Environment Protection and Biodiversity Conservation Act 1999

Referral

for the

Moolarben Coal Project

Ulan, NSW

15 February 2007

Plans Referenced in this Referral

Plan 1 *General location plan*
Plan 2 *Plan of the Moolarben Coal Project (MCP)*
Plan 3 *Aerial Plan of the MCP showing Protected Matters*
Plan 4 *Vegetation Communities of the Project Area*
Plan 5 *Plan of Tenure*
Plan 6 *Plan of proposed future landuse*

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Referral Form

Important Note:

Please read the Referral Guide and associated Fact Sheets (available at http://www.deh.gov.au/epbc) carefully. The guide and Fact Sheets will help you to complete the form correctly and ensure that your referral is in a form that can be processed. The completed form, together with the required maps and any other information you may wish to submit, should be sent to the EPBC Act Referrals Section, Approvals and Wildlife Division, Department of the Environment and Heritage, GPO Box 787, Canberra, ACT, 2601 and/or by email to epbc.referrals@deh.gov.au (see Referral Guide for allowable electronic formats).

1. Contacts and proponent

1.1 Person making the referral
(Note: The term "person" can refer to an individual or a corporation)

The person making the referral can be either the person proposing to take the action, an agent acting on their behalf (eg, a consultant), or a government agency making the referral in relation to an action to be taken by another person. *(Include name, postal address, telephone, fax, email.)*

Mr Alan Wells
Principal
Wells Environmental Services
PO Box 205
EAST MAITLAND NSW 2323

Ph. 02 4934 6588
Fax. 02 4934 6788
Email. akwells@pacific.net.au

1.2 Person(s) proposing to take the action

This is the person who proposes to carry out the action, or who is otherwise responsible for the action. If approval is necessary, this is the person to whom the approval will be granted, and they will be responsible for meeting any conditions of approval. *(Include name postal address, telephone, fax, email – if same as person making the referral, write "as above".)*

Moolarben Coal Mines Pty Limited
PO Box 1320
North Sydney NSW 2060

Ph. 02 9922 3777
Fax. 02 9923 2427

Contact
Mr Ian Callow
Projector Director
Moolarben Coal Mines Pty Limited
Email: icallow@whitemining.com.au

If a corporation is proposing to take the action, please ensure you provide the name of a contact officer for this matter.

1.3 Person(s) who will be the proponent for the action

The proponent is responsible for preparing all documentation for the assessment process, if the action requires approval. If the proponent is the same as the person proposing to take the action, write 'as above'. If the proponent is different from the person proposing to take the action, the signature of both is required (at Section 7.3). *(Include name(s), postal address, telephone, fax, email)*

As Above

If a corporation is the proponent for the action, please also provide the name of a contact officer for this matter.

2. Description of the proposal

2.1 Provide a *summary description* of the action (two or three sentences)

Moolarben Coal Mines Pty Limited (MCM) propose to establish a coal mine and associated infrastructure located approximately 40km north east of Mudgee. By road, the Project Area lies approximately 290 km west of Newcastle and 110 km east of Dubbo. The coal mine known as the Moolarben Coal Project (MCP) consists of a three open cut mines, an underground mine and associated infrastructure generating approximately 10Mpta of product coal for export and domestic markets.

2.2 Details of the *location* of the project area

Where the project is of less than 1 km^2 in size, provide the location as a single pair of latitude and longitude references. Latitude and longitude references should be used instead of AMG and/or digital coordinates.

Locality:

The MCP is located within the northern portion of the western coal fields of New South Wales approximately 40km north east of Mudgee, and east of the Village of Ulan (see **Plan 1**). The MCP is located near the head of the Goulburn River, west of the Goulburn River National Park and north of the Munghorn Gap Nature Reserve. The following coordinates provide the projects geographic boundaries.

North western corner of Project Area (EL 6288)

Latitude:	-32	degrees:	11	minutes	25	seconds:
Longitude:	149	degrees:	44	minutes:	15	seconds:

Where the project area is greater than 1 $km^{2,}$ or any dimension is greater than 1 km, provide additional coordinates to enable accurate identification of the location of the project area.

North eastern corner of Project Area (EL 6288)

Latitude:	-32	degrees:	11	minutes	15	seconds:
Longitude:	149	degrees:	50	minutes:	37	seconds:

South western corner of Project Area (EL 6288)

Latitude:	-32	degrees:	22	minutes	26	seconds:
Longitude:	149	degrees:	44	minutes:	30	seconds:

South eastern corner of Project Area (EL 6288)

Latitude:	-32	degrees:	22	minutes	08	seconds:
Longitude:	149	degrees:	50	minutes:	47	seconds:

Please provide a brief physical description of the project area, including the size of the development footprint or work area in hectares (a more detailed description is required at Part 3 of this form). The street address and cadastral description of the proposed action (if relevant) should also be provided. Identify the Local Government Area in which the development will occur, if relevant.

The Project Area (34.5 km^2 or 3450 ha) (see **Plan 2**) is located within New South Wales Exploration Licence 6288 (EL6288) otherwise referred to as the Study Area that is approximately 110 km^2 (11 000 ha). The project is located wholly within Goulburn River Catchment of the Sydney Basin Bioregion (see **Plan 1**) and lies within the Mid-Western Regional Council local government area.

Attach an A4/A3 size map/plan(s) showing the location and approximate boundaries of the area in which the project is to occur (this map, or a second attached map, should also show features mentioned in responses to questions in Part 3 of this referral, for example, conservation reserves, areas of remnant native vegetation, streams and roads).

2.3 Provide the *timeframe* in which the action is proposed to occur. Include start and finish dates where applicable.

The MCP is scheduled to start construction in the first half of 2007 (subject to approval being granted), with product coal first leaving the site approximately 12-18 months after commencement of construction. The open cut and underground mining will be staged as follows (assuming maximum production):

- Construction – 12 to 18 months;
- Open Cut 1 – Years 1 to 6 after construction;
- Underground No.4 – Construction then Years 2 to 15 after construction;
- Open Cut 2 – Years 6 to 8 after construction; and
- Open Cut 3 – Years 8 to 11 after construction.

2.4 Provide a *description* of the action, including *all activities* proposed to be carried out as part of the proposed action.

The MCP as originally proposed is described in the Environmental Assessment Report and comprises:

- Recovery of some 127 Mt of coal with initial capital investment valued at some $150m;
- Production of some 10 Mtpa of product coal;
- Some 220 construction and 317 full time jobs;
- Three staged open cut mines to produce about 8 Mtpa of ROM coal;
- An underground mine producing about 4 Mtpa of ROM coal;
- Supply of coal to the export and the domestic markets;
- Coal handling, preparation, stockpiling and rail loading facilities to a capacity of up to some 14 Mtpa of coal;
- Mine access roads, internal access roads and haul roads;
- Water management (surface and sub-surface) infrastructure;
- 66kV transmission line and substation;

- Water discharge scheme to the Goulburn River and/or possible water sharing and reuse with adjoining coal mines;
- Overburden and coarse reject within mined-out voids and emplacement areas;
- In pit reject and tailings disposal and emergency tailings storage; and
- Relocation, closure and temporary closure of public roads within the mine area.

The MCP also incorporated a comprehensive offset strategy that included the dedication of lands to the NSW National Park estate, the compensation of lost EEC in a 2:1 (i.e. 130ha : 65ha) like for like offset ratio (MCM are in the progress of locating a further 68ha for dedication to meet the 130ha EEC offset), the commitment to manage and enhance tracts of existing vegetation outside the mining impact footprint and develop Property Vegetation Plans to appropriately manage agricultural lands and existing vegetation in the Project area.

Following the submission of the Environmental Assessment Report to the NSW Department of Planning in September 2006 an Independent Hearing and Assessment Panel (IHAP), consisting of a panel of experts, was formed to investigate noise, subsidence and groundwater impacts arising from the project. As a result of the IHAP and submissions received from the public MCM submitted to the NSW Department of Planning a Response to Submissions report that incorporated a Preferred Project. The Preferred Project includes:

- A preferred Underground Mine Plan that varied from the plan originally proposed in that:
    - The layout will now contain eight (8) longwall panels orientated generally in an east-west direction;
    - Originally proposed longwall panels nine (9) to fourteen (14) will continue to be orientated in a north-south direction; and
    - The northern extremity of longwall panels 9, 13 and 14 are shortened from the northern end.
- The Preferred Underground Mine Plan has the following features:
    - A minimum setback of 500 metres from The Drip;
    - A minimum setback of 450 metres from the Goulburn River Corner Gorge and associated cliffs;
    - Maximum protection to identified important Aboriginal sites; and
    - Reduced exposure to damage to cliff lines in the underground mining area that contain items of aboriginal heritage.
- The Preferred Project also proposes the following additional works:
    - The extension of the southern end of the 15 metre high environmental bund for Open Cut 1 in an easterly direction to provide further acoustical mitigation to residence No 5; and
    - The construction of a 3.5 metre high acoustical barrier between the Open Cut 1 run of mine dump hopper and the village of Ulan; and
    - The construction of a 6 metre high landscaped environmental bund around the western and southern sides of Open Cut 3 facilities.

Further and more detailed information on the project is located in Section 4 of the Environmental Assessment Report and within the Response to Submissions document that incorporates a Preferred Project as attached. These documents are accessible on http://www.moolarbencoal.com.au.

2.5 Provide an *explanation of the context* in which the action is proposed to take place, including any relevant planning framework (for example, relevant management plans or State or Local Government approvals). Indicate whether, and in what way, the action is *related to other actions or proposals* that may have already occurred, are occurring, or are likely to occur, at a future date. You should also provide the name(s) of the Local Council and/or Local Government Area the action will take place in, if relevant.

The project is located within the Mid-Western Regional Council local government area and the provisions of the draft interim Mid Western Regional Environmental Plan 2006 and the Mudgee Local Environmental Plan 1998 apply in respect to the project. The MCP is a permissible form of development under the two environmental planning instruments.

The MCP is a coal mine. Mining is identified within State Environmental Planning Policy (Major Projects) 2005 as a Schedule 1 development and accordingly the MCP is classified as a "major project" under Part 3A (Section 75B) of the NSW Environmental Planning and Assessment (EP&A) Act, 1979.

MCM, while researching the area known as EL 6288, discovered that consent had been issued by the Minister for Planning and Environment on 4 October 1985 for the development of an underground coal mine and associated infrastructure. The Department of Infrastructure, Planning and Natural Resources, by correspondence dated 6 July 2005 advised that the consent was valid and noted that there were a number of practical issues that needed resolution prior to MCM being able to act on the consent.

