Is any part of the biobank site on:

alluvial soils	No
Hollow-bearing trees, bridges, caves or artificial structures within 200 m of riparian zone	Yes
land containing caves or similar structures	No
land situated in damp, disturbed sites	No
land within 100 m of emergent aquatic or riparian vegetation	No
land within 250 m of termite mounds or rock outcrops	Yes
land within 40 m of heath, woodland or forest with sandy or friable soils	No
land within 40 m of rainforest, coastal scrub, riparian or estuarine communities	No
ridgetops	No
land bounded by Western Road, Elizabeth Drive, Devonshire Road and Cross Street, Kemps Creek in the Liverpool LGA in Cumberland CMA subregion	No
land within 5 km of coast in South East Coastal Plains CMA subregion	No

land within Hornsby and Ku-ring-gai Local Government Areas in Yengo CMA subregion

No

land within the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool or Penritht LGAs in Cumberland CMA subregion

No

Biobanking Credit Report

This report identifies the number and type of credits required at a DEVELOPMENT SITE.

Date of report: 23/09/2010 Time: 09:26 Tool Version: 1.1

Development Details

Proposal ID:

Development Name: Appin VS 6

Development Location: Douglas Park

Development Address: Mountbatten Stud, Douglas Park

CMA: Hawkesbury/Nepean

Proponent Name: BHPBIC

Proponent Address:

Proponent Phone:

Assessor Name: Nathan Smith

Assessor Address: PO Box 476, Dee Why NSW

Assessor Phone: 0458000590

Assessor Accreditation Number 0047

The following information is required to be submitted with this BioBanking Statement (where ticked)

- ☐ Local reference data is required for the following vegetation zones
- ☐ An Expert Report for the following species
- ☐ The minimum number of plots were not entered for the following vegetation zones

Improving or maintaining biodiversity value

The proposal has 1 or more Red Flag areas, as listed below:

Red Flag	Reason
Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin	Vegetation type being > 70% cleared; Vegetation type contains an endangered ecological community;
Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin	Vegetation type being > 70% cleared; Vegetation type contains an endangered ecological community;

The development does not improve or maintain biodiversity values and a biobanking statement cannot be issued.



Ecosystem Credits

Vegetation Type

	Area (ha)	Credits Required	Red Flag
Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin [HN528]	3.1	77	Yes
Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin [HN529]	0.4	26	Yes

Credit Profiles

Group: 1 Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin

Ecosystem credits: 77 credits

Total area of vegetation(s): 3.1 ha

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 30%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 100 ha

3. CMA subregion & vegetation types
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Hawkesbury/Nepean

CMA Sub-Region(s)

Cumberland

Yengo

Veg Type(s)

Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin (HN528)

Group: 2 Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin

Ecosystem credits: 26 credits

Total area of vegetation(s): 0.4 ha

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 30%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 100 ha



3. CMA subregion & vegetation types

Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Hawkesbury/Nepean

CMA Sub-Region(s)

Cumberland

Yengo

Veg Type(s)

Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin (HN528)

Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin (HN529)

Species Credits



Biobanking Agreement Credit Report

This report identifies the number and type of credits that may be created at a BIOBANK SITE.

Date of report: 06/12/2010 Time: 21:33 Tool Version: 1.1

Property Details

Proposal ID:

Biobank Name: Appin Shaft Site 6

Biobank Location: Mountbatten Stud

Biobank Address: Douglas Park

CMA: Hawkesbury/Nepean

Landholder Name: BHPBIC

Landholder Address:

Landholder Phone:

Assessor Name: Nathan Smith

Assessor Address: PO Box 476 Dee Why NSW

Assessor Phone: 0458000590

Assessor Accreditation Number 0047

The following information is required to be submitted with this BioBanking Agreement (where ticked)

- ☐ All or part of the biobank site is covered by a covenant, has received govt funding or is crown land
- ☐ Local reference data is required for the following vegetation zones
- ☐ Expert Report for the following species:
- ☐ Justification for request of additional increase in site value score with management for the following vegetation zones:
- ☐ The minimum number of plots were not entered for the following vegetation zones

Ecosystem Credits

Vegetation Type

Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin

Area (ha) Credits created

8.1

98

Credit Profile

Group 1 : Ecosystem credits: 98 credits

p

CMA	Hawkesbury/Nepean
CMA Sub-region	Cumberland (88)
Vegetation type	Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin
Surrounding vegetation cover class	31-70%
Patch size, including low condition	25 - 100 ha

Total area of Vegetation zone(s) included in this group: 8.1 ha



Species Credits

The property is capable of creating species credits for 1 species.

Spiked Rice-flower	<i>Pimelea spicata</i>
Number of Species Credits capable of being created:	600 Credits
Area of habitat:	100 individuals

Additional Management Actions

The following management actions are required at the property. These actions are in addition to the standard management actions required at the property

Feral and/or native herbivore control/ exclusion (eg rabbit, goats, deer etc)	
Spiked Rice-flower	100 individuals
Nutrient Control	
Spiked Rice-flower	100 individuals
Cat and/or Fox control	
Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin (HN529)	8.1 ha
Exclude miscellaneous feral species	
Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin (HN529)	8.1 ha
Feral and/or native herbivore control/ exclusion (eg rabbit, goats, deer etc)	
Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin (HN529)	8.1 ha
Maintain or reintroduce flow regimes (aquatic flora)	
Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin (HN529)	8.1 ha



PlotName	NPS	NOS	NMS	NGCG	NGCS	NGCO	EPC	NTH	
wp260		26	4	28.5	36	4	34	19.5	0
wp262		19	0	30	42	4	26	6	0
wp263		22	1	22.5	44	0	36	6	0
wp264		20	0	21	24	2	40	8	0

OR	FL		Latitude	Longitude	Zone
	0.66	8.5	6261771	290289	56
	0.66	3.5	6216714	290283	56
	0.66	5	6216649	290335	56
	0.66	2.5	6216666	290399	56