

Date: 31 May 2021

Our ref: 19MUD-13864

Ulan Coal Mines Pty Ltd  
Environment and Community Coordinator  
4505 Ulan Rd  
Ulan NSW 2850

Attention: Brad Tanswell

Dear Brad,

**RE: Alternative Offset Assessment – suitability of proposed alternative offset area as a suitable replacement for the privately owned portion of Brokenback Conservation Area – Area 2.**

#### BACKGROUND

Ulan Coal (the project) is an Open Cut and Underground coal mine located near the town of Ulan, NSW.

The NSW Department of Planning, Industry and Environment (DPI&E) initially approved the project in 2010. The project has been subject to several modifications, with the most recent project approval (Modification 5) was issued in August 2020. Project Approval (PA) 08\_0184 was subject to several conditions relating to biodiversity as presented in **Appendix A**.

Due to impacts to Matters of National Environmental Significance (MNES) listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the project was subject to assessment by the Commonwealth Department of Agriculture, Water and Environment (DAWE) (Previously Department of Sustainability, Environment, Water, Population and Communities). The EPBC approval (EPBC 2009/5252) was granted on 30 November 2010, as presented in **Appendix B**.

Ulan Coal Mines Pty Limited (UCMPL) is required, under PA 08\_0184 and EPBC Approval 2009/5252, to provide biodiversity offsets to compensate for impacts from the project (and its associated approval modifications). A Biodiversity Offset Strategy was presented in the project Environmental Assessment (EA) by Umwelt (2009), which proposed the following offset areas (containing either cliffline habitats, native vegetation or Endangered Ecological Communities (EECs)) to compensate for impacts to biodiversity:

- Spring Gully Cliffline Management Area (273 ha native vegetation including 9 km cliffline habitat)

- Brokenback Conservation Area (BCA) (58 ha native vegetation including 3 km cliffline habitat) – inclusive of BCA – Area 1 (UCMPL owned), Brokenback Conservation Reserve- Area 3 (located on Crown Land) and BCA – Area 2 (privately owned)
- Bobadeen Vegetation Offset Area and Bobadeen East Corridor (1,125 ha of native vegetation including 278 ha of EEC)
- Bobadeen East Offset Area (229 ha of native vegetation including 169 ha of EEC)
- Highett Road *Acacia ausfeldii* (Ausfeld’s Wattle) Management Area (19.1 ha, including a stand of Ausfeld’s Wattle)

**Table 1** outlines the current status of security of the UCMPL biodiversity offset areas.

**Table 1: Current status of approved biodiversity offset areas**

Offset Area	Area (ha)	Type	Execution date
Spring Gully Cliffline Conservation Reserve	272.3	Crown Land Reservation - Gazettal	6 December 2019
BCA – Area 1	21.9	Voluntary Conservation Agreement between UCMPL and NSW DPI&E- Biodiversity Conservation Division (BCD, formerly OEH)	7 May 2019
Brokenback Conservation Reserve (Area 3)	27.7	Crown Land Reservation - Gazettal	6 December 2019
BCA – Area 2	10	Not yet defined	Not completed
Bobadeen Vegetation Offset Area, including Bobadeen East	1,369.8	Voluntary Conservation Agreement between UCMPL and NSW DPI&E - BCD	7 May 2019
Highett Road <i>Acacia ausfeldii</i> Management Area	19.1	Voluntary Conservation Agreement between UCMPL and NSW DPI&E - BCD	7 May 2019

As can be seen in **Table 1**, all offset areas, with the exception of the 10 hectare portion of BCA – Area 2 (privately owned portion of Brokenback CA), have been secured. The area that has not yet been secured accounts for approximately 0.6% of the total agreed offset package for the mine.

Agreement with the owner of the land upon which BCA – Area 2 is located was unable to be reached due to the complex and far reaching requirements that are now understood as expected of such agreements. An alternative offset area to BCA – Area 2, known as the Area of Investigation for alternate offset, has been investigated to determine its suitability as a replacement for BCA – Area 2 and its compliance with existing approval requirements. The locations of the BCA (BCA – Area 1, Brokenback Conservation Reserve (Area 3) and BCA – Area 2), the Area of Investigation for alternate offset and the proposed alternative offset area are shown in Figure 1 below.

The next sections describe the process used to review the objectives originally proposed for the BCA, specifically BCA – Area 2 and the statutory requirements of PA 08\_0184 and EPBC approval 2009/5252 and consider the suitability of the proposed alternative offset area in meeting these requirements.

## OBJECTIVES

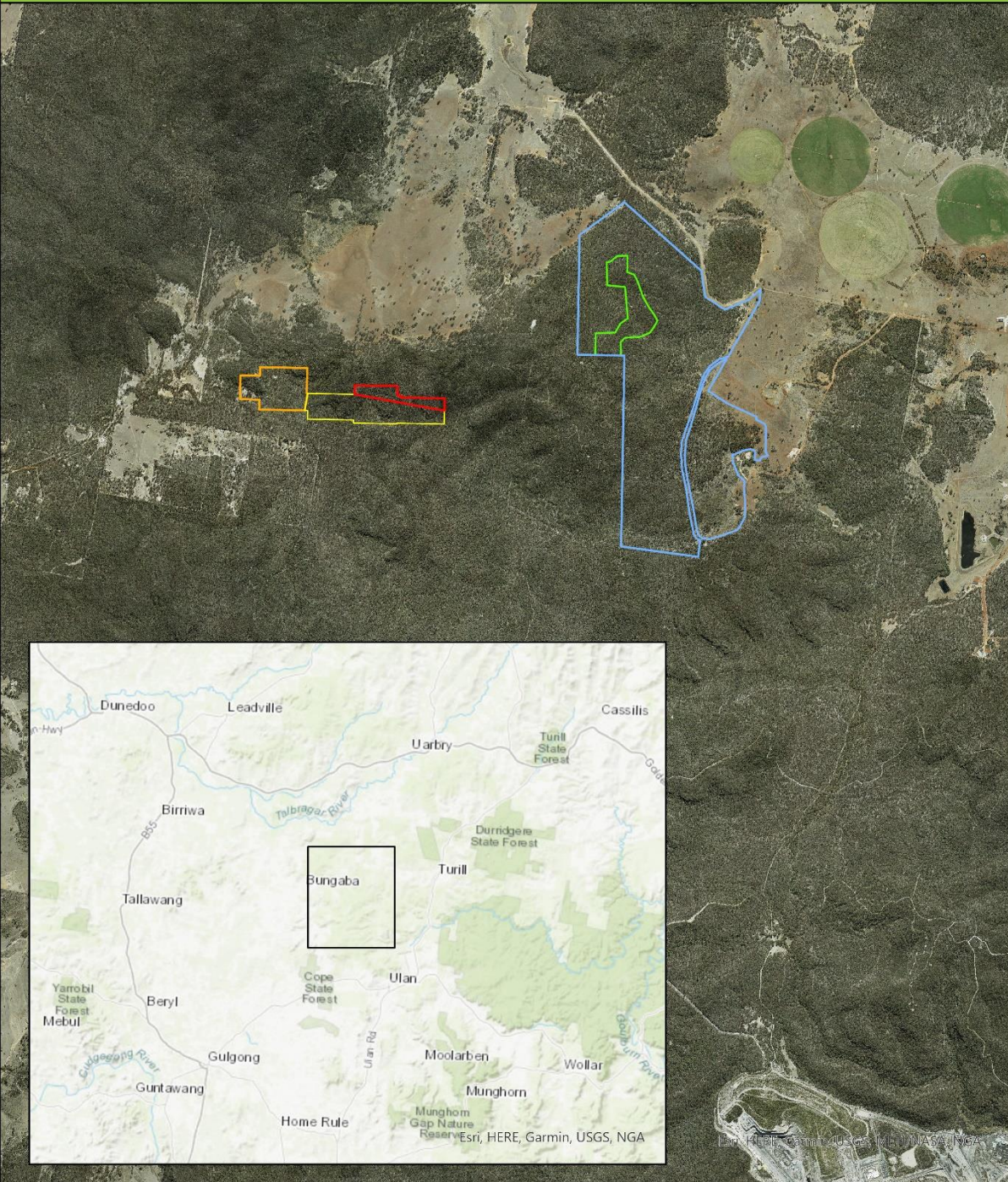
The BCA was proposed to:

- provide for the protection and management of cliffline areas (including associated cave habitat) to mitigate the impact from the Open Cut operation and subsidence-related impacts, such as rockfall
- protect and enhance fauna habitat within the management areas for cave dependent fauna species
- provide appropriate monitoring to ensure mitigation strategies are effective (Umwelt, 2009).

