MIDDLEMOUNT COAL MINE
NORTH-EASTERN EXTENSION (EPBC 2016/7717)
EPBC Act Preliminary Assessment Documentation

NOVEMBER 2016

middlemount coal PTY LTD

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NORTH-EASTERN EXTENSION (EPBC 2016/7717)
EPBC ACT PRELIMINARY ASSESSMENT DOCUMENTATION

NOVEMBER 2016
Project No. GCL-12-21
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EXECUTIVE SUMMARY

The Middlemount Coal Mine is an existing open cut coal mine located approximately 7 kilometres to the south-west of the Middlemount township within the Isaac Regional Local Government Area, Queensland.

On 31 May 2016, Middlemount Coal Pty Ltd (MCPL), an incorporated joint venture between Peabody Energy Australia Pty Ltd and Yancoal Australia Ltd, lodged a referral with the Commonwealth Department of the Environment and Energy (DEE) for the extension of the currently approved East Dump beyond part of the eastern extent of Mining Lease 70417 (the Action [North-eastern Extension]) using the same overburden emplacement methodology currently employed at the Middlemount Coal Mine.

On 7 July 2016, a delegate of the Commonwealth Minister declared the Action to be a controlled action for the purposes of the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) due to likely impacts on listed threatened species and communities (sections 18 and 18A) which is a controlling provision under Part 3 of the EPBC Act. The delegate of the Commonwealth Minister also determined that the Action is to be assessed by Preliminary Documentation and further information was requested on 29 July and 26 October 2016 pursuant to section 95(A) of the EPBC Act.

This Preliminary Documentation addresses the information requirements of the DEE, to enable assessment and approval of the Action under the EPBC Act.

Three threatened fauna species listed under the EPBC Act are considered likely to occur within the Action area, namely the Squatter Pigeon (southern) (*Geophaps scripta scripta*), Koala (*Phascolarctos cinereus*) and South-eastern Long-eared Bat (*Nyctophilus corbeni*). Potential impacts on these Matters of National Environmental Significance as a result of the Action have been investigated within this document and mitigation measures to reduce the potential impacts have been proposed. A biodiversity offset package addressing the potential significant impact on the Squatter Pigeon (southern) has also been proposed by MCPL. In addition, the proposed offset area would provide suitable habitat resources for the Koala and South-eastern Long-eared Bat.

The biodiversity offset package has been developed in accordance with the Commonwealth *EPBC Act Environmental Offsets Policy* (and the *EPBC Act Offsets Assessment Guide*) via a land-based offset which would compensate for the loss of approximately 181 hectares of potential habitat for the Squatter Pigeon (southern), Koala and South-eastern Long-eared Bat.

An Offset Management Plan/Vegetation Management Plan for the land-based offset has been prepared as a draft. The contents of this document may change through consultation with the DEE and the Queensland Department of Environment and Heritage Protection.

1 INTRODUCTION

1.1 BACKGROUND

On 31 May 2016, Middlemount Coal Pty Ltd (MCPL), an incorporated joint venture between Peabody Energy Australia Pty Ltd and Yancoal Australia Ltd, lodged a referral (Attachment A) with the Commonwealth Department of the Environment and Energy (DEE) for the extension of the currently approved East Dump beyond part of the eastern extent of Mining Lease 70417 (the Action [North-eastern Extension]) using the same overburden emplacement methodology currently employed at the Middlemount Coal Mine.

On 7 July 2016, a delegate of the Commonwealth Minister declared the Action to be a controlled action for the purposes of the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) due to likely impacts on listed threatened species and communities (sections 18 and 18A) which is a controlling provision under Part 3 of the EPBC Act. The delegate of the Commonwealth Minister also determined that the Action is to be assessed by Preliminary Documentation and further information was requested on 29 July and 26 October 2016 pursuant to section 95(A) of the EPBC Act. A copy of the request for preliminary documentation is provided in Attachment B.

This Preliminary Documentation addresses the information requirements of the DEE, to enable assessment and approval of the Action under the EPBC Act.

This Preliminary Documentation is structured as follows:

Section 1 Provides a summary of the proposed Action and assessment requirements.

Section 2 Provides the further information that was requested in regard to listed threatened species and communities, including the proposed biodiversity offset package.

Section 3 Provides the further information that was requested in regard to economic and social impacts.

Section 4 Provides the further information that was requested in regard to ecologically sustainable development.

Section 5 Provides the further information that was requested in regard to outcomes-based conditions.

Section 6 Provides a conclusion of the information provided in this document.

Section 7 Lists the references cited in this document.

Attachments to the main text are also provided as follows:

Attachment A EPBC Act Referral for the Middlemount Coal North-eastern Extension.

Attachment B Request for Preliminary Documentation.

Attachment C Middlemount Coal Mine North-eastern Extension Offset Proposal.

Attachment D Middlemount Coal Mine North-eastern Extension Offset Management Plan/Vegetation Management Plan.

1.2 SUMMARY OF PROPOSED ACTION

The Middlemount Coal Mine is an existing open cut coal mine located approximately 7 kilometres (km) to the south-west of the Middlemount township within the Isaac Regional Local Government Area, Queensland (QLD) (Figure 1).

The approved Middlemount Coal Mine is an open cut mining operation extracting run-of-mine coal up to 24 hours per day, seven days per week, using a conventional truck and shovel fleet at a rate of up to 5.4 million tonnes per annum. The general arrangement of the Middlemount Coal Mine is presented on Figure 2.

The Action would involve the extension of the currently approved East Dump beyond part of the eastern extent of Mining Lease (ML) 70417 (Figure 3), using the same overburden emplacement methodology currently employed at the Middlemount Coal Mine. The Action does not involve any change to the currently approved mining rate, operating hours, open cut footprint, processing rate or workforce.

A detailed description of the Action is provided in the EPBC Act (2016/7717) referral (Attachment A).

1.3 ASSESSMENT REQUIREMENTS

Table 1 outlines the assessment requirements provided by the DEE on 29 July 2016 (Attachment B) and the corresponding section in this document where the information is provided.