A Major Projects Application and a Preliminary Assessment were lodged by the proponent under Section 75E of the EP&A Act, 1979 for the MCP with the NSW Department of Planning on 20 December 2005.

On 20 January 2006 the Department of Planning issued the requirements for the project pursuant to Section 75F of the EP&A Act, 1979 which were revised and reissued on 16 March 2006.

The Environmental Assessment Report was lodged with the NSW Department of Planning on Monday 18 September 2006 and was on public exhibition until Monday 23 October 2006.

An Independent Hearing and Assessment Panel was formed to address noise, subsidence and groundwater, the hearing was held in Mudgee on the 7, 8 and 9 November 2006.

On 21 December 2006, MCM lodged a Response to Submissions document that incorporated a preferred project with the NSW Department of Planning. This document addressed issues raised during the public exhibition and also included several project modifications to reduce impacts to the environment.

At the time of lodging this document the NSW Minister for Planning is yet to the determine the application for the MCP.

2.6 If you are considering making a referral of a stage or component of a larger action, you must provide information about the larger action and details of any interdependency between the stages/components and the larger action. If appropriate, you may also provide justification as to why you believe it is reasonable for the proposed action, that is the subject of this referral, to be considered separately from the larger proposal (see the Referral Guide).

Section 74A of the EPBC Act provides that the Environment Minister may not accept a referred action that is a component of a larger action. If the Environment Minister does not accept the referral, he or she is not permitted to make a decision on whether the action is a controlled action. The Environment Minister may request the person proposing to take the action to refer the larger action for consideration under the EPBC Act (see also Fact Sheet).

The MCP as proposed above and submitted for approval to the NSW Department of Planning is an independent economically viable operation, capable of functioning in its own right. Notwithstanding the MCP as proposed is located within a larger exploration licence area of which there are known recoverable coal reserves to the east and north of the proposed project area. These reserves will be the subject of further environmental assessment and determination by the NSW Department of Planning.

3. Description of the project area and the affected area

Note: You must include a *map(s)/plan(s)* clearly showing the location of the action, and any relevant features referred to in 3.1. (A general location map (eg, 1:250 000 scale) and a more detailed map/*plan* showing the elements of the proposal may be appropriate. If available, an aerial photograph or other photograph of the site can be included.)

Plan 1 presents the study area at a broadscale showing relevant features protected under the EPBC Act such as World Heritage Properties, Ramsar Wetlands, National Heritage Places, Commonwealth Marine area and Commonwealth land, conservation reserves/ parks and areas of remnant native vegetation. **Plan 3** presents an aerial view of the study and project area together with the location of known listed threatened species and/or communities and migratory species.

3.1 Describe the affected area referring, as appropriate, to attached maps, plans and aerial photos. In particular, indicate on the map the location of any of the following features: World Heritage properties, National Heritage places, Ramsar wetlands, listed threatened species or communities and/or known habitat for these species or communities, listed migratory species and/or known habitat for these species, Commonwealth marine areas and Commonwealth land, listed Commonwealth Heritage places, conservation reserves/parks, and areas of remnant native vegetation.

Plan 1 shows the location of the Project Area as west of Goulburn River National Park (725 km^2 area) and north of Munghorn Gap Nature Reserve (61.5 km^2 aea), both being conservation reserves belonging to the New South Wales National Park Estate. Wollemi National Park (5,014 km^2), which forms part of the Greater Blue Mountains World Heritage Area, is located approximately 45 km to the southeast of the Project Area. Each of these conservation reserves occur within the greater Hunter River Catchment (i.e. Goulburn River) of the Sydney Basin Bioregion (Environment Australia, 2000). Durridgere State Conservation Area (54.3 km^2) is located 10 km north of the Project Area and lies near the boundary between the Sydney Basin and Brigalow Belt South Bioregions.

The 50 km EPBC Act Protected Matters search centred over the Project Area identified two Wetlands of International Significance (Ramsar sites), these being the Hunter Estuary Wetlands to the east and Macquarie Marshes Nature Reserve to the west. Neither of these features occurs on **Plan 1** as they both lie outside the mapped area (i.e. 100 km east west map extent). Similarly, no Commonwealth marine areas or Commonwealth lands occur within the mapped area shown by **Plan 1**.

Plan 3 illustrates the location of listed threatened species, endangered ecological communities and migratory species relative to the Project Area. Many of these features were observed during recent seasonal surveys conducted in preparation for the impact assessment of the proposed MCP. Threatened species, endangered ecological communities and migratory species known to occur within the Project Area include:

Threatened Plant Species

Tricolor Diuris	*Diuris tricolor*	Vulnerable
Hoary Sunray	*Leucochrysum albicans* var *tricolor*	Endangered
Cannon's Stringybark	*Eucalyptus cannonii*	Vulnerable

Both *Diuris tricolor* and *Eucalyptus cannonii* are known to occur within the area directly impacted by the proposed MCP. The Hoary Sunray (*Leucochrysum albicans* var *tricolor*) occurs within lands adjoining the affected area and will not be directly impacted by the proposed MCP.

Two observations of *Diuris tricolor* occur within and adjacent to the Project Area, with the combined number of records (i.e. two known plants) not forming a viable local population. The habitat of the two individuals forming the local population are severed by extensive agricultural regimes, a land use that has substantially reduced the extent of potential/ known habitat and likelihood of genetic flow between observed individuals.

The two plant specimens are separated by 7 km of highly disturbed agricultural lands, which is prohibitive to pollen exchange by native bees (i.e. genetic flow). It is almost certain that the area and quality of known *Diuris tricolor* habitat within the Project Area will continue to decline in the absence of mining activities, with local extinction being a highly likely event irrespective of the proposed MCP.

The Hoary Sunray (*Leucochrysum albicans* var *tricolor*) was found at a single location containing approximately 10 plants outside the southwestern perimeter of proposed Open Cut 1 impact footprint in woodland dominated by Grey Box (*E. moluccana*) and Narrow-leaved Ironbark (*E. crebra*). Exhaustive surveys throughout similar habitats failed to locate any further populations.

Habitat for Cannon's Stringybark (*Eucalyptus cannonii*) is locally restricted to the confluence between Box Woodlands and Sedimentary Ironbark Forests (i.e. tuffaceous claystone and Marangaroo conglomerate outcrops). Historically, this landscape has been substantially modified by land clearing and grazing activities, which has consequently resulted in the loss, fragmentation and simplification of local habitats.

The proposed MCP will result in the removal of known habitat contained within proposed Open Cut 1. Approximately seven individuals would be removed from this area, leaving a single observed specimen within remnant vegetation located between Open Cuts 2 and 3. Numerous hybrids with Red Stringybark *Eucalyptus macrorhyncha* would also be retained in the post developed landscape.

Threatened Fauna Species

Large-eared Pied Bat	*Chalinolobus dwyeri*	Vulnerable
Greater Long-eared Bat	*Nyctophilus timoriensis*	Vulnerable

Records for both these species occur outside the proposed open cut operations. The Large-eared Pied Bat occurs within the upper reaches of Moolarben and Murragamba Creeks in close proximity to Munghorn Gap Nature Reserve, the area in which roosting habitat is likely to reside. Other areas of known activity by the Large-eared Pied Bat include escarpments and cliff lines located above Underground No 4 and lands to the west where underground mining has and is currently being undertaken (i.e. Ulan Coal operations). The Greater Long-eared Bat was recorded once on the central eastern margin of proposed Underground No.4. Indirect impacts on foraging habitat are expected for these species, with potential changes to roost sites for The Large-eared Pied Bat also expected.

Endangered Ecological Communities

White Box Yellow Box Blakely's Redgum Woodland and derived Grasslands	Critically Endangered Ecological Community (CEEC)

This recently listed critically endangered ecological community occurs within the Project Area, principally south from the Ulan-Wollar Road on the valley floor and adjoining lower terraces where land clearing for agriculture and mining has not totally removed its local presence. Occurrences of this CEEC north of the Ulan-Wollar Road are restricted to alluvial terraces immediately flanking the Goulburn River and selected feeder creeks. Further to the north are larger expanses of this CEEC on basalts of the Merriwa Plateau. The proposed MCP overlaps with the local distribution of this CEEC such that there will be direct (i.e. open cut mining) and indirect (i.e. dust or possible subsidence induced hydrological changes) impacts experienced throughout the duration of the action.

Vegetation associations identified within the Project Area that are consistent with DEHs Identification Guidelines for White Box Yellow Box Blakely's Redgum Grassy Woodlands and derived Grasslands occur within the Box Woodlands, Tableland Redgum Woodlands and Apple Alluvial Forests broad vegetation communities. Shrubbier White Box Woodlands located on the steep infertile midslopes, which have not been cleared for agriculture, do not form part of this vegetation community.

White Box Yellow Box Blakely's Redgum Woodland and derived Grasslands are generally restricted to fragmented remnants throughout the margins of the Project Area's extensively cleared and farmed valley floor, with much of its local distribution being either directly and indirectly modified by agriculture. Isolated occurrences of this CEEC also occur on scattered basalt caps or along selected drainage lines overlying ridgetop Triassic sandstones, where there have been limited impacts from recent agricultural land uses.

Migratory Species

White-throated Needletail	*Hirundapus caudactus*	Migratory Terrestrial Species
Rainbow Bee-eater	*Merops ornatus*	Migratory Terrestrial Species
Satin Flycatcher	*Myiagra cyanoleuca*	Migratory Terrestrial Species
Rufous Fantail	*Rhipidura rufifrons*	Migratory Terrestrial Species

Most of these species were observed throughout the northern, eastern and southern parts of the Study Area. Limited direct impacts are expected on these species.

Listed marine species with known occurrences in the project area include the above listed species in addition to the Great Egret (*Ardea alba*) and Cattle Egret (*Ardea ibis*). However, the consideration of listed marine species only applies to a proposed project that either directly and/or indirectly affects Commonwealth marine areas. As the Project Area is not located within or adjacent to any Commonwealth marine areas and will not have an impact on these areas there will be no assessment of listed marine species.