In addition to these objectives, in respect of the BCA, UCMPL are required to comply with certain conditions of PA 08\_0184 that relate to the biodiversity offsets (extracted in **Appendix A**) and also with the relevant conditions of EPBC 2009/5252 (extracted in **Appendix B**). The BCA is currently monitored and managed in accordance with the UCMPL Biodiversity Management Plan (UCMPL, 2019).

For the purposes of this report, 'cliffline' refers to areas of continuous rock face, including overhangs, having a minimum height of 10 meters and a slope greater than 66°.

**Brokenback Conservation Area, Area of Investigation for Alternative Offset Area and the Proposed Alternative Offset Area**



**Legend**

- Proposed Alternative Offset Area
- Area of investigation for Alternative Offset
- Brokenback Conservation Area - Area 1
- Brokenback Conservation Area - Area 2
- Brokenback Conservation Reserve - Area 3

0 0.375 0.75 1.5  
 Kilometres  
 Datum/Projection:  
 GDA 1994 MGA Zone 55

N  
  
 A TETRA TECH COMPANY  
 Prepared by: RC Date: 5/31/2021

**Figure 1: Location of Brokenback Conservation Area, area of investigation for alternate offset and the proposed alternative offset area**

## BIODIVERSITY VALUES WITHIN BCA - AREA 2

### **Plant Community Types (PCTs)**

BCA – Area 2 contains approximately 10.29 ha of native vegetation. A breakdown of Plant Community Types (PCTs) and their areas within BCA – Area 2 are shown in **Table 2**.

The vegetation present within BCA – Area 2 is in good condition as confirmed during field survey for development of the Conservation Agreement. Additionally, the Brokenback Conservation Area is mapped as being within Management Zone 1 – Benchmark Vegetation within the UCMPL Biodiversity Management Plan (UCMPL, 2019). Vegetation present within Management Zone 1 areas is relatively intact, in good condition and has high species richness (UCMPL, 2019).

There are no Threatened Ecological Communities (TECs)/Endangered Ecological Communities (EECs) present within BCA – Area 2.

**Table 2: PCTs within BCA – Area 2**

PCT	PCT Name	Area (ha)
478	Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	3.67
479	Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	3.75
481	Rough-barked Apple - Blakely's Red Gum - Narrow-leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest on in the southern Brigalow Belt South Bioregion and Upper Hunter region	2.87
<b>Total</b>		<b>10.29</b>

### **Presence of weeds, feral animals, disturbances and threats**

Weed cover and weed species richness across the BCA – Area 2 is very low, with only three exotic species, *Conyza bonariensis* (Fleabane), *Cirsium vulgare* (Spear Thistle) and *Petrorhagia nanteuilii*, previously recorded at floristic monitoring locations within the BCA – Area 2. These species are not listed as Priority weeds under the Local Land Services *Central Tablelands Regional Strategic Weed Management Plan* (CTRSWMP) (LLS 2017).

No feral animals have been previously recorded within the BCA – Area 2. Furthermore, there is no evidence of rubbish dumping, derelict buildings or infrastructure, recreational vehicle use, intensive agricultural land use, broad scale vegetation clearing or recent fire history (<10 years) within the BCA – Area 2.

## **Clifflines**

BCA – Area 2 contains approximately 0.8 km of cliffline length which includes numerous caves. The EA recognised that the BCA provides substantial ecological benefit by reducing the extent of impact on clifflines which are likely to provide habitat for threatened cave dwelling bats (Umwelt, 2009).

## **Threatened species habitat**

The BCA was recognised within the EA as providing caves and other structures considered likely to provide habitat for microbats (Umwelt, 2009). During development of the EA for the Ulan Coal Continued Operations Project (UCCOP) (Umwelt, 2009), several threatened fauna species were identified within the wider project area that are reliant on cliffline and cave habitats, including:

- Brush-tailed rock-wallaby (*Petrogale penicillata*), which is reliant on rocky cliff line areas as refuge habitat from predators; and
- Cave dependent micro-bat species that are reliant on caves and associated cliff line areas for breeding and roosting habitat (Umwelt 2009), including the
  - Large-eared Pied Bat (*Chalinolobus dwyeri*),
  - Eastern Bentwing-bat (*Miniopterus orianae oceanensis*),
  - Little Pied Bat (*Chalinolobus picatus*),
  - Southern Myotis (*Myotis macropus*) and
  - Eastern Cave Bat (*Vespadelus troughtoni*).

These species have not been confirmed as being present within BCA – Area 2, through field survey, monitoring results, NSW BioNet Atlas Search or ELA site knowledge. However, they are identified as being reliant on cliffline and cave habitat and assumed to use areas within BCA – Area 2 as part of the overall BCA.

## **Heritage**

In addition to establishment for protection and enhancement of fauna habitat, the BCA was established to protect culturally significant rock shelters and to offset the impact of mining on Aboriginal heritage sites (Umwelt 2009). BCA – Area 2 contains four (4) rock shelter sites which include artefacts, art and/or grinding grooves, and one artefact scatter. The BCA, along with the two Grinding Groove Conservation Areas at UCMPL, protects a representation of the most significant Aboriginal cultural heritage rock shelter and grinding groove sites within the project area (Umwelt, 2009).

Importantly, there is no requirement to enter into a legally binding conservation mechanism specifically to manage heritage within this area required by either PA 08\_0184 or EPBC approval 2009/5252.

No changes are proposed to the Ulan West or Ulan Underground mine plans. This includes the standoff distances designed around the Brokenback Conservation Area 2. Hence, no changes to the protection afforded to the Brokenback Cultural Heritage Sites, described in the Continued Operations Environmental Assessment (Umwelt, 2009), the approved Heritage Management Plan and the approved Aboriginal Conservation Management Plan are proposed as part of this alternative offset proposal.

## ALTERNATIVE OFFSET AREA INVESTIGATION METHODOLOGIES

ELA was engaged by UCMPL to undertake a review of the area of investigation for a potential alternate offset.

Vegetation community and cliffline habitat validation was undertaken by ELA ecologists David Allworth, Rebecca Croake and Tomas Kelly from 26 to 31 October 2018. Vegetation community validation consisted of rapid assessments at numerous locations across the study area to validate the existing vegetation mapping and mapping of areas that have not been previously surveyed. Rapid assessments focused on recording dominant species in each strata layer, vegetation condition, soil type and landscape position to help determine the relevant PCT, and to help assist in determining if the PCTs meet any listed TECs under the NSW *Biodiversity Conservation Act 2016* (BC Act) and the EPBC Act. Field survey validated previously mapped cliffline habitat. Feral animals, disturbance and weeds listed under the CTRSWMP (LLS 2017) were recorded opportunistically.

The alternative offset area investigated is located within Management Zone 1 vegetation. This vegetation is relatively intact, in good condition and has high species richness.

Scientific studies and biodiversity monitoring results have consistently found no evidence of impact on plant species and vegetation communities from subsidence. Two Australian Coal Association Research Program (ACARP) projects prepared by ELA (ELA 2010, ELA 2015), as well as two targeted subsidence assessments undertaken at Ulan Coal (ELA 2015a, ELA 2015), support this assertion.

Examination of fauna monitoring data was also undertaken to determine the known presence of threatened fauna within the alternative offset areas, including microbat monitoring results. Annual monitoring of microbats has been undertaken by Fly By Night Bat Surveys Pty Ltd across the project area from 2014 to 2019. Harp trapping, in conjunction with recording of echolocation calls via anabat detectors (models Anabat 2, SD1, SD2 and Anabat Express) is undertaken at each site (Fly By Night Bat Surveys Pty Ltd, 2020). A number of microbat monitoring sites were present within the alternative offset areas examined.

An Aboriginal heritage assessment was undertaken by ELA Archaeologists Alistair Grinbergs and Elise Jakeman from 27 to 31 May 2019 in order to determine the presence of Aboriginal sites or objects within the area of investigation for the potential alternate offset under consideration. Methods involved walking parallel transects; with the distance between these varied according to presence of dense undergrowth and leaf debris. Due to the extensive heritage work previously undertaken across the UCMPL area, gaps in existing datasets were targeted to determine if the gaps are a result of archaeological resource or lack of survey effort.