Table 1
EPBC Act Assessment Requirements (Additional Information Request) – Reference Summary

Section	Assessment Requirement	Reference
1	***Listed Threatened Species and Communities*** *The Department considers that insufficient details have been provided to determine whether a significant impact is likely to occur upon the following four protected matters:* *a. Koala (Phascolarctos cinereus) – vulnerable;* *b. South-eastern long eared bat (Nyctophilus corbeni) – vulnerable;* *c. Ghost bat (Macroderma gigas) – vulnerable; and* *d. Yakka skink (Egernia rugosa) – vulnerable.*	N/A
	Please provide further information regarding survey methods employed and their adequacy in assessing impacts on the above listed matters including, but not limited to:	Section 2.1
	a. An explanation about how surveys for koalas were conducted including, but not limited to, methodology used, maps showing transects/trail searched and why those transects were considered to be appropriate;	Section 2.1.1
	b. Justification for figures used in koala assessment table, as per the Referral Guidelines for the Koala (2014);	Section 2.1.1

LEGEND
- Mining Lease Boundary
- Local Government Area Boundary
- Operating Coal Mine

Source: Department of Natural Resource and Mines (2016); Geoscience (2011)

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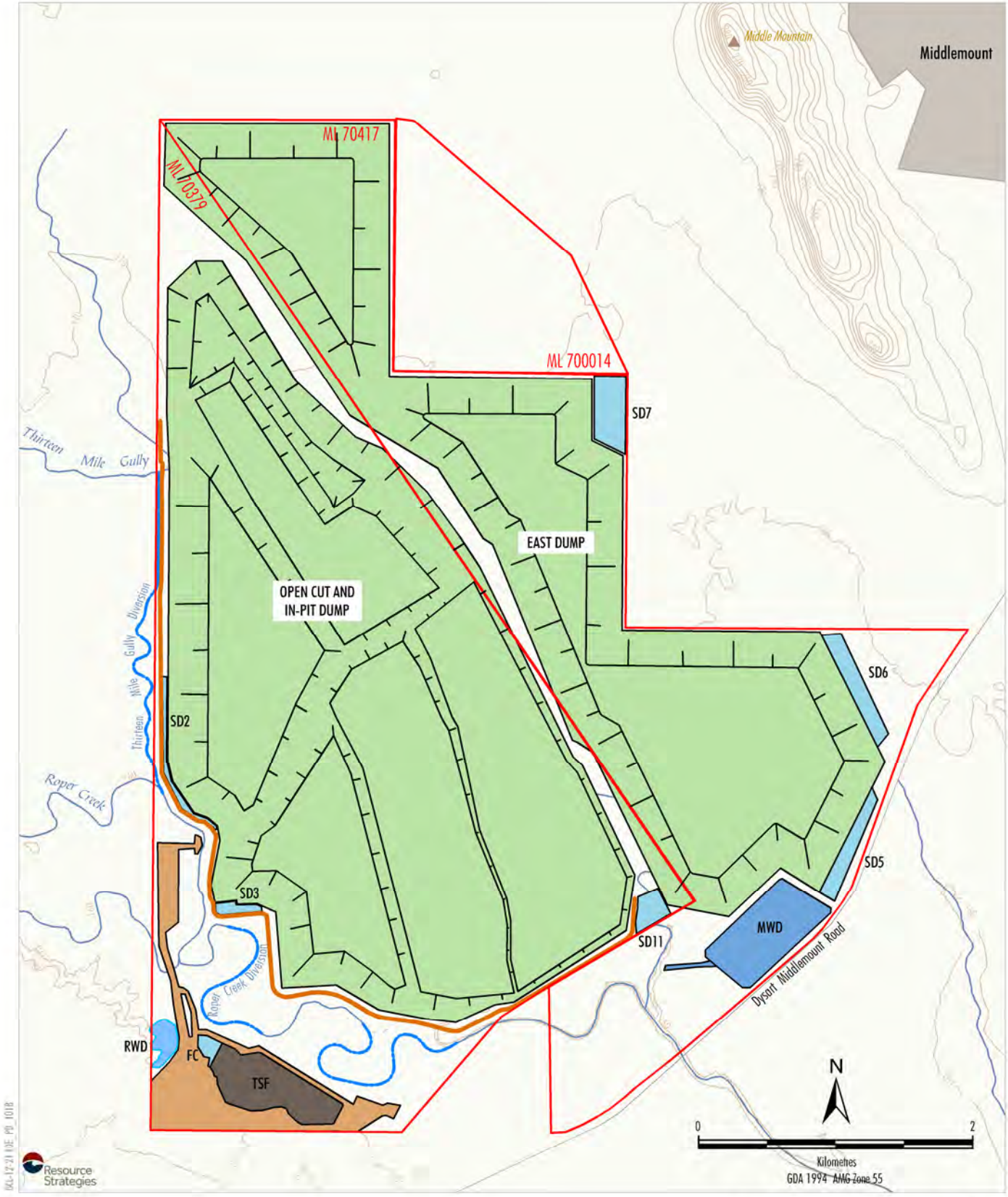
NORTH-EASTERN EXTENSION

Regional Location

Figure 1



LEGEND

- Mining Lease Boundary
- Mining Pit and Spoil
- Tailings Storage Facility
- Mine Infrastructure Area
- Mine Water Dam
- Sediment Dam
- Watercourse
- Watercourse Diversion
- Levee
- Contours