In addition to the field survey results, the EPBC Act Protected Matters Search identified a number of other threatened species with known or likely habitat within a 50km radius of the Project Area, these being:

-	*Acacia flocktoniae*	Vulnerable
White-flowered Wax Plant	*Cynanchum elegans*	Endangered
Finger Panic Grass	*Digitaria porrecta*	Endangered
Stringybark	*Eucalyptus alligatrix subsp miscella*	Vulnerable
-	*Homoranthus darwinioides*	Vulnerable
-	*Ozothamnus tesselatus*	Vulnerable
-	*Philotheca ericifolia*	Vulnerable
Rufous Pomaderris	*Pomaderris brunnea*	Vulnerable
Bent Pomaderris	*Pomaderris sericea*	Vulnerable
-	*Prostranthera cryptandroides*	Vulnerable
-	*Prostranthera discolor*	Vulnerable
Small Purple-pea	*Swainsona recta*	Endangered

Austral Toadflax	*Thesium australe*	Vulnerable
Wollemi Pine	*Wollemia nobilis*	Vulnerable

Threatened Fauna

Swift Parrot	*Lathamus discolor*	Endangered
Mallee Fowl	*Leipoa ocellata*	Vulnerable
Superb Parrot	*Polytelis swainsonii*	Vulnerable
Australian Painted Snipe	*Rostratula australis*	Vulnerable
Regent Honeyeater	*Xanthomyza phrygia*	Endangered
Tiger Quoll	*Dasyurus maculatus maculatus*	Endangered
Brush-tailed Rock Wallaby	*Petrogale penicillata*	Vulnerable
Grey-headed Flying Fox	*Pteropus poliocephalus*	Vulnerable
Murray Cod	*Maccullochella peelii peelii*	Vulnerable
Sydney Broad-headed Snake	*Hoplocephalus bungaroides*	Vulnerable

At the time of preparing this referral there were no known records of these species within the Project Area despite the completion of an intensive spatially extensive seasonally designed field survey conducted over an 18 month timeframe that was initiated prior to the onset of regional drought conditions. The results of this survey indicate that many of the above listed threatened species are unlikely to occur within the Project Area. Accordingly, the majority of these species will not be further considered in this referral.

However, of these species listed on the EPBC Act Protected Matters Search, it is considered that the following may potentially utilise habitats occurring within the Project Area:

Swift Parrot	*Lathamus discolor*	Endangered
Regent Honeyeater	*Xanthomyza phrygia*	Endangered
Tiger Quoll	*Dasyurus maculatus maculatus*	Endangered

The impacts of the proposed MCP will affect potential habitat for these species, which will be considered in this referral. More detail in relation to these matters is available within the Environmental Assessment Report proposed for the project via www.moolarbencoal.com.au.

There are no listed Commonwealth Heritage Areas within 50km of the project area, as such there will be no impacts to Commonwealth Heritage Areas.

3.2 Provide a *description of important features* of the project area and the affected area and show these on the attached map, including (if relevant to the project area or affected area) information about:

(a) soil and vegetation characteristics;
(b) water flows, including rivers, creeks and impoundments;
(c) the presence of outstanding natural features, including caves;
(d) gradient;
(e) any buildings or other infrastructure;
(f) any marine areas;
(g) kinds of fauna in the area;
(h) the current state of the environment in the area, including information about the extent of erosion, whether the area is infested with weeds or feral animals and whether the area is covered by native vegetation or crops;
(i) known Indigenous heritage values; and
(j) any other characteristics or important features of the receiving environment if the action is by a Commonwealth agency or may affect Commonwealth land.

The description of important features should highlight any attributes of the environment if the action is being undertaken by a Commonwealth agency or will occur on, or potentially affect, Commonwealth land. Important features may include physical, natural, cultural, indigenous or other human attributes and values (see *Principal Significance Guidelines 1.2 for Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* at http://www.deh.gov.au/epbc).

(a) Soils and Vegetation

Seasonal based field surveys conducted over 18 months between December 2004 and April 2006 identified 503 plant species consisting of 429 natives and 74 exotics. Various combinations of these plant species were defined into six broad vegetation communities, as shown in **Plan 4**, these being:

- Disturbed Lands;
- Sedimentary Ironbark Forests;
- Box Woodlands;
- Redgum Woodlands;
- Sedimentary Scribbly Gum Woodlands; and
- Alluvial Apple Forests.

Contained within these broad vegetation classifications are 34 plant associations characterised by one or more of the canopy dominants Broad-leaved Ironbark (*Eucalyptus fibrosa*), Narrow-leaved Ironbark (*E. crebra*), White Box (*E. albens*), Grey Box (*E. moluccana*), Blakely's Redgum (*E. blakelyi*), Inland Scribbly Gum (*E. rossii*) and Rough-barked Apple (*Angophora floribunda*). Less common tree canopy species that typically formed associates with the dominant tree canopy dominants include Yellow Box (*E. melliodora*), Slaty Gum (*E. dawsonii*), Blue-leaved Stringybark (*E. agglomerata*), Narrow-leaved Stringybark (*E. sparsifolia*) and Red Stringybark (*E. macrorhyncha*).

Table 1 identifies the name of the plant associations affected by the proposed MCP and the area to be affected by the proposed MCP. A general discussion of the vegetation cover within the Project Area, relative to the soils, is provided thereafter.

Table 1

Vegetation Association	OC1 (ha)	OC2 (ha)	OC3 (ha)	Main Infrastructure Area (ha)	Total (ha)
20 Broad-leaved Ironbark/ Grey Gum	81.14	0	0	0	81.14
21 Ironbark/ Grey Gum/ Stringybark	61.68	0.13	43.02	0	104.83
22 Ironbark/ Black Cypress Pine	3.11	0	0	0	3.11
23 Black Cypress Pine	6.83	0	0	0	6.83
24 Narrow-leaved Ironbark/ Red Stringybark	4.54	0.21	0	0	4.75
25 Ironbark/ Slaty Gum	18.47	0	0	0	18.47
Sedimentary Ironbark Forests (total for vegetation units 20 - 25)	*175.78*	*0.34*	*43.02*	*0*	*219.14*
30 Yellow Box/ Red Stringybark/ Blakely's Redgum	2.36	14.18	0	2.25	18.8
31 White Box/ Narrow-leaved Ironbark	8.8	0	0	0	8.80
33 Grey Box/ Narrow-leaved Ironbark/ Blakely's Redgum	6.48	0	0	3.17	9.65
34 Grey Box/ Ironbark/ Slaty Gum	0	0	6.14	0	6.14
35 Grey Box/ Ironbark	13.16	1.16	3.08	0	17.41
36 Grassy White Box	0	2.76	0	0	2.76
37 Shrubby White Box	20.52	33.54	11.59	0	65.64

Vegetation Association	OC1 (ha)	OC2 (ha)	OC3 (ha)	Main Infrastructure Area (ha)	Total (ha)
39 Slaty Gum	0	0	8.97	0	8.97
Box Woodlands (total for vegetation units 30 – 39)	*51.31*	*51.65*	*29.78*	*5.83*	*138.56*
40 Blakely's Redgum	19.19	0.58	0	0	19.77
41 Tumbledown Redgum	9.39	0	0	0	9.39
Redgum Woodlands (total for vegetation units 40 and 41)	*28.58*	*0.58*	*0*	*0*	*29.16*
51 Inland Scribbly Gum/ Blue-leaved Stringybark	2.76	0	0	0	2.76
52 Inland Scribbly Gum/ Black Cypress Pine	0	0.28	0	0	0.28
53 Inland Scribbly Gum/ Stringybark/ Ironbark	0	0	0	6.29	6.29
54 Inland Scribbly Gum/ Ironbark	5.59	0	0	0	5.87
Sedimentary Scribbly Gum Woodlands (total for vegetation associations 51-54)	*8.35*	*0.28*	*0*	*6.57*	*15.19*
60 Yellow Box/ Rough-barked Apple	0	0	0	4.9	4.90
61 Rough-barked Apple	0.1	1.05	8.67	0	9.82
Alluvial Apple Forests (total for vegetation associations 60 and 61)	*0.1*	*1.05*	*8.67*	*4.9*	*14.72*
Total	264.1	53.9	81.47	16.61	416.77

Soils with naturally low fertility, which are found mostly on the midslopes and ridgelines, were generally shrubby (i.e. 20-50% cover) with species such as Sifton Bush (*C. arcuata*), Beard Heath (*Leucopogon muticus*), *Acrotriche rigida*, Hop Bush (*Dodonaea* spp.) and Wattles (*Acacia* spp.). Black Cypress Pine (*Cypress endlicherii*) commonly occurred throughout this landscape as a tall shrub (4-8m) and occasional low tree (approximately 10 m). The woody herbaceous groundcover stratum was generally sparse and contained few grasses.

Soils with comparatively higher soil fertility, which occur mostly throughout the valley floor and lower midslopes, were generally less shrubby than the adjoining midslopes and ridgelines (5-40% cover), with shrubbiness increasing with increased gradient. Shrub species commonly occurring throughout these landscapes typically include Sifton Bush (*C. arcuata*), Beard Heath (*L. muticus*) and Wattles (*Acacia* spp.), with Black Cypress Pine (*C. endlicherii*) also frequently observed on conglomerate derived soils. The groundcover stratum was generally grassier, particularly within isolated areas of high soil fertility such as basalt caps and adjoining downslope lands.

The valley floor consists of narrow Quaternary Alluvial soils along major creeklines, which favours the formation of Rough-barked Apple Forests with infrequent Box and Redgum associates. Soils throughout the adjoining terraces generally belonging to the Permian geological formation giving rise to woodlands consisting of Box, Redgum and Ironbark. Occasional conglomerate outcrops referred to as impermeable 'tertiary paleochannels channels' also occur as localised hills throughout the valley floor, which favours the formation of Ironbark and Scribbly Gum Woodlands. Agricultural pursuits within the locality are mostly restricted to the more fertile parts of this landscape, particularly where Box and Redgum Woodlands once existed.

Impoverished soils of the lower and central midslopes are generally derived from Permian conglomerates and claystones leading to the formation of mostly Ironbark – Stringybark dominated vegetation on the conglomerates and shrubby White Box (*E. albens*) on the steeper claystone talus slopes. Ridgelines and upper slopes tend to have skeletal soils of low fertility derived from the underlying Triassic sandstone formation. Broad-leaved Ironbark (*E. fibrosa*) and Black Cypress Pine (*C. endlicherii*) dominate this topographical landscape in the

south, with ridgetop vegetation throughout the northern parts of the Project Area consisting mostly of Scribbly Gum (*E. rossii*) and Black Cypress Pine (*C. endlicherii*).