## FINDINGS OF INVESTIGATIONS

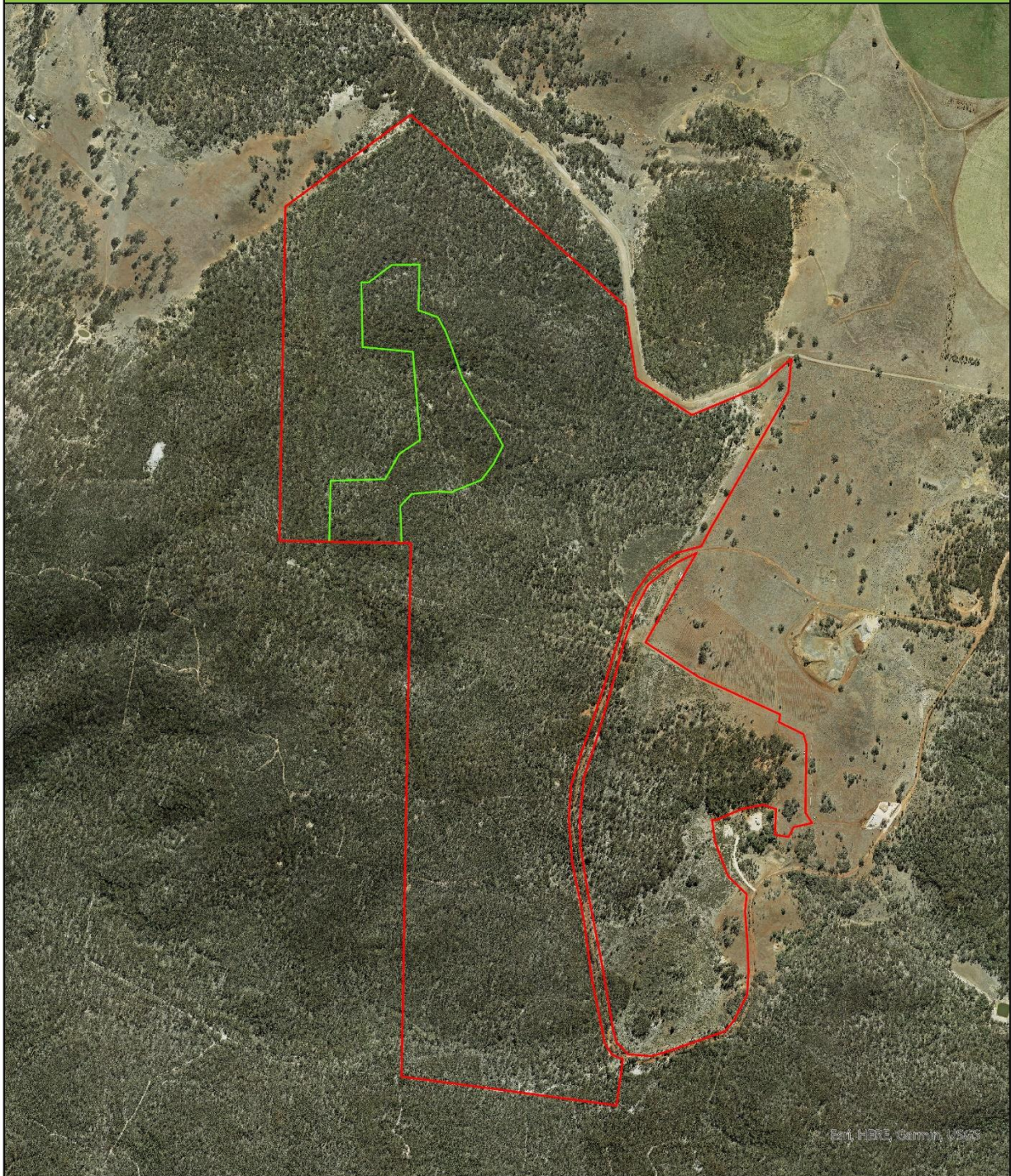
Examination of the results of the investigation showed that the area of investigation for alternate offset contained vegetation communities, cliffline habitat and heritage features that would meet or exceed the objectives and compliance requirements for BCA – Area 2.

Further work was then undertaken to identify a more specific area within the area of investigation that would be a suitable offset and more closely meet the requirements of PA 08\_0184 and EPBC approval 2009/5252 (Figure 2). The proposed alternative offset area is 22.48 ha in size. The results for this area indicated that it:

- contains sufficient area of native vegetation;
- contains sufficient length of cliffline habitat available;
- contains known records of threatened fauna and habitat for threatened fauna, and
- contains a range of heritage features, including 22 previously recorded Aboriginal heritage sites, the majority of these being rock shelters, with isolated artefacts and artefact scatters also being recorded.

The discussions below summarise the results of investigations of the proposed alternative offset area.

Proposed Alternative Offset Area identified as suitable alternative offset to BCA Area 2



Legend

- Proposed Alternative Offset Area
- Area of investigation for Alternative Offset

0 0.125 0.25 0.5  
Kilometres  
Datum/Projection:  
GDA 1994 MGA Zone 55

N  
**eco**  
**logical**  
AUSTRALIA  
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Prepared by: RC Date: 5/31/2021

Figure 2: Proposed Alternative Offset Area identified as a suitable alternative offset to BCA Area 2

## **Native vegetation**

Results from the vegetation assessment undertaken within the proposed alternative offset area is provided in **Figure 3** below.

In summary the proposed alternative offset area:

- contains a greater area of native vegetation (22.48 ha) compared to BCA Area 2 (10.29 ha), and
- provides a greater range of PCT's (5 PCT's) compared to BCA Area 2 (3 PCTs) as shown in Table 3.

**Table 3: PCTs within the Proposed Alternative Offset**

PCT	Name	Area (ha)
401	Rough-barked Apple - Blakely's Red Gum - Black Cypress Pine woodland on sandy flats, mainly in the Pilliga Scrub region	0.31
478	Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	11.44
479	Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	2.67
624	Large-fruited Grey Gum - Narrow-leaved Stringybark open forest on sheltered sandstone hillslopes in the Scone region of the upper Hunter Valley	3.97
1607	Blakely's Red Gum - Narrow-leaved Ironbark - Rough-barked Apple shrubby woodland of the upper Hunter	4.09
	<b>Total</b>	<b>22.48</b>

Monitoring of changes to canopy and foliage health in areas that have been subsided within the proposed alternative offset area has demonstrated that no discernible change in canopy and foliage health is observable (ELA 2019, ELA 2020). Additionally, previously undertaken scientific studies and results from biodiversity monitoring have consistently found no evidence of impact on plant species and vegetation communities from subsidence. Two Australian Coal Association Research Program (ACARP) projects prepared by ELA (ELA 2010, ELA 2015), as well as two targeted subsidence assessments undertaken at Ulan Coal (ELA 2015a, ELA 2015), support this assertion.

## **Presence of weeds, feral animals, disturbances and threats**

No Priority weed species listed under the CTRSWMP (LLS 2017) have been previously recorded within the proposed alternative offset area. Negligible exotic species cover was observed throughout the proposed alternative offset area during vegetation validation field work.

No feral animals have been previously recorded within the proposed alternative offset area. Furthermore, there is no evidence of disturbance caused by rubbish dumping, derelict buildings or infrastructure, recreational vehicle use, intensive agricultural land use, broad scale vegetation clearing or recent fire history (<10 years) within the proposed alternative offset area.