Source: Environmental Authority EPML00716913 - Middlemount Coal Mine

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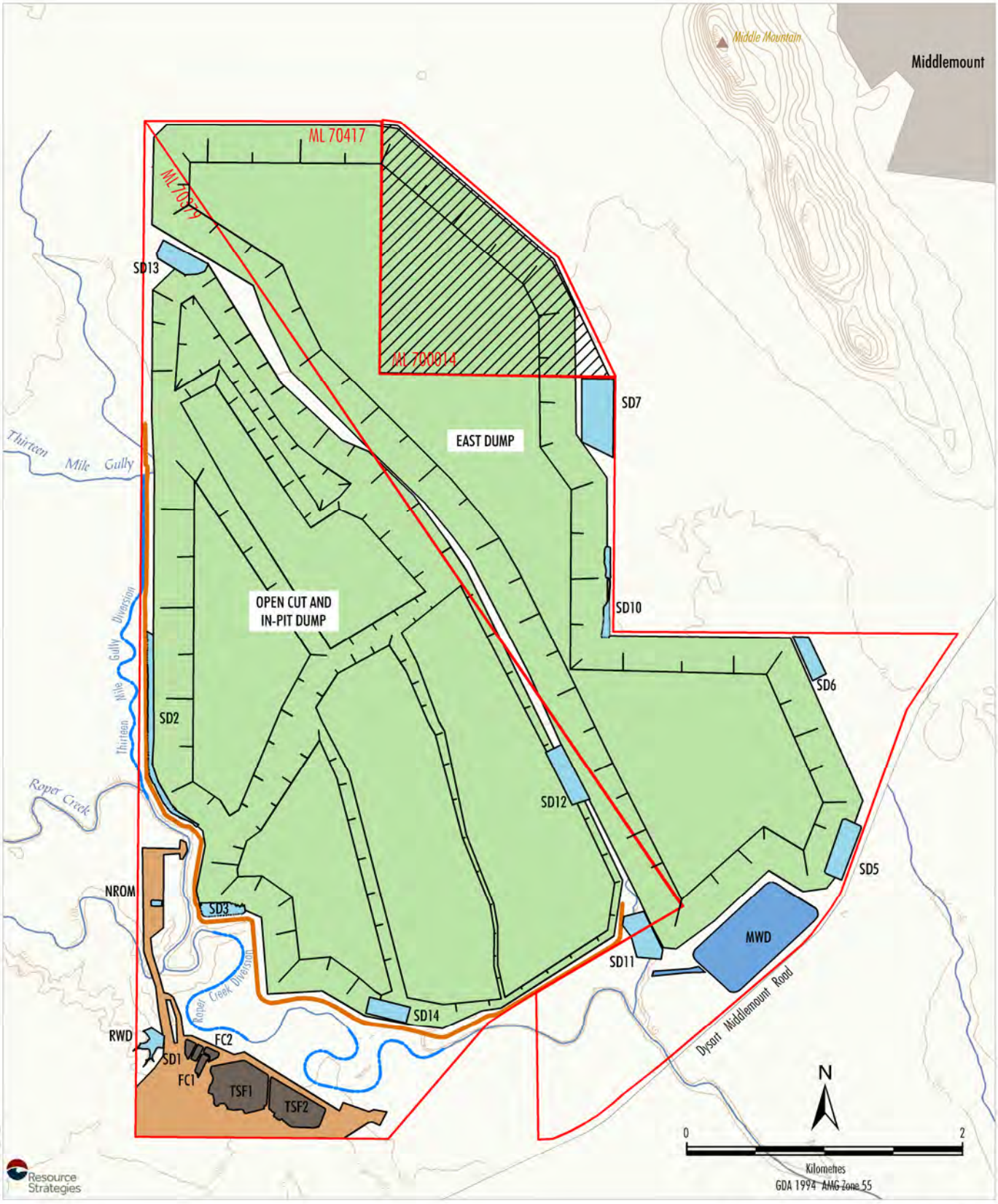
NORTH-EASTERN EXTENSION

Middlemount Coal Mine

General Arrangement

Figure 2



LEGEND

- Mining Lease Boundary
- Approximate Extent of North-eastern Extension (the Action)
- Mining Pit and Spoil
- Mine Infrastructure Area
- Mine Water Dam
- Sediment Dam
- Tailings Storage Facility
- Watercourse
- Watercourse Diversion
- Levee
- Contours

Source: Environmental Authority EPML00716913 - Middlemount Coal Mine

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NORTH-EASTERN EXTENSION

General Arrangement of the Middlemount Coal Mine Incorporating the Action

Figure 3

Table 1 (Continued)
EPBC Act Assessment Requirements (Additional Information Request) – Reference Summary

Section	Assessment Requirement	Reference
1 Cont.	*c. Justification for not returning to conduct bat surveys using working equipment; or*	Section 2.1.2
	d. Results of a recent ANABAT survey and/or survey results for nocturnal flying species using mist nets;	Section 2.1.2
	e. Appraisal of habitat appropriateness within the project for each of the above four species; and	Sections 2.1.1 to 2.1.4
	f. Whether based on this new information a significant impact is likely and if so, what offsets are proposed (using the information requested below for the squatter pigeon as a guideline).	Sections 2.1.1 to 2.1.4 and 2.2.3
	Please also provide a more detailed assessment of direct and indirect impacts for the above listed threatened species, including, but not limited to:	
	g. a description of proposed avoidance and mitigation measures to deal with any relevant impacts of the action, including mitigation measures proposed to be taken by the Queensland Government and local governments;	Section 2.2.4
	h. assessment of the expected or predicted effectiveness of the avoidance and mitigation measures for each species, including the scale and intensity of impacts of the proposed action and the on-ground benefits to be gained through each of these measures. Where an impact on a species is avoided this should be stated;	Section 2.2.4
	i. any statutory or policy basis for the mitigation measures;	
	ii. the cost of the mitigation measures;	
	iii. survey effort and methodology;	
	iv. amount and type of habitat to be impacted;	
	v. indirect impacts (for example weed invasion or fragmentation); and	
	vi. maps depicting habitat to be impacted.	
	i. Address how the proposed action is not inconsistent with relevant conservation advice, recovery plans and threat abatement plans;	Sections 2.2.3 and 2.3.7
	Based on the information provided in the referral and pre-referral, the Department has a view that a significant impact on the vulnerable squatter pigeon (southern)(Geophaps scripta scripta) is likely should the project proceed. In the event that impacts upon the squatter pigeon cannot be avoided or mitigated, please provide details for offsets for loss of squatter pigeon habitat, including:	
	a. The type of offsets proposed (direct/indirect);	Section 2.3.2 and Attachment C
	b. The location (including a geo-referenced map) and suitability of proposed direct offsets for squatter pigeons;	Section 2.3.3 and Attachment C
	c. Conservation gain to be achieved by the offset, ie, positive management strategies that will improve the site or avert future loss and degradation or damage to the protected matter;	Section 2.3.4, Attachments C and D
	d. Current habitat quality scores of the project site and the offset site;	Section 2.3.6 and Attachment C
	e. Target habitat quality scores at the proposed offset site;	
	f. Time it will take to achieve the proposed conservation gain;	
	g. Level of certainty that the proposed offset will be successful;	

Table 1 (Continued)
EPBC Act Assessment Requirements (Additional Information Request) – Reference Summary