Basaltic rocky outcrops overlying Triassic sandstones have scattered occurrences throughout the elevated parts of the study area. These localised geological formations permit the occurrence of grassy woodlands dominated almost exclusively by White Box (*E. albens*). Most of these areas have experienced land clearing events since European settlement, with residual remnant vegetation often restricted to derived grasslands and regenerating open woodlands. Localised drainage lines on Triassic sandstones that support a predominantly shrubby Blakely's Redgum Woodland are largely isolated from the main agricultural areas and are consequently relatively unaffected by land clearing events.

(b) Water Flows, including rivers, creeks and impoundment

The site for the MCP is located primarily within the upper Goulburn River catchment. The upper Goulburn River, above the Ulan-Cassilis Road bridge, drains a catchment area of approximately 24,550 hectares. Moolarben Creek is one of many watercourses that drain to the headwaters of the Goulburn River at Ulan. The creek rises at an elevation of 670m AHD and flows in a northerly direction where it joins the Goulburn River at Ulan at an elevation of about 420m AHD.

Two major watercourses run through the MCP. These are the Goulburn River and the Moolarben Creek. The Goulburn River is a major tributary of the Hunter River, joining it downstream of Denman.

Moolarben Creek drains the area south of the Open Cut 3 mine. Spring Creek, a tributary of Moolarben Creek, also drains through the southern corner of Open Cut 3. Part of Open Cut 3 area drains in a north and north-westerly direction towards Lagoon Creek, which is also a tributary of Moolarben Creek. Bora Creek, which is a tributary of the Goulburn River, drains through the proposed location for the main infrastructure area. The Bora Creek catchment extends across part of Open Cut 1 and the Underground No. 4 mine areas.

Runoff on the steep upper slopes above the three proposed open cut mine areas quickly becomes concentrated in numerous small ephemeral watercourses. These watercourses typically peter out at the boundary of the open cut areas where the steep forested slopes meet the lower pastured slopes within the Moolarben Creek/Goulburn River Valley. Runoff continues across these pastured areas either as sheet flow or in ill-defined watercourses towards Moolarben Creek and the Goulburn River.

(c) the presence of outstanding natural features, including caves

There are several publicly visible outstanding natural features in close proximity to the MCP and several less visible features within private property above Underground No.4. Publicly accessible and visible features include "The Drip", Goulburn River Gorge, and numerous unnamed rock overhangs and pagoda type rock outcrops.

The less visible features above the Underground No.4 area include numerous rock overhangs, small cliffs and pagoda type rock outcrops. A large cliff is located toward the centre of the Underground No.4 area.

(d) gradient

The gradient through the study area varies considerably. The Moolarben Valley floor is gently undulating, flanked to the east and west by steep ridge lines containing rocky outcrops and cliffs. The Underground No.4 area is undulating with frequent steep slopes and cliffs.

(e) any buildings or other infrastructure

There are 4 dwellings located within the bounds of the Development Application Area. Two dwellings are located within Open Cut 3 and two above Underground No.4. There are numerous dwellings located on lands surrounding the MCP. MCM have reached purchase agreements or are in negotiations with landowners that will be impacted as a result of the project.

(f) any marine areas

There are no marine areas associated with the Project Area.

(g) kinds of fauna in the area

The seasonal based field survey conducted over 18 months between December 2004 and April 2006 recorded 256 fauna species, including 37 mammals (8 introduced species), 170 birds (3 introduced species), 32 reptiles and 17 amphibians.

The Study Area contains fauna species found in a diverse range woodland types that are located throughout the Great Dividing Range, its western slopes and the sub coastal districts. The proximity of the study area to the coast (i.e. approximately 200 km) has not inhibited the occurrence of fauna species with sub coastal distributions, which is due in part to the relatively low elevation of the Great Dividing Range at this location (i.e. approximately 500 m asl). Similarly, many fauna species exhibiting distributions throughout the western slopes of the Great Dividing Range also exist within the study area.

The kinds of fauna within the Project Area are generally described below, with the descriptions partitioned into two areas, these being lands north and south of the Ulan – Wollar Road.

<u>Lands north of the Ulan – Wollar Road (i.e. Underground 4 and Main Infrastructure Area)</u>

In general, native vegetation across the Study Area's northern extremity is relatively continuous and undisturbed. It consists mostly woodlands on infertile soils derived from Triassic sandstone geological formations, which has consequently biased the resultant fauna composition. Bird species are the most regularly observed fauna group throughout the dry ridgetop woodlands and forests of the Underground 4 area, followed by reptiles, mammals then amphibians.

Birds throughout this part of the Project Area are typical of dry sandstone environment that have limited water and foraging resources. Birds are typically small, wide ranging species capable of utilising patchily distributed resources with commonly observed species including Striated Pardalote, Rufous Whistler, Superb Fairy-wren, Eastern Spinebill, Red Wattlebird, Black-faced Cuckoo-shrike, Eastern Yellow Robin and Grey Shrike-thrush. Many of these species often formed roving cohorts throughout the shrub and sub-tree canopy. Larger bird species were also regularly seen throughout this area including the Glossy-black Cockatoo and Yellow-tailed Black Cockatoo.

The dry, rocky terrain has limited ground habitat complexity for mammals and amphibians. These harsh dry environments were generally suited to reptiles including Bearded Dragon, Mountain Dragon, Copper-tailed Skink, Stone Gecko and Red-naped Snake. However, rock cover was sporadic and unexpectedly limited, with the limited extent of this habitat feature substantially influencing the distribution of these reptile species.

Ground mammals generally consisted of large wide ranging species such as Red-necked Wallaby, Eastern Grey Kangaroo and Echidna. Few smaller mammals such as Antechinus were observed despite intensive trapping. Arboreal species included Sugar Glider, Common Ringtail and Common Brush-tail Possums.

Lands south of the Ulan – Wollar Road (i.e. Open Cuts 1, 2, and 3)

Ridgelines, midslopes and valley floor landscapes occur throughout this part of the Project Area, each having an influence on the contained fauna assemblages. The fauna of these areas is consequently described by landscape.

Valley floor vegetation is generally restricted to the western side of the Project Area where substantial vegetation clearing events for agriculture have induced habitat loss, fragmentation and simplification. A varied disturbance history occurs throughout this landscape including sheep grazing, isolated cropping and coal mining with natural vegetation regeneration also evident in selected areas excluded from these local land uses. The impact of land clearing and agriculture on native vegetation cover and fauna habitats throughout this area has lead to fauna occupation that comprises of mostly species resilient to such condition including Sulphur-crested Cockatoo, Galah, Eastern Rosella, Grass Parrot, Pied Currawong, Australian Magpie, Australian Raven, Noisy Minor, Richards Pipit, Willie Wagtail and Yellow-rumped Thornbill.

Isolated patches of relatively rich fauna communities are mostly restricted to larger vegetation remnants and vegetated edges of the adjoining midslopes such as the area within and adjoining Open Cut 1. These areas consist of species common to the disturbed landscapes of the study area, as previously described, in addition to various sensitive woodland species such as Diamond Firetail, Grey-crowned Babbler, Restless Flycatcher, Speckled Warbler, Southern Whiteface, White-winged Triller, Crested Shrike-tit, Jacky Winter and Rufous Songlark.

Reptiles other than common wide ranging species such as Lace Monitor, Red-bellied Black Snake, Brown Snake and Bearded Dragon were generally absent from the cleared valley floor. Increased species richness occurred only in isolated areas were suitable rock coverage was high such as isolated rock outcrops associated with the Marangaroo conglomerates. Reptiles found north of the Ulan – Wollar Road were more frequently encountered in these areas.

Midslope vegetation consists of Sedimentary Ironbark Forests and Box Woodlands (i.e. Shrubby White Box Woodland). Fauna assemblages within the Sedimentary Ironbark Forests, which also dominated the adjoining ridgelines, were similar to those throughout the dry sclerophyll woodlands north of the Ulan Wollar Road. However, bird species observed in greater abundance throughout this part of the Project Area include Brown Treecreeper, Glossy Black-cockatoo, Rock Warbler, Sacred Kingfisher, Pallid Cuckoo and Weebill.

Reptiles, amphibians and mammals were infrequently observed throughout the Sedimentary Ironbark Forests due to the limited availability of suitable foraging and shelter resources. However, the vegetation of this landscape offered the highest density of arboreal mammals such as the Common Ring-tail and Brush-tail Possums. Amphibian species were primarily restricted to the Banjo Frog, a burrowing species specialised in surviving dry environments.

Honeyeaters were most commonly encountered throughout the Box Woodlands of the Project Area, either on the valley floor or adjoining midslopes. Frequently observed resident honeyeaters include Noisy Friarbird, White-naped Honeyeater, White-headed Honeyeater, Yellow-faced Honeyeater, White-eared Honeyeater, Red Wattlebird, Eastern Spinebill and Spiny-cheeked Honeyeater. Infrequent seasonal species included the Painted Honeyeater, Stripped Honeyeater and Singing Honeyeater. Roaming through the shrubbier Box Woodlands (e.g. Shrubby White Box Woodland on the midslopes) were bird cohorts

including various thornbills, Weebill, Golden and Rufous Whistler, Jacky Winter and Grey Shrike-thrush.

(h) the current state of the environment in the area, including information about the extent of erosion, whether the area is infested with weeds or feral animals and whether the area is covered by native vegetation or crops

The State of the Environment of the Project Area is intrinsically linked with the main land use types, these being coal mining, fodder crops, bee keeping (i.e. Ulan and Wilpinjong coal mining leases), agriculture (i.e. cattle, goats, sheep and wool production) and 'fallow' lands consisting of naturally vegetated, regenerating and cleared lands. A description of the Project Area land uses relative to the affected lands is provided as follows.

Underground 4

The land associated with Underground No. 4 is currently utilised for the grazing of livestock, quarrying, water management and bore field activities associated with the Ulan Coal Mine, housing associated with the Westwood family together with the spelling and training of harness horses (trotters). The northern portion of the Underground No. 4 area also provides legal and practical access to the Mullins-Imrie residence and tourist accommodation known as the Stone Cottages. The area known as "The "Drip" is located immediately north of Underground No. 4 and is used for passive recreation by tourists and local residents.

This area is predominantly covered by native vegetation derived from soils formed on Triassic Sandstones. The intensity of agricultural activities throughout this area is consequently low and focused on areas of settlement these being the Westwood and Mullins-Imrie house sites. Field surveys indicate feral animal activity and weed cover throughout this area is low, which is primarily due to the limited agricultural land uses. Similarly, the extent of native vegetation has also limited the occurrence and acceleration of soil erosion beyond natural conditions. Unnatural erosion events are generally restricted to roads, track and areas of ongoing human activity that has involved vegetation removal.