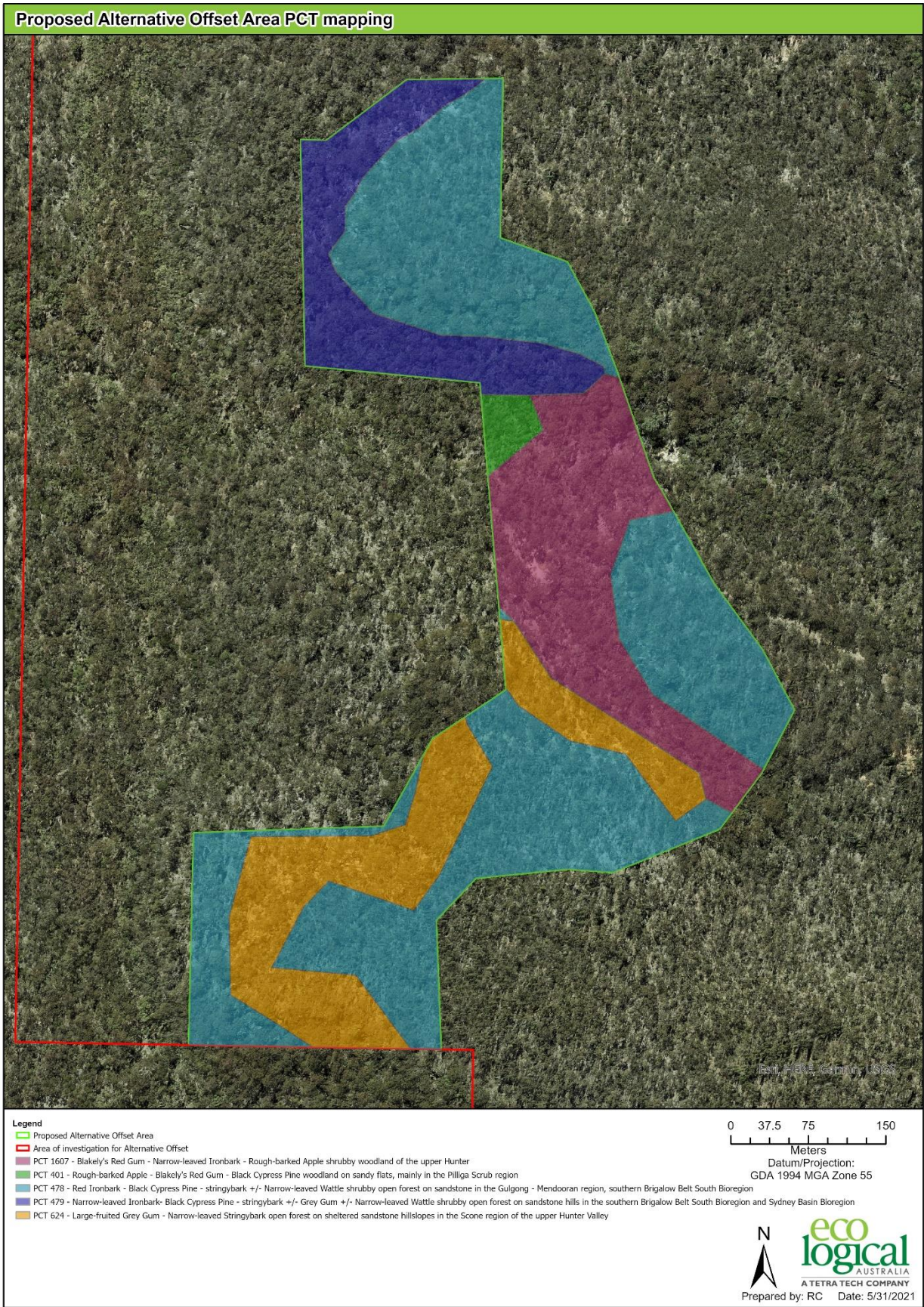
The area underlying the proposed alternative offset area has been previously subsided, with mining in this area having ceased between May 2016 and July 2017 (SCT Operations 2021). Ongoing monitoring of subsidence within this area has shown that subsidence movements have ceased (SCT Operations 2021). Monitoring of changes in canopy and foliage health in undermined areas has to date has found no decline in canopy health (ELA 2019, ELA 2020). Additionally, previous studies undertaken at UCML have demonstrated that there was no evidence of impact on plant species and vegetation communities (ELA 2010, ELA 2015, ELA 2015a, ELA 2015b).

The results of ongoing monitoring of the use of the cliffline and associated cave habitat within the proposed alternative offset area has shown that these habitat features continue to be used by bat species despite the area having been previously subsided. Monitoring has confirmed the presence of a maternity roost for the Large-eared Pied Bat (*Chalinolobus dwyeri*) (listed as Vulnerable under the BC Act) within the proposed alternative offset area, with lactating females captured during monitoring across two different monitoring locations between 2015 to 2019 (UGLWW3 and UGLWW4/4a) (Fly By Night Bat Surveys Pty Ltd, 2020).

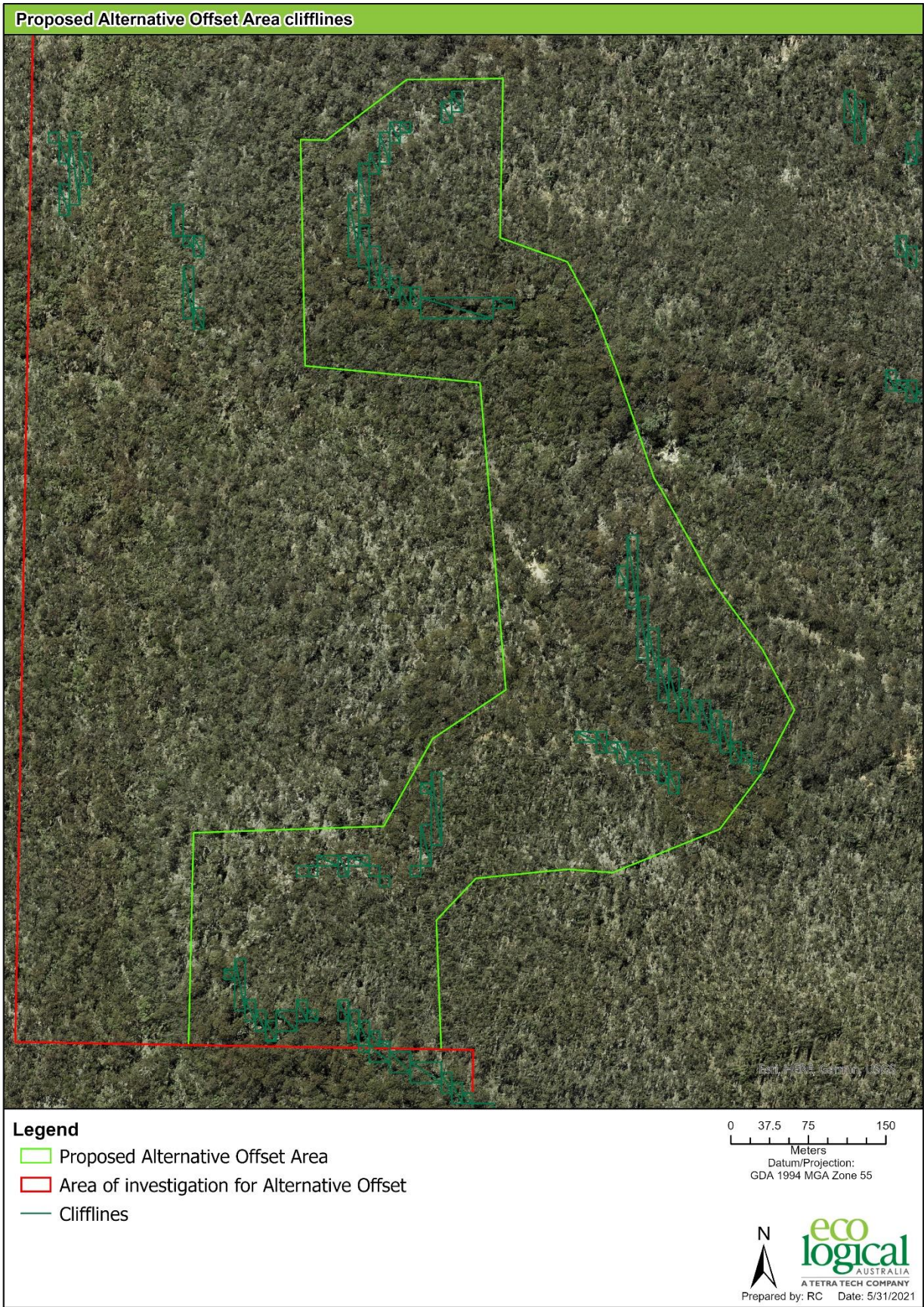
### ***Clifflines***

Cliffline habitat within the proposed alternative offset area is approximately 0.9 km (**Figure 4**), compared to 0.8 km within BCA – Area 2.

Post mining inspections within the proposed alternative offset area found only minor physical subsidence impacts. While minor rock falls and perceptible cracking was observed on some sandstone outcrop formations within the area, the impacts to these and other features were few (SCT Operations 2021).



**Figure 3: Proposed Alternative Offset Area - PCT mapping**



**Figure 4: Proposed Alternative Offset Area – clifflines**

## Threatened fauna

Annual monitoring at three (3) microbat monitoring sites located within the proposed alternative offset area (**Figure 5**), between 2014 to 2019 recorded a suite of microbat species including three species listed as Vulnerable under the BC Act. Species identified during survey periods are shown in **Table 4**.