Section	Assessment Requirement	Reference
1 Cont.	*h. Current land tenure of any proposed offset and the method of securing enduring protection of the offset site and managing the offset for the life of the impact;*	Section 2.3.5 and Attachment C
	i. How the proposed offset is consistent with the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy (October 2012); and	Section 2.3.6 and Attachment C
	j. How the proposed offset will address the relevant conservation advice and threat abatement plans related to the squatter pigeon.	Sections 2.3.3, 2.3.7 and Attachment C
	Please note that all figures used to determine the suitability of offsets including habitat quality scores at the project site must be derived using a suitably robust and repeatable framework. Details about each framework must also be provided.	Attachment C
2	***Economic and Social Matters*** *Please provide details on the social and economic costs and/or benefits of undertaking the proposed action, including the:*	
	a. Basis for any estimations of costs and/or benefits;	Section 3.1
	b. Potential employment opportunities expected to be generated during development and operation of the proposed action;	
	c. If economic benefits and employment opportunities are in addition to what would have been expected if the action were not to take place; and	
	d. Details of any public stakeholder consultation activities, including the outcomes.	Section 3.2
3	***Ecologically Sustainable Development*** *Please provide a description of the proposed action in relation* [sic] *the principles of ecologically sustainable development, as defined in section 3A of the EPBC Act.*	Section 4
4	***Outcomes Based Conditions*** *If you wish to pursue outcomes-based conditions in the event that the action is approved with conditions, the preliminary documentation should provide information on the outcomes that will be achieved for matters of national environmental significance.* *Outcomes need to be specific, measurable and achievable, and should be based on robust baseline data. Outcomes should be developed in consideration of the Department's Outcomes-based Conditions Policy (2016) and Outcomes-based Conditions Guidance (2016), with suitable justification for considerations identified in the policy and guidance.* *To allow application of the outcomes-based conditions, the preliminary documentation should include:*	Section 5
	a. The specific environmental outcomes to be achieved, and reasoning for these in reference to relevant statutory recovery plans, conservation advices and threat abatement plans.	
	b. For each proposed environmental outcome:	
	i. The risks associated with achieving the outcome;	
	ii. The measurability of the outcome, including all suitable performance measures;	
	iii. Appropriate baseline data upon which the outcome has been defined and justified;	
	iv. The likely impacts that the proposed outcome will address;	
	v. Demonstrated willingness and capability of achieving the outcome;	

Table 1 (Continued)
EPBC Act Assessment Requirements (Additional Information Request) – Reference Summary

Section	Assessment Requirement	Reference
4 Cont.	*vi. The level of knowledge about the protected matter or its surrogate, upon which outcomes were based;*	Section 5
	vii. Commitments to independent and periodic audits of performance towards achieving outcomes;	
	viii. Assessment of the likely level of control that the proponent will have over achieving the outcome;	
	ix. Discussion of the appropriateness of any surrogates for protected matter outcomes; and	
	x. Details of proposed management measures to achieve the outcome, including, but not limited to performance indicators, periodic milestones, proposed monitoring and adaptive management, and record keeping, publication and reporting procedures.	
	Once you have provided the Department with the information requested in this letter, you will then be issued with a direction to publish including details on what you are required to publish and for how long.	
5	***Presentation*** *Preliminary documentation should be bound in a single volume and must be accompanied by an index identifying what documents are included. Information must be presented using language that is intelligible to the general reader, and accompanied by maps, figures, tables, etc where appropriate.*	N/A

On 26 October 2016, the DEE provided further EPBC Act Assessment Requirements following review of the draft Preliminary Documentation. Table 2 outlines the assessment requirements provided by the DEE and the corresponding section in this document where the information is provided.

Table 2
Further EPBC Act Assessment Requirements
(Additional Information Request) – Reference Summary

#	Relevant Matter	Comment	Reference
1	*Offsets for the squatter pigeon*	*In order to assess the suitability of the proposed offset, the draft preliminary documentation should include an offset proposal supported by an EBPC Act Environmental Offset Guide, as well as an Offset Management Plan. The information request dated 28 July 2016 outlines what information should be included in these documents and requires that figures quoted in the EBPC Act Environmental Offset Guide must be supported by a robust and repeatable framework. The Queensland Government's Guide to determining terrestrial habitat quality (DEHP, 2014), is an example of an acceptable framework.*	Attachments C and D
2	*Koalas*	*I note that the draft preliminary documentation includes a description of what survey methods were used targeting koalas. However, there is little detail regarding the location of surveys or duration of effort.*	Section 2.1.1 and Figure 6
3	*Threatened bats*	*The information provided in the draft preliminary documentation provides some discussion regarding the presence or absence of the ghost bat and south-eastern long-eared bat. However, the survey information provided is from 2009 and from an adjacent property. Please provide more recent and site-specific information. While suitable breeding (inferred by the presence of tree hollows), roosting and foraging habitat have been identified for the southeastern long-eared bat, the documents claim that no habitat critical to the survival of the species exists with the action area. Further information needs to be provided to explain and justify this statement.*	Sections 2.1.2, 2.2.3.2 and 2.1.3

2 LISTED THREATENED SPECIES AND ECOLOGICAL COMMUNITIES

2.1 OCCURRENCE OF THE SPECIES AND/OR ITS HABITAT

Further information has been requested by the DEE (dated 29 July and 26 October 2016) regarding the survey methodology for, and potential impacts to, the following species:

- Koala (*Phascolarctos cinereus*);
- South-eastern Long-eared Bat (*Nyctophilus corbeni*);
- Ghost Bat (*Macroderma gigas*); and
- Yakka Skink (*Egernia rugosa*).

The following subsections provide additional information regarding the species distribution, targeted survey methods employed within the Action area, potential habitat within the Action area and the likelihood of occurrence of each of these four species.

Further information regarding the survey methodology for, and potential impacts to, the Squatter Pigeon (southern) (*Geophaps scripta scripta*) has not been requested by the DEE and is therefore not provided in this section. Information on how the proposed biodiversity offset package addresses potential impacts on the Squatter Pigeon (southern) is provided in Section 2.3.

2.1.1 Koala

The Koala is listed as 'Vulnerable' under the EPBC Act. The 'Vulnerable' listing of the Koala under the EPBC Act applies to populations of QLD, New South Wales and the Australian Capital Territory.