Infrastructure Area

The lands to be developed as the main Infrastructure area are mostly used for the grazing of livestock. The Gulgong-Sandy Hollow Railway Line forms the land's southern boundary. Given the absence of native vegetation cover and increased intensity of agricultural regimes, there is a notable increase in the presence of weeds, feral animals and soil erosion. Cats, foxes and rabbits represent the main feral animals present throughout this area. Weeds are mostly restricted to road and railway easements, with exotic flora also prevalent throughout the adjoining cleared paddocks. Erosion is generally restricted to Bora Creek where there has been a slight increase in the channel depth of this drainage line.

Open Cut 1

The cleared lands associated with Open Cut 1 are currently used for low intensity grazing of livestock, whilst the Ulan Coal Mine airstrip and internal access roads also traverse the area. Some land within Open Cut 1 forms part of the Ulan Coal Mines' salinity off-set program and is a condition of EPL 394.

Evidence of feral pigs, cats, foxes and dogs have been observed throughout this area during field surveys, with the majority of feral activity located throughout the lower slopes within and immediately adjacent to vegetated lands. The presence of weeds and their coverage is limited throughout this area, which is a direct consequence of low intensity agricultural practices. Conversely, natural regeneration is widely event throughout the cleared parts of open cut 1 where troublesome native environmental weeds such as Sifton Bush (*Cassinia arcuata*) dominate land coverage. Weeds such as Prickly Pear (*Opuntia stricta*) and Twiggy Muelin (*Verbascum* spp.) sporadically occur along the southwestern boundary of the open cut 1 environmental bund on soils derived from Quaternary Alluviums and Quartz monzonites.

Open Cuts 2 and 3

Lands associated with Open Cuts 2 and 3 are owned by the Swords, Mayberry and Rayner families who undertake agriculture in the form of livestock grazing and breeding (sheep, cattle and goats), fodder crop production and bee keeping. The intensity of agricultural activities within these areas has lead to an increased abundance of feral animals and weed species. Feral cats are abundant throughout these proposed mining areas, as are rabbits particularly around the properties homesteads. Feral goats are also found throughout the adjacent vegetated ridgelines that border the eastern margin of Open Cuts 2 and 3.

General Locality

Land located west, north and east of the Project Area is a mix of ‘broad acre’ agriculture, rabbit farming, hobby farms, boutique tourist accommodation, coal mining and the ICI explosives plant. Generally, these agricultural areas of share similarities with the agricultural lands found throughout Open Cuts 2 and 3. However, agricultural lands located west of the Project Area occur on different geological formations that are highly susceptible to soil erosion.

The Goulburn River National Park and Munghorn Gap Nature Reserve are located immediately east of the Study Area. These lands are typically undeveloped and accordingly have limited exposure to soil erosion. However, feral animals such as wild pigs are common throughout selected parts of these conservation reserves, particularly along drainage lines located nearby agricultural lands with semi-permanent and permanent water supplies.

Summary of MCP DA Area Biophysical Environment

Broad Vegetation Type and Quality	Habitat Value
Disturbed Vegetation All mapped vegetation classified as this broad vegetation type is regarded as highly disturbed due to previous clearing, earthworks, mining, weed invasions and pasture management. The vegetation within this TSU is not representative of any native vegetation community. However, portions of this vegetation may contain elevated native plant species richness where it adjoins fertile landscapes such as basalt caps, thereby forming highly localised native grasslands of varying condition.	No natural threatened flora habitats exist within this vegetation type, with the occurrence of threatened flora generally an artefact of disturbance. *Diuris tricolor* occurs within disturbed landscapes. Unimproved grasslands within this TSU are notable habitat for a number of small seed and insect eating threatened bird species, in particular the Hooded Robin, Diamond Firetail and Brown Treecreeper. These grasslands are also likely to be of some foraging value for other 'declining woodland birds', the threatened Square-tailed Kite, Gilbert's Whistler, Black-chinned Honeyeater, and some microchiropteran bat species. Generally limited habitat value for native fauna, providing only occasional opportunistic resources, and in the case of some road-sides, potential movement corridors for more disturbance-tolerant species.
Sedimentary Ironbark Forests This broad vegetation type is predominantly void of weeds due to the limited amount of agriculture within these areas, the upslope position of these forests relative to agricultural activities and generally low soil fertility. Logging is evident throughout nearly all occurrences of this vegetation, presumably a consequence of timber harvesting for fence posts and mine props supporting the Ulan underground development. The vegetation is predominantly intact despite past disturbances and fragmentation by clearing sustained clearing events throughout the valley floor. The shrub understorey is dominated by sclerophyllous species, in particular *Acrotriche rigida*.	Threatened flora habitats are restricted to the Marrangaroo conglomerate outcrop located immediately adjacent to alluvial and carboniferous geological formations along the western boundary of the MCP area. Notable species include Capertee Stringybark *Eucalyptus cannonii* and *Diuris tricolor*. Notable habitat for Speckled Warbler. Broad-leaved Ironbark/Black Cypress Pine vegetation associations appear to be of notable value for the Glossy Black Cockatoo, although it is likely that habitat value for this species depends partly on the distribution of suitable *Allocasuarina* feed trees. Other important fauna utilising this TSU include the Powerful Owl and Black-chinned Honeyeater.
Box Woodlands A variety of anthropogenic influences have adversely impacted the Box Woodlands of the study area. Logging and/or broad scale clearing has resulted in the patchy fragmented occurrence of this vegetation type within the study area. The majority of Box Woodlands share a boundary with Disturbed Vegetation, resulting in a localised disturbed boundary of varying depths that has promoted various exotic flora and weedy natives such as Catsear *Hypochaeris* spp., Prairie Grass *Bromus* spp., *Vulpia* spp. and Sifton Bush *C. arcuata*. The latter species is a prolific pioneer native occupying disturbed environs, with the densities potentially having a negative influence on natural regeneration regimes.	Threatened flora habitats are generally restricted to the Carboniferous geological formation located along the western boundary of the MCP area. Notable species include Hoary Sunray *Leucochrysum albicans* var *tricolor*. White Box Yellow Box Blakely's Redgum Grassy Woodland also occurs within this broad vegetation type. This vegetation types contains 'declining woodland birds' habitat such as Brown Treecreeper, Speckled Warbler, Grey-crowned Babbler, Black-chinned Honeyeater and Diamond Firetail. Box Woodlands provide known and/or likely habitat for a wide range of other important/ threatened fauna species, including the Square-tailed Kite, Gang Gang Cockatoo, Glossy Black Cockatoo, Swift Parrot, Turquoise Parrot, Painted Honeyeater, Regent Honeyeater, Squirrel Glider, and microchiropteran bat species.
Tableland Redgum Woodlands The majority of this broad vegetation type remains intact despite the occurrence of past land clearing events for agricultural lands. The least disturbed remnants are associated with land parcels having a limited boundary with disturbed lands and/or limited quantity of land clearing in the preceding catchment. Weeds are generally low in abundance and are restricted to species	Blakely's Red Gum Woodland is also considered to form part of the White Box Yellow Box Blakely's Redgum Grassy Woodland EEC.This vegetation type is likely to represent habitat for declining woodland birds and microchiropteran bat species.

Broad Vegetation Type and Quality	Habitat Value
capable of occupying moist soils Sifton Bush *Cassinia arcuata* occasionally forms a dominant shrub species in areas where the disturbance history is more pronounced. Generally, the logging of this vegetation has been limited mostly to firewood collection, as the trunks of these redgums are generally unsuitable for structural purposes.	
Sedimentary Scribbly Gum Woodlands This vegetation type is predominantly void of weeds due to the limited amount of agriculture within these areas, the upslope position of these woodlands relative to the surrounding agricultural activities and generally low soil fertility. Logging is evident throughout selected parts of this vegetation type, presumably a consequence of timber harvesting for fence posts and mine props supporting the Ulan underground development. The vegetation is predominantly intact despite past disturbances such as track construction works and exploration drilling for coal. Consequently, weeds are generally restricted to track margins and ephemeral creeklines.	This vegetation type supports a high diversity of fauna species and 'declining woodland birds'. It is of notable value for the Glossy Black Cockatoo. It is likely that habitat for the Glossy Black Cockatoo depends partly on the distribution of suitable *Allocasuarina* feed trees contained throughout the ridgetops of this vegetation type.
Alluvial Apple Forests The majority of this vegetation has either been cleared for agriculture. Existing occurrences of this vegetation type are a mix of natural and regenerating vegetation, with Rough-barked Apple Woodlands often dominating previous cleared lands on sandy soils. Weeds are generally low in abundance and are restricted to species capable of occupying sandy soils. Sifton Bush Cassinia arcuata occasionally forms a dominant shrub species in areas where the disturbance history is more pronounced.	Components of this vegetation contain subunit vegetation associations that are considered to form part of the White Box Yellow Box Blakely's Redgum Grassy Woodland CEEC. This vegetation type provides habitat for most declining woodland bird species found within the locality.

(i) known Indigenous heritage values

The Indigenous Heritage Values of the Project Area were investigated and reported in the Environmental Assessment Report. The report identified the most concentrated areas of indigenous occupation at Moolarben Creek near Open Cut 3, the northern ridge lines of Underground No.4, the area along the Goulburn River near the Drip, and along Bora Creek near the main infrastructure area.

The occupation was demonstrated in several ways including occasional rock art and axe grinding grooves, scattered artefacts and isolated finds.

(j) any other characteristics or important features of the receiving environment if the action is by a Commonwealth agency or may affect Commonwealth land.

Not Applicable

3.3 What is the *tenure* of the project area (for example is it freehold, leasehold or some other tenure)? If practicable, show on the attached map.

The tenure of the project area is illustrated in **Plan 5**.

Tenure of the project area is predominantly freehold, with exception of crown land located above Underground No.4, in Open Cut 1, and unformed crown lands that traverse the project area. Freehold lands are predominantly owned by mining interests including Ulan Coal Mine and Moolarben Coal Mine. Other freehold lands within the project area are currently under negotiation.

The project area is covered by the coal mining Exploration Licence EL6288 held by Moolarben Coal Mines Pty Limited. Several other quarrying tenements (extraction and exploration) are in the project area and are held by Dronvisa Pty Limited.