Monitoring confirmed the presence of a maternity roost for the Large-eared Pied Bat (*Chalinolobus dwyeri*) (listed as Vulnerable under the BC Act) within the proposed alternative offset area, with lactating females captured during monitoring across two different monitoring locations between 2015 to 2019 (UGLWW3 and UGLWW4/4a) (Fly By Night Bat Surveys Pty Ltd, 2020).

**Table 4: Microbat species recorded within the proposed alternative offset area**

Common Name	Species Name	Listing BC Act	Listing EPBC Act	Monitoring location identified
Yellow-bellied Sheath-tailed Bat	<i>Saccolaimus flaviventris</i>	Vulnerable		UGLWW4/4a
White-striped Freetail Bat	<i>Austronomus australis</i>			UGLWW3, INF2, UGLWW4/4a
Southern Freetail Bat	<i>Mormopterus planiceps</i>			UGLWW3, INF2, UGLWW4/4a
Eastern Freetail Bat	<i>Mormopterus ridei</i>			INF2, UGLWW4/4a
Eastern Horseshoe Bat	<i>Rhinolophus megaphyllus</i>			UGLWW3, INF2, UGLWW4/4a
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	Vulnerable	Vulnerable	UGLWW3, INF2, UGLWW4/4a
Gould's Wattled Bat	<i>Chalinolobus gouldii</i>			UGLWW3, INF2, UGLWW4/4a
Chocolate Wattled Bat	<i>Chalinolobus morio</i>			UGLWW3, INF2, UGLWW4/4a
Large Bent-wing Bat (formerly Eastern Bentwing Bat)	<i>Miniopterus orianae oceanensis</i>	Vulnerable		UGLWW3, INF2, UGLWW4/4a
Lesser Long Eared Bat	<i>Nyctophilus geoffroyi</i>			UGLWW3, INF2, UGLWW4/4a
Long Eared Bat	<i>Nyctophilus sp.</i>			UGLWW3, INF2, UGLWW4/4a
Gould's Long Eared Bat	<i>Nyctophilus gouldi</i>			UGLWW3, UGLWW4/4a
Eastern Broad-nosed Bat	<i>Scotorepens balstoni</i>			UGLWW3, INF2, UGLWW4/4a,
Little Forest Bat	<i>Vespadelus vulturnus</i>			UGLWW3, INF2, UGLWW4/4a

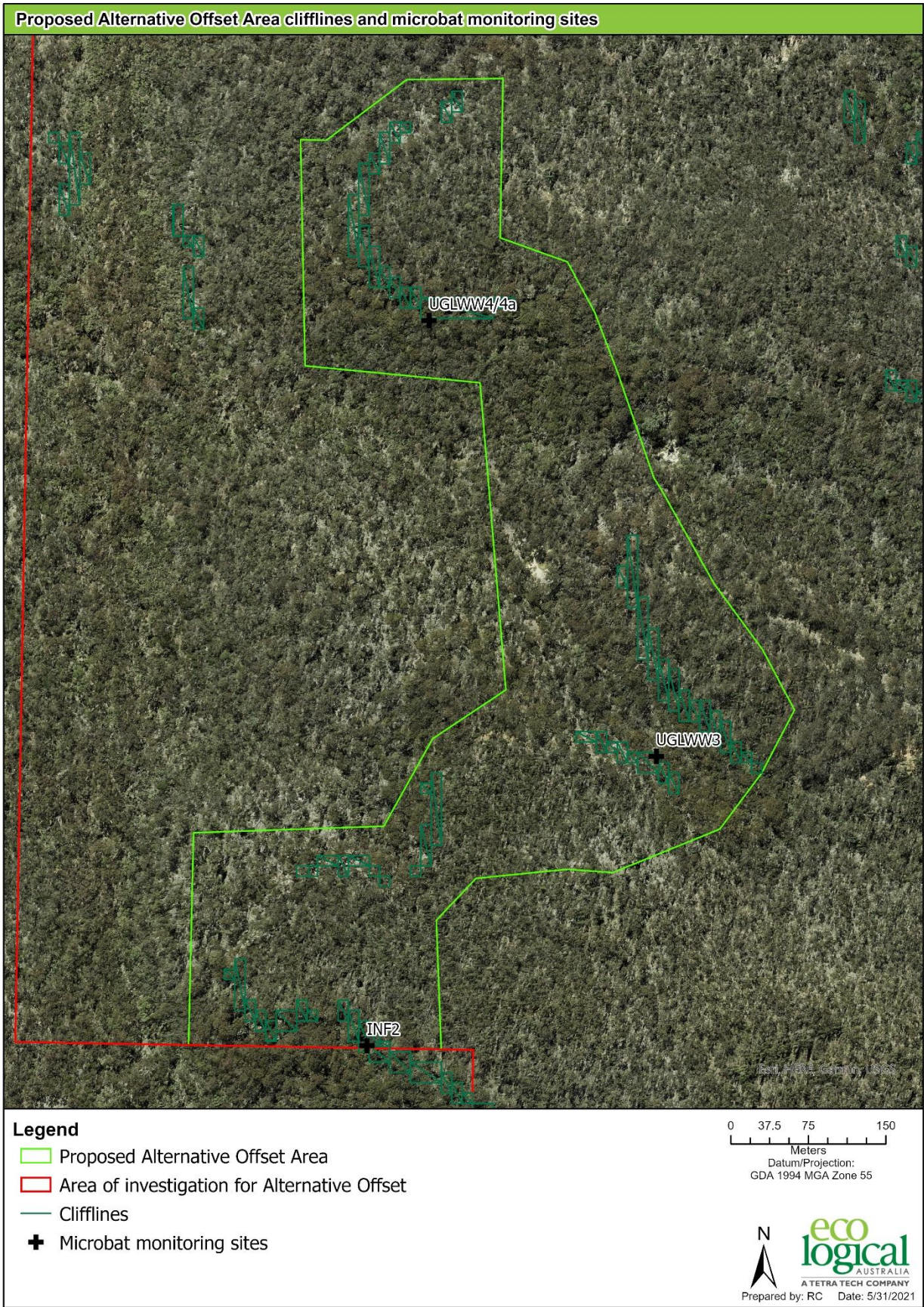


Figure 5: Proposed alternative Offset Area – cliffline and microbat monitoring sites

## **Heritage**

Several heritage assessments have been undertaken within the proposed alternative offset area, resulting in the identification of 22 Aboriginal heritage sites previously registered on the Aboriginal Heritage Information Management System (AHIMS) database. The majority of these recorded Aboriginal heritage sites are rock shelters; however, isolated artefacts and artefact scatters were also recorded throughout the proposed alternative offset area. No new sites were identified during the heritage field survey of the area of investigation for alternate offset (ELA 2019b).

### **SUITABILITY OF PROPOSED ALTERNATIVE OFFSET AREA**

As noted above, an alternative offset area has been considered as a replacement to BCA – Area 2, in the event that the privately owned portion of Brokenback CA cannot be secured within a reasonable timeframe. In summary, the proposed alternative offset area will:

- Provide an area of native vegetation greater than that required by PA 08\_0184;
- Provide equivalent PCTs and a greater range of PCT's compared to BCA Area 2;
- Provide cliffline length greater than that required by PA 08\_0184;
- Provide for the protection of cliffline areas and cave habitat above that required by PA 08\_0184;
- Protect and enhance fauna habitat through the protection and management of cave habitat above that required by PA 08\_0184;
- Provide an improved environmental outcome to offset the impacts on Large-eared Pied Bat as required by EPBC Approval 2009/5252;
- Include a range of heritage features, including 22 previously recorded Aboriginal heritage sites, the majority of these being rock shelters, with isolated artefacts and artefact scatters also being recorded;
- Provide an area of native vegetation in good condition with negligible impacts from feral animals, weeds or other disturbance such as subsidence related impacts, rubbish dumping, derelict buildings or infrastructure, recreational vehicle use, intensive agricultural land use, broad scale vegetation clearing or recent fire history (<10 years).

Each of these benefits is discussed in more detail below.

## **Native vegetation**

PA 08\_0184 requires that the BCA protects 58 hectares of native vegetation. There is no requirement for the BCA to protect areas of TEC/EEC under either PA 08\_0184 or EPBC Approval 2009/5252.

Approximately 49.6 ha of vegetation is currently protected within the BCA, with 8.4 ha outstanding (**Table 5**). Given the area of the proposed alternative offset area (22.48 ha), the proposed alternative offset area will provide an area of native vegetation in excess of that present within BCA – Area 2 and that required by PA 08\_0184.