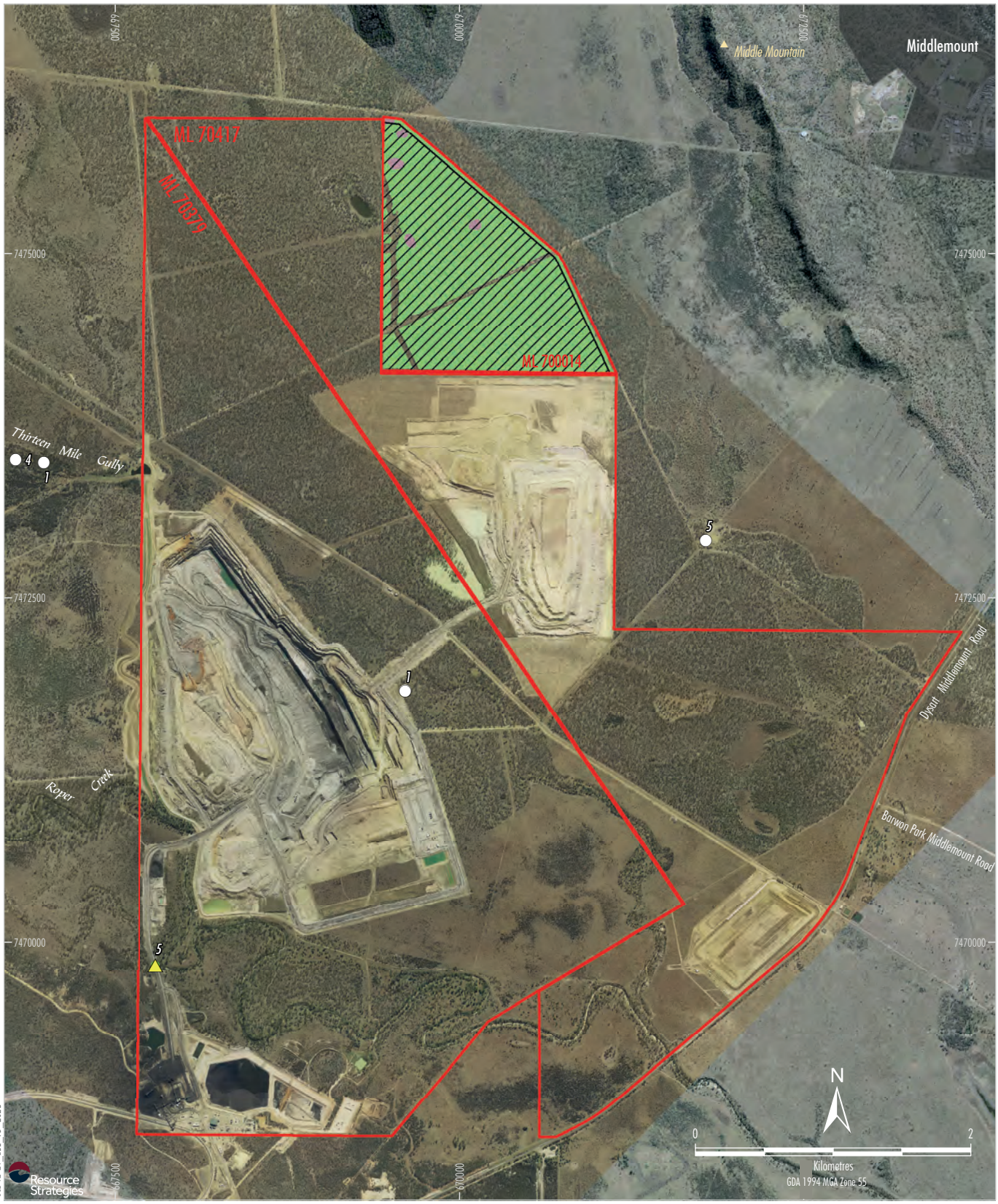
The Koala was not recorded within the Action area despite targeted survey work (Naturecall, 2016a), however, it has been previously recorded in the Middlemount Coal Mine area (Figure 4).

Distribution

The Koala has a fragmented distribution throughout eastern Australia from north-east QLD to the Eyre Peninsula in South Australia (Van Dyck and Strahan, 2008). In 2006, between 100,000 and 300,000 Koalas were estimated to occur in QLD (Environmental Protection Authority [EPA], 2006). The greatest concentration of Koala occurs in South East QLD (Department of Environment and Heritage [DEHP], 2012), although the species extends to Cooktown (Natural Resource Management Ministerial Council, 2009).

This species is widespread in sclerophyll forest and woodland on foothills and plains on both sides of the Great Dividing Range from about Chillagoe, QLD to Mt Lofty Ranges in South Australia (Menkhorst and Knight, 2011). The Koala inhabits a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by species from the genus *Eucalyptus* (Martin and Handasyde, 1999). Essentially any forest or woodland containing species which are known Koala food trees, or shrubland with emergent food trees provides potential Koala habitat. Koalas are known to occur in modified or regenerating native vegetation communities (DEE, 2016).

The Koala has been previously recorded within the wider surrounds on a number of occasions, with the closest record being located approximately 5 km to the south-west of the Action area (Figure 5).



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LEGEND

- Mining Lease Boundary
- Approximate Extent of North-eastern Extension (the Action)

Regional Ecosystem Mapping

- 11.5.3 (Of Least Concern)
- 11.5.3b (Of Least Concern)

Threatened Species Records

- Koala
- Squatter Pigeon

Reference: 1 Parsons Brinckerhoff (2009-2010)
4 Naturecall Environmental (2013)
5 Naturecall Environmental (2014)
Note: There are no references 2 and 3 on this figure.

Source: MCPL (2014); Department of Natural Resources and Mines (2016); Naturecall (2015)
Orthophoto: MCPL (2014, 2012)