3.4 What are the current and/or proposed *land uses* for the project area?

Existing Land Use

The land associated with Underground No. 4 is currently utilised for the grazing of livestock, quarrying, water management and bore field activities associated with the Ulan Coal Mine, housing associated with the Westwood family together with the spelling and training of harness horses (trotters). The northern portion of the Underground No. 4 area also provides legal and practical access to the Mullins-Imrie residence and tourist accommodation known as the Stone Cottages. The area known as "The "Drip" is located immediately north of Underground No. 4 and is used for passive recreation by tourists and local residents.

The lands to be developed as the main Infrastructure area are used for the grazing of livestock. The Gulgong-Sandy Hollow Railway Line forms the land's southern boundary.

Lands associated with Open Cut 1 are currently used for grazing of livestock, whilst the Ulan Coal Mine airstrip and internal access roads traverse the area. Some land within Open Cut 1 forms part of the Ulan Coal Mines' salinity off-set program and is a condition of Environmental Protection License 394.

Lands associated with Open Cuts 2 and 3 are owned by the Swords, Mayberry and Rayner families who undertake agriculture in the form of livestock grazing and breeding (sheep, cattle and goats), fodder crop production and bee keeping.

The Village of Ulan contains 17 dwellings, one school, hotel and tourist accommodation, two churches, one community hall and recreational facilities, water cartage contractor, electrical substation, cemetery, rural fire station, weather station and PM_{10} monitoring site and the Ulan Coal Mine's Flannery Centre. The proposed Open Cut 1 Mine is located less than 2km south-east of the village.

Land located west, north and east of the MCP is a mix of 'broad acre' agriculture, rabbit farming, hobby farms, boutique tourist accommodation, coal mining and the ICI explosives plant. The Goulburn River National Park and Munghorn Gap Nature Reserve are located immediately east of the EL 6288. The "Drip" picnic area and the Hands on Rock Aboriginal cultural walk are located north of the proposed underground mine.

The existing land use is generally consistent with the provisions of the Mudgee Local Environmental Plan 1998.

Proposed Land Use

Plan 6 illustrates the proposed land use at completion of mining.

Scope exists within the project to firmly establish long term future land use for those lands impacted as a consequence of mining. It is envisaged that land use in the Moolarben Creek valley will be a continuation of "broad acre" farms for those lands associated with Open Cuts 2 and 3.

At the conclusion of mining, Open Cuts 2 and 3 can be rehabilitated with grass and vegetation that permits livestock grazing and embellishment of vegetation that integrates with the adjoining north – south trending ridge lines. Significant improvements to existing remnant stands of vegetation can provide habitat linkages in north – south and east – west directions to increase the area's long term bio-diversity values and attributes.

The area's long term bio-diversity values can be achieved through the preparation and implementation of Farm Management Plans in conjunction with Voluntary Conservation Agreements linked to the title of the lands.

The surface area of the Underground No. 4 mine will be left intact whilst the main headings could be extended in a northerly direction beneath the Goulburn River to access the northern portion of EL 6288.

Infrastructure associated with the CHPP and Open Cut 1 facilities may be utilised for future mining activities associated with the coal reserves of EL 6288.

In any event, the long term land use will be consistent with the land use provisions of the relevant Mid-Western Regional Council planning instrument and state environmental planning policies.

4. Nature and extent of the likely impacts of the action

4.1 Describe, as relevant to your project, the nature and extent of *likely impacts* on the following matters of national environmental significance protected by the EPBC Act:

(a) the world heritage values of a declared World Heritage property; or
(b) the heritage values of a listed National Heritage place; or
(c) the ecological character of a declared Ramsar wetland; or
(d) the members of a listed threatened species (except a conservation-dependent species) or any threatened ecological community, or their habitat, or
(e) the members of a listed migratory species or their habitat; or
(f) the environment in part of the Commonwealth marine area.

(a) the world heritage values of a declared World Heritage property; or

The Wollemi National Park component of the Greater Blue Mountains Area is the nearest World Heritage Area to the Project Area being located 45 km to the southeast. It is separated (buffered) from the Project Area by agricultural landscapes and Munghorn Gap Nature Reserve. Most project impacts will be restricted to the project area, with no expectation of any direct or indirect impacts on this protected matter.

(b) the heritage values of a listed National Heritage place; or

There are no listed National Heritage areas that occur within the EPBC Protected Matters search area (i.e. 50 km radius). No direct and/or indirect impact areas arising from the proposed project are expected on this protected matter. Accordingly, no further consideration of this matter is presented within this referral.

(c) the ecological character of a declared Ramsar wetland; or

Two Ramsar wetland sites occur within the EPBC Protected Matters search area (i.e. 50 km radius), these being the Hunter Estuary Wetlands and Macquarie Marsh Conservation Reserve. The Environmental Assessment Report prepared under New South Wales environmental legislation involved extensive groundwater and surface water modelling of the mines influence on affected hydrological regimes, which concluded no significant direct or indirect impacts on any wetlands. These Ramsar sites are at least 180 km from the Project Area (i.e. nearest being the Hunter Estuary Ramsar sites between Maitland and Newcastle) and will not be adversely impact by the proposed MCP. Accordingly, no further consideration of this matter is presented in this referral.

(d) the members of a listed threatened species (except a conservation-dependent species) or any threatened ecological community, or their habitat, or

The Project Area is known to contain EPBC Act listed threatened species and endangered ecological communities. A discussion of the projects impacts on these species and ecological communities is provided as follows.

Threatened Plant Species

Tricolor Diuris ***Diuris tricolor*** **Vulnerable**

Exhaustive targeted survey was completed for this species during an exceptionally good flowering period, as evidenced by extensive vigorous flowering concurrently observed throughout the Muswellbrook *Diuris tricolor* population, resulting in the identification of two plant specimens. The proposed MCP will result in the loss of at least one of the two plant specimens identified within the Project Area,. Survey adequately covered important habitat, particularly those areas that will be impacted by the proposed development.

The impact analysis has considered the following influences on this plant population that may arise from the proposed MCP:

Clearing: The proposed MCP will result in the direct loss of one specimen and its immediate habitat from the MCP DA area. It is estimated that the project would result in the loss of approximately 50% of the local population (one specimen out of two observed within the study area) and its associated habitat.

Dust: Increased dust levels would occur near remaining populations. Reduced photosynthesis may temporarily decrease plant vigour and reproduction success.

Permanent/ Irreversible: The impacts are irreversible and are permanent.

The proposed MCP will not significantly impact the longterm lifecycle of this species or its regional and national status. It is considered that the local population is not viable, as a consequence of current unrelated disturbance regimes, and is likely to become locally extinct as a consequence of these disturbance regimes.

Hoary Sunray ***Leucochrysum albicans* var *tricolor*** **Endangered**

The impact analysis has considered the following influences on this plant population that may arise from the proposed MCP:

Clearing: The proposal will not result remove any known specimens of the Hoary Sunray *Leucochrysum albicans var. tricolor* and its habitat.

Dust: Increased dust levels would occur near the known population. Reduced photosynthesis may temporarily decrease plant vigour and reproduction success.

Permanent/ Irreversible: The impacts are reversible and temporary.

The proposed MCP will not significantly impact the longterm lifecycle of this species within the local area. No known habitat r specimens are to be removed as a consequence of mining or related activities. Proactive management is proposed to ensure this outcome.

Cannon's Stringybark ***Eucalyptus cannonii*** **Vulnerable**

The proposal will remove local habitats as it occurs generally along the coal outcrop (i.e. tuffaceous claystones and Marangaroo conglomerates). Native vegetation located on the Marrangaroo conglomerates, which lies below the coal seam outcrop, would also be impacted by infrastructure such as environmental bunds and haul roads. Overall the proposed MCP would reduce the local habitats for this species.

The following has been considered in the impact analysis:

Clearing: The proposal would result in the direct loss of seven specimens and its immediate habitat from the MCP DA area. It is estimated that the project would result in the loss of approximately 87% of the local population (one specimen out of eight observed within the study area).

Dust: Limited to no impact expected on remaining individuals.

Permanent/ Irreversible: The impacts are permanent and reversible.

The proposal will not significantly impact the longterm lifecycle of this species within the local area as it is considered that the current population is manageable to the extent where genetic material can be

conserved through seed collection, propagation and reintroduction in revegetation/ rehabilitation programs.

Threatened Fauna Species

Large-eared Pied Bat ***Chalinolobus dwyeri*** **Vulnerable**

The Large-eared Pied Bat is sporadically located throughout the Project Area, with recorded locations including unaffected lands east of Open Cut 3 in the Moolarben and Murragamba Creek catchments and affected lands above Underground 4. However, this loss of potential foraging habitat is minor compared with the residual areas of potential and known habitat retained after the completion of the proposed MCP.

The Large-eared Pied Bat is likely to forage over most vegetation types within the study area. A localised reduction of potential foraging habitat will occur throughout lands affected by Open Cuts 1, 2 and 3, calculated to be approximately 416ha. This loss would be a graduated, temporary and reversible loss (i.e. staged loss through progressive mining and rehabilitation works). In addition, extensive areas of potential foraging habitat for this species that occur elsewhere in the locality and region will be unaffected throughout the duration of the proposed MCP, (i.e. Goulburn River National Park and Munghorn Gap Nature Reserve).

Underground mining activities will result in subsidence impacts that may result in some surface cracking and may de-stabilise some cliff areas. Some small caves and crevices may be damaged or lost, whilst others would be created with the net long term effect being little change in habitat availability and suitability. While there will be an impact on roosting habitat throughout this area, it is expected that there would be no long-term loss of potential roosting features for the Large-eared Pied Bat, a prediction based on the persistence of this species throughout land affected by extensive underground mining operations conducted by Ulan Coal to the west (Mount King Ecological, 2003). The proposed mine is not likely to affect caves of particular value for 'important populations' of this species.

The proposed MCP will not foreseeablely lead to a long-term decrease in the size of any important populations; reduce the area of occupancy of the populations; cause fragmentation of the populations; adversely affect critical habitat; disrupt the breeding cycle of the populations; affect habitat to the extent that the species is likely to decline; result in establishment of invasive species; or interfere with the recovery of the species.

Greater Long-eared Bat ***Nyctophilus timoriensis*** **Vulnerable**

The Greater Long-eared Bat was recorded once within the study area within tree hollow rich habitats located near the central eastern boundary of Underground 4. The local habitat type appears restricted to old growth Blakely's Redgum vegetation within a riparian corridor of origin within Goulburn River National Park. Observations at this location are likely to represent an important population.