**Table 5: Native vegetation summary**

	PA 08_0184	BCA – Area 2	Proposed Alternative Offset Area
Total area of native vegetation (ha)	8.4 ha outstanding (with 49.6 ha already protected by BCA – Area 1 and the Brokenback Conservation Reserve – Area 3)	10.29	22.48

**Table 5** demonstrates that the proposed alternative offset area will provide protection of an additional 12.19 ha of native vegetation above that which would be protected by BCA – Area 2, and an additional 14.08 ha above that required by the Biodiversity Offset Strategy in PA 08\_0184.

Overall, the proposed alternative offset area will provide for protection of native vegetation above that required by PA 08\_0184.

### **Plant Community Types**

In accordance with the BC Act *Biodiversity Assessment Method* (BAM; DPIE 2020) and *Biodiversity Conservation Regulation 2017* ‘like-for-like rules’, PCT 478 and PCT 401 (in the proposed alternative offset area) are in the same threat status group and the same offset trading group as PCT 481 (in BCA – Area 2):

- Low threat status – Tier 4 PCTs in the same Vegetation Class (Dry Sclerophyll Forest – Shrubby Sub-formation) with a percentage cleared value of <50% (PCT 478 29% cleared, PCT 401 33% cleared, PCT 481 28% cleared; VIS 2021).

Therefore, the proposed alternative offset area contains equivalent PCT’s compared to BCA Area 2 and a larger number of PCT’s (5 PCT’s) compared to the BCA- Area 2, as shown in **Table 6**.

**Table 6: BCA – Area 2 PCT’s compared to proposed alternative offset area PCT’s**

PCT	Name	BCA – Area 2 (ha)	Proposed Alternative Offset (ha)
401	Rough-barked Apple - Blakely's Red Gum - Black Cypress Pine woodland on sandy flats, mainly in the Pilliga Scrub region	0	0.31
478	Red Ironbark - Black Cypress Pine - stringybark +/- Narrow-leaved Wattle shrubby open forest on sandstone in the Gulgong - Mendooran region, southern Brigalow Belt South Bioregion	3.67	11.44
479	Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	3.75	2.67
481	Rough barked Apple – Blakely’s Red Gum – Narrow leaved Stringybark +/- Grey Gum sandstone riparian grass fern open forest in the Southern Brigalow Belt South Bioregion and Upper Hunter Region	2.87	0

PCT	Name	BCA – Area 2 (ha)	Proposed Alternative Offset (ha)
624	Large-fruited Grey Gum - Narrow-leaved Stringybark open forest on sheltered sandstone hillslopes in the Scone region of the upper Hunter Valley	0	3.97
1607	Blakely's Red Gum - Narrow-leaved Ironbark - Rough-barked Apple shrubby woodland of the upper Hunter	0	4.09
	Total	10.29	22.48

## Clifflines

PA 08\_0184 requires that the BCA protects 3 km of cliffline length. BCA – Area 1 and the Brokenback Conservation Reserve – Area 3 currently protect approximately 2.5 km of cliffline length. The current deficit of protected cliffline length required by PA 08\_0184 is 0.5 km.

The proposed alternative offset area will provide protection of approximately 0.9 km of cliffline length (**Table 7**). This is approximately 0.1 km greater than that which would be protected by BCA – Area 2 (0.8 km). The proposed alternative offset area will therefore protect an additional 0.4 km of cliffline length above that required by PA 08\_0184.

As previously discussed, post mining inspections within the proposed alternative offset area found only minor physical subsidence impacts. While minor rock falls and perceptible cracking was observed on some sandstone outcrop formations within the area, the impacts to these and other features were few (SCT Operations 2021).

**Table 7: Cliffline summary**

	PA 08_0184 requirement	BCA - Area 1	Brokenback Conservation Reserve (Area 3)	BCA – Area 2	Proposed alternative Offset Area
Total cliffline length (km)	3	0.96	1.54	0.80	0.9

## Threatened fauna and fauna habitat protection

As previously discussed, it was recognised during development of the EA (Umwelt 2009) that establishment of the BCA would provide protection for a number of threatened species. However, the BCA was not established specifically to provide an offset for these species, rather to protect potential habitat for these species.

Monitoring within the proposed alternative offset area has identified the presence of threatened microbat species, including a number of those defined within the EA (Umwelt, 2009) as well as the Vulnerable Yellow-bellied Sheath-tailed Bat (*Saccolaimus flaviventris*). From the list of likely species (Umwelt 2009), two cave dependent microbat species, the Large-eared Pied Bat (*Chalinolobus dwyeri*) and Large Bentwing-bat (*Miniopterus orianae oceanensis*) have been recorded during monitoring within the proposed alternative offset area.

Importantly, at least seven (7) lactating Large-eared Pied Bat females have been caught using harp trapping within habitat present in the proposed alternative offset area from 2015 to present at two different monitoring locations (UGLWW3 and UGLWW4/4a), indicating the presence of a maternity roost within this area. Protection of this fauna habitat feature is well above and beyond that which would be provided through the protection of fauna habitat within BCA – Area 2 and is vital to the ongoing protection of this species.

Surveys undertaken post subsidence indicate that the maternity roost over LWW3 has persisted since it was subsided in July 2016, with breeding confirmed to have continued in this location through capture of lactating females and/or free-flying juvenile bats at UGLWW3 (Fly by Night Bay Surveys Pty Ltd, 2020).

Additionally, the results of echolocation call analysis have indicated that bat activity continues to occur in previously subsidised areas (Fly by Night Bat Surveys Pty Ltd, 2020).

Field survey identified no threatened fauna species within the proposed alternative offset area (ELA 2019). However, a BioNet Atlas search was undertaken with the following threatened fauna species identified as having been previously recorded within the proposed alternative offset area (2001 to present) (OEH 2020):

- Grey-crowned Babbler (eastern subspecies)
- Glossy Black-Cockatoo.

Clifflines within the proposed alternative offset area are considered to provide potential suitable habitat for other cave dependent species including (but not limited to):

- Brush Tailed Rock Wallaby
- Little Pied Bat
- Eastern Cave Bat.

Based on the above, the proposed alternative offset area will provide for protection of threatened fauna habitat above that provided currently by BCA – Area 2, particularly for cave dependent threatened species. Importantly, the proposed alternative offset area will protect a Large-eared Pied Bat maternity roost. The presence of threatened fauna within the proposed alternative offset area indicates that this area will protect threatened fauna and its habitat which is consistent with the commitments made within the EA (Umwelt 2009).

### ***Outcomes for Large-eared Pied Bat***

EPBC approval 2009/5252 requires that a legally binding conservation mechanism is provided for the BCA and where this cannot be achieved an alternative offset area must be provided for, which has at least an equivalent environmental outcome for the Large-eared Pied Bat. The presence of a maternity roost within the proposed alternative offset area and the benefits to this species that its protection would provide will provide for an environmental outcome significantly above that provided by BCA – Area 2.

### ***Heritage***

The proposed alternative offset area will provide for the protection of 22 additional Aboriginal heritage sites (ELA 2019b). It is noted that there is no change to the protection afforded to the 5 Cultural Heritage Sites within the BCA Area 2, as no changes are proposed to the approved mine plan as part of this proposal.

### ***Presence of weeds, feral animals, disturbances and threats***

The proposed alternative offset area is in comparable condition state to the BCA – Area 2 with:

- No Priority weed species listed under the CTRSWMP (LLS 2017) and negligible exotic species cover previously recorded,
- no feral animals previously recorded,

- no evidence of disturbance caused by rubbish dumping, derelict buildings or infrastructure, recreational vehicle use, intensive agricultural land use, broad scale vegetation clearing or recent fire history (<10 years).
- Negligible impacts on the condition of vegetation, fauna habitat, including cliffline habitat and maternity roosts for the Large-eared Pied Bat due to subsidence related impacts.

## CONCLUSION

The BCA was originally proposed to:

- provide for the protection and management of cliffline areas (including associated cave habitat) to mitigate the impact from the Open Cut operation and subsidence-related impacts, such as rockfall
- protect and enhance fauna habitat within the management areas for cave dependent fauna species; and
- provide appropriate monitoring to ensure mitigation strategies are effective (Umwelt, 2009).