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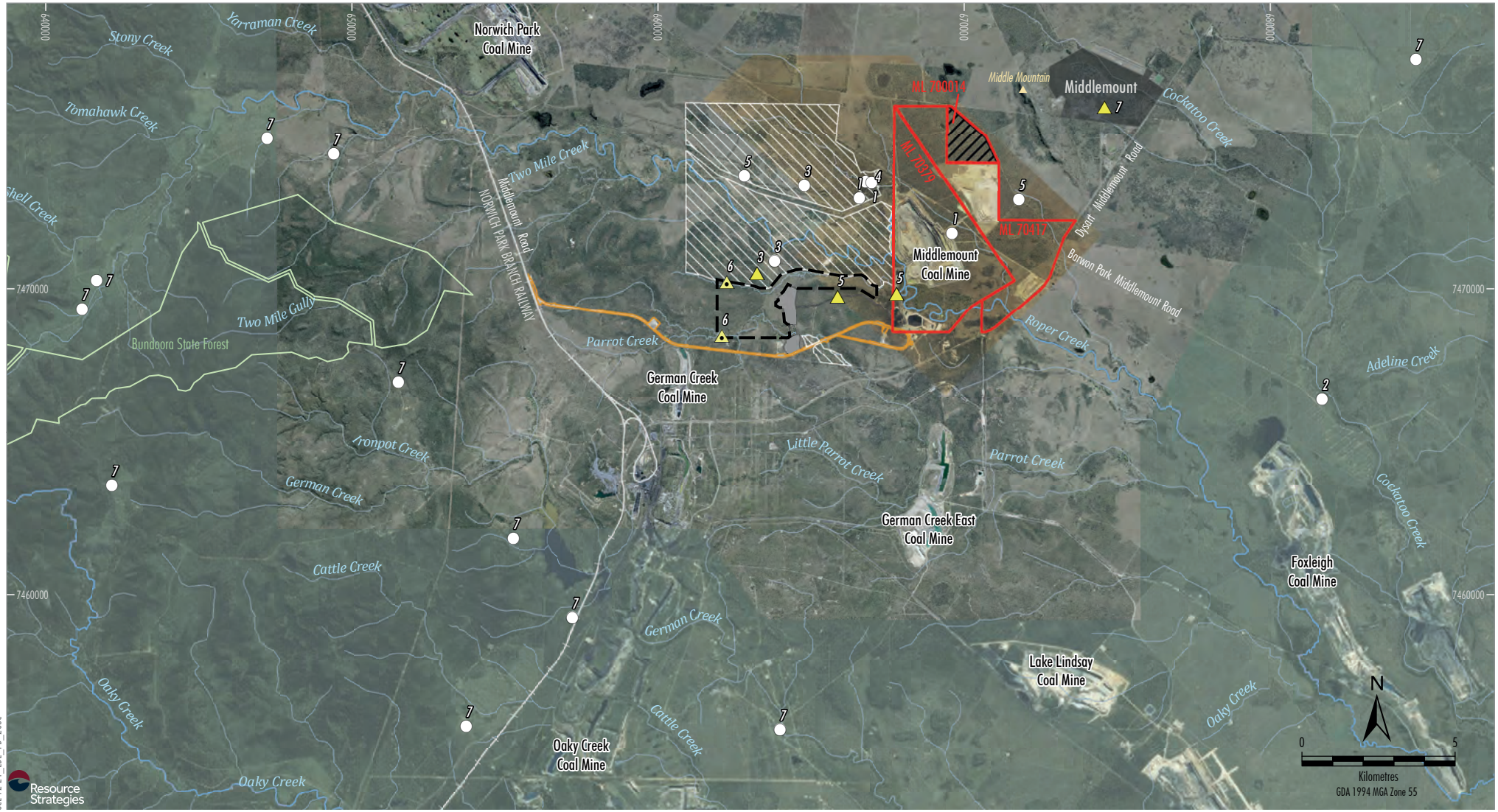
NORTH-EASTERN EXTENSION

Ground-truthed Regional Ecosystem Mapping and Recorded EPBC Act Listed Fauna Species in the Action Area and Immediate Surrounds

Figure 4



LEGEND

- Mining Lease
- Approximate Extent of North-eastern Extension
- Parrot Quarry
- Existing Offset Area
- Proposed Offset Area

Threatened Species Records

- Koala
- Koala Scratches/Scats
- Squatter Pigeon

Reference: 1 Parsons Brinckerhoff (2009-2010)
2 Ecological (2009-2010)
3 Ecology and Heritage Partners (2012)
4 Naturecall Environmental (2013)
5 Naturecall Environmental (2014)
6 Naturecall Environmental (2016)
7 Atlas of Living Australia (2016)

Source: MCPL (2014); Department of Natural Resources and Mines (2016); State of Queensland (Department of National Parks, Sport and Racing) (2016) Department of Environment and Heritage Protection (2016)
Orthophoto: MCPL (2014, 2012); Esri Basemap

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NORTH-EASTERN EXTENSION

Location of the Proposed Offset Area

Figure 5

Targeted Surveys

Naturecall (2016a) describe that they undertook targeted surveys in the Action area for the Koala from 12 to 16 October 2015 in accordance with the following Commonwealth guidelines:

- *EPBC Act Referral Guidelines for the Vulnerable Koala (Combined Populations of Queensland, New South Wales and the Australian Capital Territory)* (Department of the Environment [DotE], 2014); and
- *Survey Guidelines for Australia's Threatened Mammals* (Department of Sustainability, Environment, Water, Population and Communities [SEWPaC], 2011a).

These guidelines identify a number of survey techniques which could be employed to detect the presence of the Koala, including diurnal transect searches, nocturnal spotlighting, call playback and remote sensor activated cameras (DotE, 2014; SEWPaC, 2011a).

As prescribed by these guidelines, the following survey methodologies were employed by Naturecall (2016a) to survey for the Koala:

- call playback;
- camera traps;
- diurnal and nocturnal transects; and
- opportunistic observations.

In addition, habitat assessments were conducted to determine whether the Action area provided suitable habitat for the Koala (Naturecall, 2016a).

Figure 6 show the location of the fauna survey sites surveyed by Naturecall (2016a) in the Action area. The survey effort (duration of surveys) is described below.

Call Playback

Koala calls were played through a portable MP3 player from the rear of a car. The methodology involved an initial period of listening and spotlighting; followed by the broadcasting of Koala calls simulating a natural pattern (Naturecall, 2016a). This was followed by 10 minutes of listening and 15-20 minutes spotlighting for fauna attracted by the calls (but not responding vocally), within a 100 metre (m) radius of the playback point.