Underground mining activities will result in subsidence impacts that may result in some surface cracking and de-stabilise some cliff areas. This species is not known to use caves for roost sites, and is therefore unaffected by any potential change to this habitat feature. Roost habitat is primarily assocaited with tree hollows and dense tree/ shrub canopy, which will remain relatively unaffected by the proposed MCP.

Foraging habitat is expected to remain relatively intact during and after the completion of underground mining activities. Fauna monitoring of the Ulan underground mining operation to the west of the Project Area has shown that vegetation structure and assocaited fauna habitats have remained relatively intact with little change recorded during the 10 year monitoring period (Mount King Ecological, 2003). Accordingly, it is considered that the proposed mining operations will have no identifiable adverse impact on local foraging resources for the Greater Long-eared Bat.

The proposed MCP will not foreseeablely lead to a long-term decrease in the size of any important populations; reduce the area of occupancy of the populations; cause fragmentation of the populations; adversely affect critical habitat; disrupt the breeding cycle of the populations; affect habitat to the extent that the species is likely to decline; result in establishment of invasive species; or interfere with the recovery of the species.

Endangered Ecological Communities

White Box Yellow Box Blakely's Redgum Woodland and derived Grasslands — Critically Endangered Ecological Community

The following has been considered in the impact analysis:

Clearing: Using the DEH guidelines to assess the impact of the proposed MCP it has been determined that 64.68 ha of White Box Yellow Box Blakely's Redgum Grassy Woodlands and derived Grasslands will be removed from the locality, compared with 786.24ha contained within the study area. **Table 2** quantifies the loss of White Box Yellow Box Blakely's Redgum Grassy Woodlands and derived Grasslands as a result of the MCP segmented by impact area.

Table 2

Vegetation Association	OC1 (ha)	OC2 (ha)	OC3 (ha)	Infrastructure (ha)	Total (ha)
Yellow Box/ Red Stringybark/ Blakely's Redgum	2.36	14.18	0.00	2.25	18.8
White Box/ Narrow-leaved Ironbark	8.80	0.00	0.00	0.00	8.80
Grey Box/ Narrow-leaved Ironbark/ Blakely's Redgum	6.48	0.00	0.00	3.17	9.65
Grassy White Box	0.00	2.76	0.00	0.00	2.76
Blakely's Redgum	19.19	0.58	0.00	0.00	19.77
Yellow Box/ Rough-barked Apple	0.00	0.00	0.00	4.90	4.90
Total	36.83	17.52	0.00	10.73	64.68

Table 3 identifies the currently known extent of White Box Yellow Box Blakely's Redgum Grassy Woodlands and derived Grasslands within the study and project areas. It also presents the percentage loss of this CEEC from the study and project areas as a consequence of the MCP.

Table 3

Vegetation Association	Total in Study Area (ha)	Loss from Study Area (%)	Total in Project Area (ha)	Loss from Project Area (%)
Yellow Box/ Red Stringybark/ Blakely's Redgum	59.63	31.53	36.71	51.21
White Box/ Narrow-leaved Ironbark	30.56	28.80	8.80	100.00
Grey Box/ Narrow-leaved Ironbark/ Blakely's Redgum	180.04	5.36	46.94	20.56
Grassy White Box	98.22	2.81	7.67	35.97
Blakely's Redgum	325.70	6.07	130.75	15.12
Yellow Box/ Rough-barked Apple	92.11	5.32	28.72	17.06
Total	786.24	8.27	259.6	25.07

Dust: Increased dust levels would occur near the known population. Reduced photosynthesis may temporarily decrease plant vigour and reproduction success.

Hydrological regimes: Increased water ponding is predicted for some drainage lines located above proposed Underground 4. It is predicted that the resultant change will favour moisture tolerant species, which already occur within this environment (i.e. Blakely's Redgum Woodland vegetation). No accelerated tree death is expected as a consequence of this increased ponding. The density of

selected shrub and grass species (i.e. *Melaleuca thymifolia* and *Arundinella nepalensis*) may increase with the elevated water ponding.

Permanent/ Irreversible: The impacts are reversible and temporary.

Targeted mitigation strategies are proposed to manage the impact of the proposed MCP on this CEEC. Agreed outcomes arranged with the NSW Department of Environment and Conservation has secured an achievable sustainable locally focused mitigation package to ensure that this CEEC is not significantly impacted by the proposed MCP. More detail in relation to these matters is available within Section 5 of this referral and the Environmental Assessment Report proposed for the project via www.moolarbencoal.com.au.

(e) the members of a listed migratory species or their habitat; or

Four listed migratory species were located within the Project Area during the seasonal studies, these being the White-throated Needle-tail, Rainbow Bee-eater, Satin Flycatcher and Rufous Fantail. These findings are consistent with the Department of Environment and Conservation (DEC) Wildlife Atlas Database (2006), with both the Project Area survey data and DEC (2006) records indicating the most frequently occurring species being the Rainbow Bee-eater during summer (i.e. October - March).

Based on vegetation mapping and record locations (12 observations in Project Area and 13 observations in DEC Wildlife Atlas database), local habitat for these migratory species is broadly defined as woodlands dominated by or containing Inland Scribbly Gum (*E. rossii*), Black Cypress Pine (*C. endlicherii*) and Ironbark species. Two observations coincided with open woodland dominated by Grey Box (*E. moluccana*) and Slaty Gum (*E. dawsonii*) adjacent too but not within proposed open cut 3.

None of the records collected during the 18 month survey or records contained within the DEC (2006) database coincide with the affected area. Further, broad habitat as defined above is mostly excluded from the affected area, with large tracts of Inland Scribbly Gum (*E. rossii*), Black Cypress Pine (*C. endlicherii*) and Ironbark dominated vegetation to be retained in the post developed landscape without adverse impacts. Accordingly, it is considered that the proposed MCP will not adversely impact the listed migratory species and their local habitats considered in this assessment.

(f) the environment in part of the Commonwealth marine area.

No Commonwealth marine areas occur within the EPBC Protected Matters search area (i.e. 50 km radius). No direct and/or indirect impact areas arising from the proposed project are expected on this protected matter. Accordingly, no further consideration of this matter is presented within this referral.

4.2 Describe, as relevant to your project, the nature and extent of likely impacts on the environment for the following category of proposed actions (in addition to the specific matters addressed above in 4.1):

(a) a nuclear action; or

Not relevant to the MCP

(b) an action by the Commonwealth or by a Commonwealth agency; or

The MCP does not constitute a nuclear action

(c) an action that will be taken on Commonwealth land or that may affect Commonwealth land; or

No Commonwealth lands are located within the Study Area.

(d) an action taken by the Commonwealth or by a Commonwealth agency that may affect a listed Commonwealth Heritage place or a place listed on the Register of the National Estate.

Not Relevant

Other Considerations

MCM has considered the total Scope 1, 2 and 3 greenhouse gas (GHG) emissions that may occur as a result of the operation of the Moolarben Coal Project (refer Appendix A14 by Holmes Air Sciences in the Response to Submissions Document). The anticipated effect of the GHG emissions generated from the project on climate change in the context of global warming is insignificant given the vast number of contributing sources and global scale of the issue. Further given the unmeasurably small impact of GHG emissions from the project on global climate change the Project satisfies the principles of ecologically sustainable development.

5. Measures aimed at avoiding or reducing significant impacts on matters protected under the EPBC Act

5.1 Describe any specific measures proposed as part of the action to avoid or lessen significant impacts on matters protected under the EPBC Act. Include a timeframe or workplan for implementation of any relevant measures.

Examples of relevant measures may include the timing of works to avoid critical periods for listed species, avoidance of habitat important for listed species from direct and indirect impacts, application of specific design measures to avoid or reduce impacts, or adoption of specific work practices to reduce or avoid impacts (see Referral Guide, Fact Sheet and 'Particular Manner' Guideline at http://www.deh.gov.au/epbc).

The preferred mitigation strategy has been developed to deliver a net positive benefit for local biodiversity despite the loss of native vegetation and fauna habitats to the MCP. The key elements of the mitigation strategy are:

- Avoidance of ecologically important values;
- Dedication of significant ecological values to the conservation reserve network;
- Increase the net native vegetation cover within the locality;
- Enhance the contained ecological values within existing native vegetation;
- Conserve important ecological habitats through the salvage of fauna habitats contained within the open cuts and consequential emplacement throughout rehabilitated/ revegetated landscapes;
- Enter into a Voluntary Planning Agreement over existing native vegetation and revegetated/ rehabilitated landscapes to provide a secure long term beneficial outcome for local biodiversity; and
- Undertake extensive monitoring, with the results used to improve management practices.

The mitigation package is summarised in **Table 4**.

Table 4: MCP Ecology Mitigation Strategy.

Area (ha)	Mitigation Strategy
19	Avoidance of White Box Yellow Box Blakely's Redgum Woodland EEC
130	Dedication of 2:1 White Box Yellow Box Blakely's Redgum Woodland EEC to conservation network (currently seeking a further 68ha to meet the 130ha EEC like for like offset)
24	Avoidance of non-EEC native vegetation
143	Dedication of non-EEC native vegetation to the conservation reserve network
38	Dedication of potential revegetated lands to conservation reserve network
144	Revegetation Works
370	Rehabilitation Works
1262	Extent of native vegetation excluded from the MCP
1726	Extent of Voluntary Conservation Area

The total extent of mitigation represented by the extent of the dedication to Goulburn River National Park and Voluntary Conservation Agreements is 2037 ha.

The preferred ecological mitigation strategy and final land use for the MCP is shown by **Plan 4**.

MCP Ecology Management

MCM will prepare and implement a Construction Flora, Fauna and Aquatic Management Plan (CFFAMP) and Flora, Fauna and Aquatic Management Plan (FFAMP) for the operational and closure phases of the MCP. The implementation of the management plans will result in the maintenance and improvement of local biodiversity, specifically threatened species, migratory species and endangered ecological communities in this regard, specific mitigation will involve the following:

Tricolor Diuris

Management proposed includes the retention and monitoring of the remaining plant specimen and its immediate habitat in addition to the retention and revegetation of cleared agricultural lands that may inevitably foster potential habitat.

Hoary Sunray

Proactive management regimes implemented as a consequence of environmentally substantial mining practices will substantially reduce the influence of current disturbance regimes on the habitat of this species (i.e. Plans of Management and monitoring). Existing detrimental disturbance regimes include cattle grazing, selective logging and grazing by feral animals (ie rabbits). Targeted management regimes will apply to residual retained habitats such as lands containing known habitat for this species and revegetated/ rehabilitated lands that may represent future habitat.