In addition to these objectives, for the BCA UCMPL are required to comply with certain conditions of PA 08\_0184 that relate to the biodiversity offsets (extracted in **Appendix A**) and also with the relevant conditions of EPBC 2009/5252 (extracted in **Appendix B**). The BCA is currently monitored and managed in accordance with the UCMPL Biodiversity Management Plan (UCMPL, 2019).

The 10 ha portion of BCA – Area 2 (privately owned portion of Brokenback CA) is the only remaining offset area associated with UCMPL’s Biodiversity Offset Strategy that has not been secured. This accounts for approximately 0.6% of the total agreed offset package for the mine.

Agreement with the owner of the land upon which BCA – Area 2 is located was unable to be reached due to the complex and far reaching requirements that are now understood as expected as such agreements.

The 22.48 ha proposed alternative offset area is considered a suitable alternative to the 10 ha privately owned portion of Brokenback CA. The area has been previously undermined, between approximately May 2016 and July 2017. It is considered that subsidence impacts in the area have been minimal (SCT Operations 2021) and have not impacted the capacity to meet Biodiversity offsetting objectives, and evidenced by the continued presence of the Large-Eared Pied Bat maternity roost (cave habitat). Additionally, scientific studies and biodiversity monitoring results have consistently found no evidence of impact upon plant species and vegetation communities from subsidence (ELA 2010, ELA 2015, ELA 2015a, ELA 2015b).

Based on review by ELA, protection of ecological features above that protected by BCA – Area 2 within the proposed alternative offset area considered in this letter is achieved through:

- Cliffline length above that required by PA 08\_0184;
- Area of native vegetation above that required by PA\_0184;
- Provide equivalent PCTs and a greater range of PCTs compared to BCA – Area 2 ;
- Vegetation condition comparable to the BCA – Area 2;
- Provision for protection of cliffline areas above that required by PA 08\_0184;

- Protection and enhancement of fauna habitat through the protection and management of cave habitat above that required by PA 08\_0184. The proposed alternative offset area also contains a range of heritage features.

The analysis provided above clearly demonstrates that the proposed alternative offset area will provide protection of a confirmed maternity roost for threatened microbat species, including the Large-eared Pied Bat as required by EPBC Approval 2009/5252.

The proposed alternative offset area is considered by ELA to meet the overarching objectives that were originally established for the BCA – Area 2 in PA 08\_0184 and EPBC Approval 2009/5252.

Regards,



Rachel Murray  
Regional Manager – Regional NSW/ACT

## REFERENCES

Department of Planning 2010. *Project Approval 08\_0184. Ulan Coal Mines Limited.*

Department of Planning, Industry and Environment (DPIE) 2020. *Biodiversity Assessment Method.*

Eco Logical Australia 2010. *Monitoring the effect of longwall mine subsidence on native vegetation and agricultural environments.* Prepared for ACARP;

Eco Logical Australia 2015. *Impact of Mine Subsidence on Threatened Ecological Communities.* Prepared for ACARP;

Eco Logical Australia 2015a. *Review of historical subsidence areas and impacts on vegetation.* Report prepared for UCML. (Appendix D); and

Eco Logical Australia 2015b. *Subsidence monitoring within White Box Woodland.* Report prepared for UCML.

Eco Logical Australia 2019a. *UCMPL Alternative Biodiversity Offsets – Vegetation community and cliffline validation.* Report prepared for Ulan Coal.

Eco Logical Australia 2019b. *Alternative Biodiversity Offset Areas – Aboriginal Heritage Assessment.* Report prepared for Ulan Coal.

Fly By Night Bat Surveys Pty Ltd 2020. *Monitoring of the microbat fauna of the Ulan Coal Mine lease during 2019.*

Local Land Services (LLS) 2017. *Central Tablelands Regional Strategic Weed Management Plan 2017 – 2022.*

SCT Operations Pty Ltd 2021 *Subsidence assessment for Alternative Offset Area.* Report prepared for Ulan Coal.

Ulan Coal Mines Ltd 2019. *Biodiversity Management Plan Version 5.* Prepared in conjunction with Eco Logical Australia, May 2019.

Umwelt (Australia) Pty Limited 2009. *Ulan Coal – Continued Operations Ecological Assessment.* Report prepared for Ulan Coal.

## Appendix A Project Approval (PA) 08\_0184

In the NSW Project Approval, the following conditions were imposed in respect of biodiversity. The complete NSW project approvals can be found at [request.pdf \(ulancoal.com.au\)](http://request.pdf(ulancoal.com.au)).

Red type represents the December 2011 modification

Blue type represents the conditions modified by the November 2011 court judgment and associated Orders

Green type represents the May 2012 modification

Orange type represents the March 2016 modification

Purple type represents the July 2019 modification

Lightblue type represents the August 2020 modification

### BIODIVERSITY

#### Biodiversity Offset

41. The Proponent **must** implement the offset strategy outlined in Table 15, described in the EA, and shown conceptually in the figure in Appendix 4 to the satisfaction of the **Secretary**.

Table 15: Biodiversity Offset Strategy

	Clearing, Removal and/or Disturbance	Spring Gully Cliffline Management Area	Offset Areas		
			Brokenback Conservation Area	Bobadeen Vegetation Offset Area and Bobadeen East Corridor	Bobadeen East Offset Area
Native Vegetation (ha)	411	273	58	1,125	229
EEC/CEEC (ha)	69	-	-	278	169
Cliffline (km)	12.9	9	3	-	-

- 41A. The Proponent shall ensure that the offset areas contain suitable habitat for any significant and/or threatened species identified in the areas to be cleared, removed and/or disturbed.
42. The Proponent shall ensure that **at least 244 hectares** within the Bobadeen Vegetation Offset Area **and 169 hectares** within the Bobadeen East Offset Area **includes** the re-establishment and/or improvement of:
- significant and/or threatened plant communities, including:
    - White Box Woodland;
    - Blakely's Red Gum Open Forest; and
  - significant and/or threatened plant communities; and
  - habitat for significant and/or threatened animal species.

#### Long Term Security of Offset

43. **Within 1 year of the date of final Orders being made by the Land and Environment Court in proceedings No. 10998 of 2010**, the Proponent shall make suitable arrangements to provide appropriate long term security for the Bobadeen Vegetation Offset Area, the Bobadeen East Offset Area, the Brokenback Conservation Area, **the stand of *Acacia ausfeldii* along the eastern side of Hightett Road** and the Spring Gully Cliffline Management Area to the satisfaction of the **Secretary**.

## Biodiversity Management Plan

44. The Proponent **must** prepare and implement a Biodiversity Management Plan for the project to the satisfaction of the **Secretary**. This plan must:
- (a) be prepared in consultation with **OEH** and Council by suitably qualified and experienced persons;
  - (b) be submitted to the **Secretary** for approval by the end of June 2012;
  - (c) describe how the implementation of the offset strategy would be integrated with the overall rehabilitation of the site (see below);
  - (d) include:
    - a description of the short, medium, and long term measures that would be implemented to:
      - implement the offset strategy; and
      - manage the remnant vegetation and habitat, both on site and in the offset areas;
    - detailed completion criteria as well as performance criteria for measuring the short, medium and long term success of the offset strategy, including annual indicators and trigger values for the regeneration/revegetation of both the Box-Gum Woodland and *Acacia ausfeldii*, and the provision of suitable habitat for threatened woodland birds;
    - a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for:
      - implementing revegetation and regeneration within the offset areas, including the establishment of canopy, sub-canopy (if relevant), understorey and ground strata;
      - protecting vegetation and soil outside the disturbance areas;
      - rehabilitating creeks and drainage lines on the site (both inside and outside the disturbance areas), to ensure no net loss of stream length and aquatic habitat;
      - managing any potential conflicts between the proposed restoration works in the biodiversity areas and any Aboriginal heritage values (both cultural and archaeological);
      - managing salinity;
      - undertaking pre-clearance surveys;
      - managing impacts on fauna;
      - minimising the impacts on fauna, including providing important habitat features (e.g. hollows) during the period of revegetation and rehabilitation;
      - landscaping the site, and particularly the land adjoining public roads, to minimise visual and lighting impacts;
      - collecting and propagating seed;
      - salvaging and reusing material from the site for habitat enhancement;
      - propagating threatened flora and native grassland (including *Acacia ausfeldii*);
      - protecting and managing *Acacia ausfeldii*;
      - controlling weeds and feral pests;
      - managing grazing and agriculture on site;
      - controlling access; and
      - bushfire management;
    - a program to monitor and report on the effectiveness of these measures and the performance of the offset strategy, with summary reporting to be carried out annually and comprehensive reporting every three years following the independent environmental audit (see condition 8 of schedule 5);
    - a description of the contingency measures that would be implemented to improve the performance of the offset strategy if the detailed performance criteria above are not being met in any given year; and
    - details of who would be responsible for monitoring, reviewing, and implementing the plan.