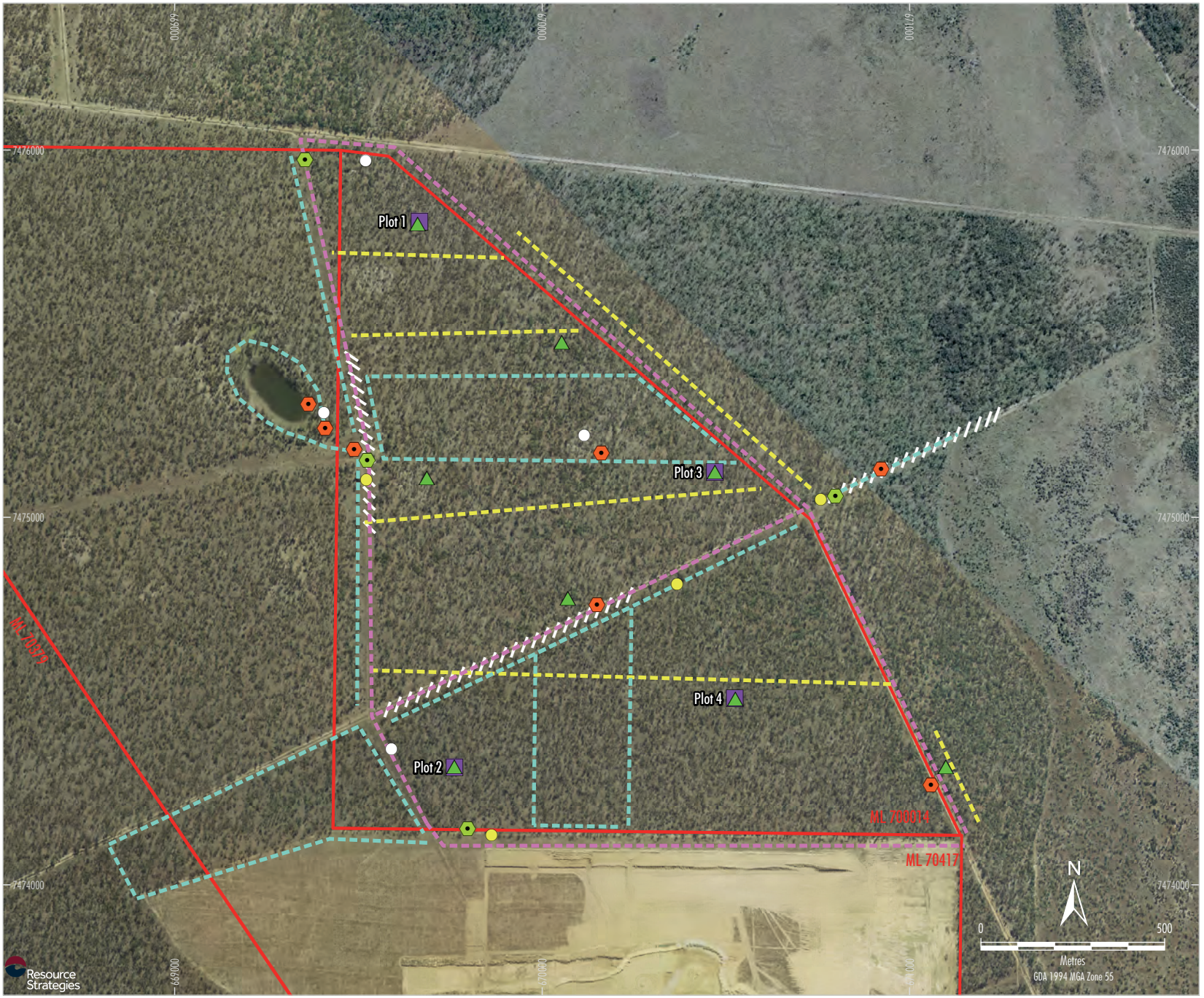
Calls were generally played soon after dusk, when such calls are typically heard. Playback was utilised over the Action area over four nights for a total of four hours.

Camera Traps

Four infra-red cameras were deployed at various locations across the Action area either in forested areas or facing a road/track. The cameras were set for four consecutive nights, and were moved to a new location after the second night.

Diurnal and Nocturnal Transects

Diurnal searches for scats, tracks, feeding marks on trees and scratch marks on trees were undertaken along three walking transects and at eight additional survey sites.



Source: Naturecall (2016); MCPL (2014); Department of Natural Resources and Mines (2016)
Orthophoto: MCPL (2014, 2012)

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NORTH-EASTERN EXTENSION

Survey Effort

Figure 6

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As identified in the *EPBC Act Referral Guidelines for the Vulnerable Koala (Combined Populations of Queensland, New South Wales and the Australian Capital Territory)* (DotE, 2014), daytime transects are relevant when Koala activity and density is high.

Given the Koala density in the Action area was not considered to be high, nocturnal spotlighting transects were favoured during the field surveys. Nocturnal spotlighting transects were conducted approximately one hour after dusk for 1.5-2 hours per night for four nights over the Action area. This involved driving transects from a vehicle moving at walking pace along roads and tracks and walking transects using hand-held spotlights through both vegetated areas and along tracks (Naturecall, 2016a).

All habitat components (e.g. understorey/canopy trees for arboreal fauna), the ground and terrestrial strata (e.g. logs, areas with good leaf litter accumulations, etc.) were searched for terrestrial fauna.

Opportunistic Observations

Species were identified opportunistically whilst walking around the Action area and between survey sites.

Habitat in the Action Area and Surrounds

Koalas mainly feed on the foliage of *Eucalyptus* spp. however they may also feed on related genera such as *Corymbia* spp.. Queensland Blue Gum (*Eucalyptus tereticornis*) and River Red Gum (*Eucalyptus camaldulensis*) are recognised as important for the species in the northern part of their range (Van Dyck and Strahan, 2008). In addition, a list of known Koala food trees within south-east and south-west QLD is provided in *Land for Wildlife Queensland: Note A4 Koalas* (Land for Wildlife, 2014) which also identifies Queensland Blue Gum and River Red Gum as important species.

Koalas are also known to favour habitat where the food trees are growing on more fertile soils and in close proximity to watercourses (DEHP, 2016; Millard, 2012).

Table 3 provides justification for the Koala habitat assessment score which has been calculated in accordance with the *EPBC Act Referral Guidelines for the Vulnerable Koala (Combined Populations of Queensland, New South Wales and the Australian Capital Territory)* (DotE, 2014).

Table 3
Koala Habitat Appraisal

Attribute[1]	Score[1]	Habitat Appraisal[2]
Koala occurrence	0	This attribute is rated 0 as there is no evidence of a koala within 2 km of the edge of the Action area within the last 10 years.
Vegetation composition	2	This attribute is rated 2 as the woodland within the Action area has two or more known Koala food tree species in the canopy (e.g. Blue Gum and Poplar Box) (Naturecall, 2016a).
Habitat connectivity	2	This attribute is rated 2 as the Action area is part of a contiguous landscape 1,000 hectares (ha).
Key existing threats	0	This attribute is rated 0 as Koala occurrence has been scores as a 0 and the Action area is determined to have a significant dog threat (Naturecall, 2016a).
Recovery value	0	This attribute is rated 0 as the habitat in the Action area is unlikely to be important for achieving the interim recovery objectives listed in with the *EPBC Act Referral Guidelines for the Vulnerable Koala (Combined Populations of Queensland, New South Wales and the Australian Capital Territory)* (DotE, 2014).
Total	**4**	

[1] DotE (2014).

[2] Naturecall (2016a).

In accordance with the *EPBC Act Referral Guidelines for the Vulnerable Koala (Combined Populations of Queensland, New South Wales and the Australian Capital Territory)* (DotE, 2014), the Action area is not considered to support habitat critical to the survival of the Koala (Naturecall, 2016a).

The presence of Queensland Blue Gums (identified as an important Koala food tree [Van Dyck and Strahan, 2008; Land for Wildlife, 2014]) is minimal within the Action area with only one patch of less than five small trees identified (Naturecall, 2016a). Naturecall (2016a) also conclude that the soils within the Action area are of poor quality resulting in a low quality of habitat for the Koala, were it to occur.