Cannon's Stringybark

Seed collection and propagation from specimens located within the affected area for use in the revegetation and rehabilitation of landscapes will maintain genetic integrity of local population. The population size will be sustainably expanded into revegetated/ rehabilitated landscapes as a consequence of this mitigation approach.

White Box Yellow Box Blakely's Redgum Woodland and derived Grasslands

Immediate mitigation is proposed prior to the initiation of mining to offset the impact of the proposed MCP. Mitigation primarily involves a 'like for like' dedication of this CEEC, at a ratio of 2:1, to the New South Wales conservation reserve network. During and after the activity there will be local revegetation works, management and conservation outcomes within the Project Area, hence resulting in a no net loss outcome. Post mine site rehabilitation within open cut 1 is proposed, with the balance of rehabilitation works focused on the re-establishment of this CEEC.

The proposed mitigation approach will provide immediate and longterm strategies that will restore, maintain and enhance the local coverage of this CEEC. Conservation outcomes are also proposed to guarantee the retention of this CEEC within its prescribed distribution. Longterm strategies include including revegetation, rehabilitation and enhancement works will improve the general health and distribution of this CEEC throughout the locality. Areas suitable for revegetation works have been identified throughout the adjoining agricultural landscape including creeklines and cleared lands adjoining existing and retained remnants of this CEEC.

Further detail on the MCP mitigation strategy has been provided within Appendix 11 of the Environmental Assessment Report and within the Response to Submissions document that incorporates a Preferred Project.

5.2 Describe any consultations undertaken with Indigenous stakeholders regarding the action, if relevant. Identify relevant stakeholders and the status of consultations at the time of referral.

Not Applicable

6. Information sources

6.1 List relevant references

You should also attach a copy of any relevant reports or documents that support the arguments and conclusions made in this referral. For example, any flora and fauna surveys or desktop investigations should be provided.

Environment Australia (2000). Revision of the Interim Biogeographic Regionalisation of Australia (IBRA) and the Development of Version 5.1. - Summary Report. Department of Environment and Heritage, Canberra.

DEC (2006). Wildlife Atlas Database Search of the Study Area. DEC, Hurstville.

Mount King Ecological (2003) Ulan Underground Mine Extensions – Terrestrial And Aquatic Fauna Monitoring Survey Programme To Satisfy Conditions Of Consent For ML 1341 and ML 1468. Report to Ulan Coal, Ulan.

Wells Environmental Services (2006a) Environmental Assessment, Moolarben Coal Project (Volumes 1 to 5). Prepared for Moolarben Coal Mines Pty Limited, September 2006. www.moolarbencoal.com.au.

Wells Environmental Services (2006a) Response to Submissions incorporating a Preferred Project, Moolarben Coal Project. Prepared for Moolarben Coal Mines Pty Limited, December 2006. www.moolarbencoal.com.au.

6.2 For information given in sections 3 and 4 of this referral, please indicate:

(a) the source of the information; and

All information was sourced form the references referred to in Section 6.1.

(b) how recent the information is; and

The preparation of the above documentation and collection of data was undertaken during 2005 and 2006, utilising the most recent available data and available information. The finalisation of the Environmental Assessment was in September 2006 and the Response to Submissions Report in December 2006.

(c) how the reliability of the information was tested; and

The reliability of the information within the Environmental Assessment has been tested by public exhibition through the NSW Department of Planning in September 2006 after successful reviews by key NSW government agencies during adequacy reviews.

The Environmental Assessment was also tested through repeated consultation with the NSW Department of Planning, NSW Department of Environment and Conservation, NSW Department of Natural Resources and other relevant stakeholders.

Database searches for threatened and migratory species, as presented in **Plan 3**, utilised data obtained under license from the Department of Environment and Conservation. Omissions and errors occurring within this data are quantified (i.e. accuracy statements), with data plotted on **Plan 3** having an accuracy rating of between 5-1000 m.

(d) any uncertainties in the information.

Data collection and reporting within the Environmental Assessment Report has been undertaken in accordance with industry and government guidelines and policies. Uncertainties in the data have been limited through the adherence to these guidelines and policies.

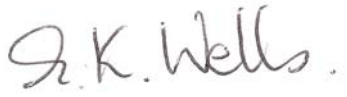
7. Signatures and Declarations

Section 489 of the EPBC Act states that the provision of false or misleading information is an offence punishable on conviction by imprisonment and fine.

7.1. Signature of person making the referral

I ……Mr Alan Wells……(*full name*), declare that the information contained in this form is, to my knowledge, true and not misleading.

Signature



Date 15 February 2007

7.2. Signature of person proposing to take the action

I, ……Mr Ian Callow…… (*full name*), declare that the information contained in this form is, to my knowledge, true and not misleading.

Signature

Date 15 February 2007

7.3. Declaration of person nominated as proponent in Section 1.3, if different from person proposing to take the action

I, ……(*full name*), being (or agent acting on behalf of) the person nominated in Section 1.3 of this referral form as the nominated proponent agree to be designated as the proponent for the action described above if it is decided that the action requires approval under Part 9 of the EPBC Act.

Signature

Date

Signature of person proposing to take the action

Date

Fill in Section 7.4 if you believe that the proposal is not likely to have a significant impact on matters protected by the EPBC Act and that the proposal is therefore not a controlled action. Fill in Section 7.5 if you believe that the proposal is likely to have a significant impact on a protected matter and that the proposal is therefore a controlled action. (Note: This Section must be completed in *all cases* except where the referral is made by a State or Territory or a Commonwealth agency in relation to an action to be taken by another person.)

7.4. ***If you think your proposed action is not likely to have a significant impact on any of the matters listed in the table below, then you should select and complete the following statement and you should not mark any of the boxes in the table below.***

I …… Mr Alan Wells…….*(full name*), being the person making this referral and the person proposing to take the action (or agent acting on behalf of the person) believe that the action described in this referral **is not a controlled action.**

Briefly provide reasons why you believe your proposed action is not a controlled action:
(Note: For an explanation of the term "controlled action", see the Referral Guide.)

With regard to threatened species (Endangered and Vulnerable) listed under the EPBC Act, the Moolarben Coal Project would not in the long term:

- lead to a long-term decrease in the size of a population, or
- reduce the area of occupancy of the species, or
- fragment an existing population into two or more populations, or
- adversely affect habitat critical to the survival of a species, or
- disrupt the breeding cycle of a population, or
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or
- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the threatened species habitat, or
- interfere with the recovery of the species.

There may be some short term adverse impacts, particularly relating to loss and modification of habitat, but none likely to threaten the long-term survival or viability of the threatened species in the locality.

With regard to the critically endangered ecological community, White Box Yellow Box Blakely's Redgum Grassy Woodland and derived grasslands, listed under the EPBC Act, the Moolarben Coal Project would not in the long term:

- lead to a long-term adverse affect on an ecological community, or
- reduce the extent of a community, or
- fragment an occurrence of the community, or
- adversely affect habitat critical to the survival of an ecological community, or

- modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for the community's survival, or

- result in invasive species that are harmful to the critically endangered or endangered community becoming established in an occurrence of the community, or

- interfere with the recovery of an ecological community.

There will be some short term adverse impacts, particularly relating to loss and modification of habitat, but none likely to threaten the long-term survival or viability of the ecological community in the locality.

With regard to migratory species listed under the EPBC Act, the Moolarben Coal Project would not in the long term:

- substantially modify, destroy or isolate an area of important habitat of the migratory species, or

- result in invasive species that is harmful to the migratory species becoming established in an area of important habitat of the migratory species, or

- seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of the species.

There may be some short term adverse impacts, particularly relating to loss and modification of habitat, but none likely to threaten the long-term survival or viability of the migratory species in the locality. Extensive mitigation is proposed to manage these biological impacts including:

- Avoidance of certain sensitive locations;

- Revegetation of currently disturbed/ cleared riparian corridors;

- Re-establishment of valley floor vegetation through revegetation works, particularly in the south, to maintain the presence of local habitats and improve poor wildlife connectivity between existing large vegetation remnants and Munghorn Gap Nature Reserve.

- Dedication of lands containing White Box Yellow Box Blakely's Redgum Grassy Woodland and derived grasslands CEEC to the NSW conservation reserve network in a ratio of 2:1 to provide immediate offsets for the expected 65ha loss (i.e. 130 ha dedication);

- Implementation of various management plans to guide the implementation of these mitigation works and to improve the existing biological values of offsite native vegetation through various enhancement works such as the control of feral animals, weeds and soil erosion; and

- Implementation of a monitoring program together with an event response protocol, as described in the various management plans, to address unforseen circumstances.

These proposed mitigation strategies are well described in the Environmental Assessment Report for the MCP and have been consolidated into a 'Statement of Commitments' by which MCM's will comply with to maximise the likelihood of the predicted outcomes.

OR

7.5. ***If you think that your proposed action is likely to have a significant impact on any of the matters listed in the table below, then you should select and complete the following statement. You must then mark 'Yes' against those matters on which you think it will have a significant impact, in the table below.***

I …….*(full name*), being the person making this referral and the person proposing to take the action (or agent acting on behalf of the person) believe that the action described in this referral **is a controlled action because of the following provisions of the Act**:

Significant Impact Likely	**Controlling Provision**
	World Heritage property (Sections 12 and 15A - significant impacts on the values of a World Heritage property)
	National Heritage places (Sections 15B and 15C – significant impacts on the values of a National Heritage place)
	Ramsar Wetland (Sections 16 and 17B - significant impacts on the ecological character of a Ramsar wetland)
	Threatened species or ecological communities (Section 18 and Section 18A - significant impacts on a listed threatened species or a listed threatened ecological community)
	Migratory species (Sections 20 and 20A - significant impacts on a listed migratory species)
	Nuclear action (Sections 21 and 22A - nuclear actions)
	Commonwealth marine area (Sections 23, 24 and 24A - actions relating to the Commonwealth marine area and fishing in coastal waters managed by the Commonwealth)
	Commonwealth land (Sections 26 and 27A - actions relating to Commonwealth land)
	Commonwealth action (Section 28 - actions by the Commonwealth having a

	significant impact on the environment)

Briefly provide reasons why you believe your proposed action is a controlled action:
(Note: For an explanation of the term "controlled action", see the Referral Guide.)

If the person making this referral is, or is representing, a *small business* (a business having fewer than 20 employees), please provide an estimate of the time taken to complete this form.

Please Include

- The time spent reading the instructions, working on the questions and obtaining the information; and
- The time spent by all employees in collecting and providing this information.

65 hours - minutes

END OF FORM