The Proponent must implement the plan as approved by the Secretary.

*Note: The effectiveness of the Biodiversity Management Plan is to be reviewed and audited in accordance with the requirements in Schedule 5. Following these reviews and audits, the plan is to be revised to ensure it remains up to date (see Condition 4 of Schedule 5).*

## Conservation Bond

45. Within 6 months of the approval of the Biodiversity Management Plan (see above), the Proponent **must** lodge a conservation bond with the Department to ensure that the offset strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan. The sum of the bond **must** be determined by:
- (a) calculating the full cost of implementing the offset strategy; and
  - (b) employing a suitably qualified quantity surveyor to verify the calculated costs,
- to the satisfaction of the **Secretary**.

If the offset strategy is implemented to the satisfaction of the Secretary, the Secretary will release the conservation bond.

If the offset strategy is not implemented to the satisfaction of the Secretary, the Secretary will call in all or part of the conservation bond, and arrange for the satisfactory implementation of the offset strategy.

## Appendix B Commonwealth Approval (EPBC 2009/5252)

The following conditions were issued by the SEWPAC on 30 November 2010, with a Variation of Conditions approved on 3 November 2020 and are relevant to the impacts to biodiversity.




**Australian Government**

**Department of Sustainability, Environment, Water, Population and Communities**

### APPROVAL DECISION

#### Ulan Coal Continued Operations Project, Ulan, NSW – EPBC No 2009/5252

This decision is made under sections 130 and 133 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

<b>person to whom the approval is granted</b>	Ulan Coal Mines Limited ACN 000 189 248
<b>proposed action</b>	To extend the open cut coal mine, develop Ulan West underground mine and modify or construct new infrastructure associated with these operations and the Ulan, No 3 underground operation, Ulan, New South Wales and as described in the referral received under the Act on 18 December 2009.
<b>approval decision</b>	The approval has effect for: <ul style="list-style-type: none"><li>• Listed threatened species and communities (sections 18 &amp; 18A)</li><li>• Listed migratory species (sections 20 &amp; 20A)</li></ul>
<b>conditions of approval</b>	This approval is subject to the conditions specified below.
<b>expiry date of approval</b>	This approval has effect until September 2031
<b>Person authorised to make decision</b>	
<b>name and position</b>	James Barker A/g Assistant Secretary Environment Assessment Branch
<b>signature</b>	
<b>date of decision</b>	30 November 2010

**4.** To offset the impacts on the Large-eared Pied Bat, the person taking the action must provide a legally binding conservation mechanism for the long-term protection of the Brokenback Conservation Area - Areas 1 and 3 and Spring Gully Cliff Line Management Area as shown in Appendix 1. The conservation mechanism for the above offset areas must be agreed to in writing by the **Department** and must be finalised by no later than 31 December 2018.

The person taking the action must either:

- a. finalise a legally binding conservation mechanism, agreed to in writing by the **Department**, for the long-term protection of the Brokenback Conservation Area – Area 2, as shown in Appendix 1, by 30 June 2021, or
- b. submit, by 30 January 2021, for the **Minister's** approval, an alternative offset proposal.

If the person taking the action proposes an alternative offset (option b) the person taking the action must submit by 30 June 2021, for the **Minister's** approval, an Offset Management Plan for the alternative offset which must meet those requirements of condition 5 which otherwise would have been met in respect of Brokenback Conservation Area – Area 2 and, by 31 December 2021, implement the approved Offset Management Plan. The person taking the action must establish for the alternative offset a conservation mechanism that has been approved by the **Department** by 30 June 2022.

The person taking the action must report on progress in meeting these requirements in each annual report required under condition 7 and as otherwise requested by the **Department**.

5. To offset the impacts on the Large – eared Pied Bat, the person taking the action must, before commencement of operations, (excluding first workings), obtain the Minister's approval of an Offset Management Plan for the Brokenback Conservation Area and Spring Gully Cliff Line Management Area.

This plan must include details of:

- a. the desired outcomes/objectives of implementing the plan;
- b. details of the Brokenback Conservation Area, clearly define the location and boundaries of the Brokenback Conservation Area, through maps and / or textual descriptions as well as an accompanying *shapefile*;
- c. details of the Spring Gully Cliff Line Management Area, clearly define the location and boundaries of the Spring Gully Line Management Area, through maps and / or textual descriptions as well as an accompanying *shapefile*;
- d. management actions that are proposed to protect areas and to enhance their value to Large – eared Pied Bat including weed control, fire management, erosion and sediment control, livestock management, and restrictions on access;
- e. measures for the long-term protection of these areas;
- f. the timing responsibilities and performance criteria for such actions;
- g. the development and implementation of a monitoring program;
- h. a process to report to the department the offset area management actions undertaken and the outcome of those actions, identifying any need for improved management. For the five years after the commencement of operations, reports are to be submitted annually on or before the anniversary of the commencement of operations. Subsequently reports are to be submitted every fifth year on or before the anniversary of the commencement of operations;
- i. a description of the potential risks to successful management and rehabilitation in the offset areas, and a description of the contingency measures that would be implemented to mitigate these risks; and
- j. details of parties responsible for monitoring, reviewing and implementing the plan.

The approved Offset Management Plan must be implemented. Any changes to the Offset Management Plan must be approved by the Minister and approved variations to the Plan must be implemented. This plan may be made publicly available on the internet by the Department.

6. Within 14 days after commencement of operations, the person taking the action must advise the Department in writing of the actual date of commencement of operations.

7. On or before every 12 month anniversary of the commencement of the operations, the person taking the action must submit to the Department an annual report addressing compliance with the conditions of this approval. The annual reports must list each approval condition and the actions taken to address each approval condition. Annual reports must be provided until the Minister is satisfied that the proponent has complied with all conditions of the approval and the Department has advised the person taking the action, in writing, that all the approval conditions have been complied with. This report may be made publicly available on the internet by the Department.

8. On the direction of the Minister, the person taking the action must ensure that an independent audit of compliance with these conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister. The report of the independent auditor may be made publicly available on the internet by the Department.
9. If the Minister believes that it is necessary or desirable for the better protection of the White Box – Yellow Box – Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands ecological community, Regent Honeyeater, Swift Parrot or Large-eared Pied Bat to do so, the Minister may request that the person taking the action make specified revisions to any plans approved pursuant to these conditions. The person taking the action must comply with any such request. The revised plans must be implemented.
10. If commencement of operations has not occurred within 5 years of the date of this approval, operations must not commence without the written agreement of the Minister.

**Definitions:**

**The Department:** the Australian Government Department responsible for the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

**Minister:** the Minister responsible for the EPBC Act

**First Workings:** the construction of development headings within the Ulan No.3 Underground operations which are designed for stability during development and longwall mining

**Commencement of operations:** any preparatory works required to be undertaken in relation to the action described in the EPBC referral 2009/5252 (other than first workings within Ulan No. 3 Underground operations) including clearing of vegetation, the erection of any on-site temporary structures and/or the use of construction or excavation equipment on site for the purposes of breaking the ground

**Project area:** the area described in the referral received under the EPBC Act on 18 December 2009.

**Shapefile:** an ESRI Shapefile, containing '.shp', '.shx.' and '.dbf' files and other files capturing attributes including at least the EPBC reference ID number and EPBC protected matters present at the relevant site. Attributes should also be captured in '.xls' format.

**Ulan Coal Continued Operations Project EPBC 2009/5252**

**Offsets**

Bobadeen Vegetation Offset Area		Bobadeen East Vegetation Offset Area		Brokenback Conservation Area		Spring Gully Cliffline Management Area	
Lot	DP	Lot	DP	Lot	DP	Lot	DP
4	701346	73	750736	41	750735	83	704077
45	750735	61	750736	3	534014	54	750736
15	750735	81	750736	22	750735		
54	750736	1	701346	42	750735		
2	750736			43	750735		
3	701346			46	750735		
4	701346						
54	750736						
3	701346						
4	701346						
45	750735						
15	750735						
54	750736						
45	750735						
15	750735						
54	750736						
2	840034						
4	701346						
45	750735						
15	750735						
45	750735						
54	750736						