Better quality potential habitat for the Koala is more widespread in the landscape outside the Action area (e.g. more abundant important Koala food trees [Queensland Blue Gum – *Eucalyptus tereticornis*] occur along the watercourses to the south-west of the Middlemount Coal Mine) (Naturecall, 2016b).

Likelihood of Occurrence

Naturecall (2016a) determined that the Action area only provides low quality habitat for the Koala given the lack of Koala records within the Action area, limited occurrence of important Koala food trees and the poor soil quality.

Given this it is unlikely that the Koala would utilise the habitat within the Action area. Any Koalas that may occur within the Action area would be transient and much more likely to rely on the better quality habitat in the surrounding locality.

2.1.2 South-eastern Long-eared Bat

The South-eastern Long-eared Bat is listed as ‘Vulnerable’ under the EPBC Act.

Distribution

The South-eastern Long-eared Bat is found in southern central QLD, central western New South Wales, north-western Victoria and eastern South Australia, where it is patchily distributed, with most of its range in the Murray Darling Basin (Duncan et al., 1999). Most records are from inland of the Great Dividing Range (Parnaby, 2009). The species is uncommon within this distribution and is rarely recorded (DotE, 2014), except in some areas including the Nandewar and Brigalow Belt South bioregions in New South Wales and QLD. The species occurs in a number of national parks and nature reserves across its range.

Approximately 30% of the total distribution of the species occurs in QLD, although there are records from fewer than 30 localities, mainly from within the Brigalow Belt South bioregion (DEE, 2016). The South-eastern Long-eared Bat is mainly recorded in the Brigalow Belt South Bioregion, extending eastwards to the Bunya Mountains National Park and has been recorded as far north as the Expedition Range and Dawson River areas (DEE, 2016; DEHP, 2014).

There are no confirmed records of the South-eastern Long-eared Bat within 250 km of the Action area (Atlas of Living Australia [ALA], 2016).

Targeted Surveys

Parsons Brinckerhoff (2010) describe that they conducted targeted bat surveys within the Middlemount Coal Mine in accordance with the Commonwealth *Survey Guidelines for Australia's Threatened Bats* (SEWPaC, 2010) during November 2009 and February 2010. Survey methods included active and passive Anabat surveys (a total of 16 survey nights) and utilisation of harp traps (a total of 12 trap nights). Parsons Brinckeroff (2010) recorded a total of 12 bat species. No *Nyctophilus* species were recorded during these surveys.

In addition, Naturecall (2014; 2015) describe that they conducted bat surveys in the existing offset areas in accordance with the Commonwealth *Survey Guidelines for Australia's Threatened Bats* (SEWPaC, 2010) and a number of native bat species were recorded (e.g. Little Pied Bat, Eastern Cave Bat, Eastern Bentwing-bat, etc). A *Nyctophilus* sp. was recorded during these surveys[1]. As this species was potentially recorded by Naturecall (2014), this document conservatively assumes the South-eastern Long-eared Bat occurs in the locality.

While ANABAT surveys were attempted by Naturecall over four nights within the Action area, no useable data was able to be obtained for analysis (Naturecall, 2015). However, given the wide range of the potentially occurring threatened bat species and the continuity of habitats between the Action area, the Middlemount Coal Mine and existing offset area, the surveys in the adjacent areas are considered to provide a good indication of the presence (or likelihood of occurrence) of threatened bat species within the Action area. As described in further detail below, on the basis that the Action area is considered to contain potential foraging and roosting habitat for the South eastern Long-eared Bat, the proposed offset area provides for the conservation of 339 ha of potential foraging and roosting habitat resources (Section 2.3).

Habitat in the Action Area and Surrounds

The South-eastern Long-eared Bat occurs in a range of inland woodland vegetation types, including box, ironbark and cypress pine woodlands. The species also occurs in Buloke woodland, Brigalow woodland, Belah woodland, Smooth-barked Apple (*Angophora leiocarpa*), woodland; River Red Gum (*Eucalyptus camaldulensis*), forests lining watercourses and lakes, Black Box (*Eucalyptus largiflorens*), woodland, and dry sclerophyll forest (DEE, 2016). Individuals used a number of different roost sites in the same night (Schulz and Lumsden, 2010; DEE, 2016).

Habitat assessments were conducted to determine whether the Action area provided suitable habitat for the South-eastern Long-eared Bat by Naturecall (2016a). The Action area contains predominantly Poplar Box woodland which would provide suitable foraging habitat for this species. In addition, hollow-bearing trees are common throughout the Action area and would potentially provide suitable roosting habitat for the South-eastern Long-eared Bat, were it to occur.

No habitat within the Action area has been identified as important or critical habitat for the South-eastern Long-eared Bat in any recovery plans or listed on the EPBC Act *Register of Critical Habitat* maintained by the Minister of the Environment under the EPBC Act (DEE, 2016).

Although potential South-eastern Long-eared Bat habitat exists within the Action area, better quality potential habitat for this species is more widespread in the landscape outside the Action area (e.g. more abundant foraging and roosting resources occurs in suitable habitat to the south-west of the Middlemount Coal Mine) (Naturecall, 2016b).

[1] *Nyctophilus* sp. calls recorded via bat recording devices were identified to genus level only as calls could not be distinguished from other potential occurring bat species.

Likelihood of Occurrence

As described above, the Action area contains potential foraging and roosting habitat for the South eastern Long-eared Bat, were it to occur within the locality. Based on the presence of potential habitat and the wide distribution of this species it is possible that the South-eastern Long-eared Bat could occur within the Action area.

As described in Sections 2.2.3.2 and 2.3, the proposed offset area provides for the conservation and management of 339 ha of potential foraging and roosting habitat resources for the South-eastern Long-eared Bat and 193 ha of derived grassland that would be managed to encourage natural regeneration to provide a net gain in habitat.

2.1.3 Ghost Bat

The Ghost Bat is listed as 'Vulnerable' under the EPBC Act.

Distribution

The Ghost Bat's range is discontinuous, with geographically disjunct colonies occurring in the Pilbara, Kimberley (including several islands), Northern Territory (including Groote Eylandt), the Gulf of Carpentaria, coastal and near coastal eastern QLD from Cape York to near Rockhampton, and western QLD (Threatened Species Scientific Committee [TSSC], 2016). Only 14 breeding sites are currently known (TSSC, 2016).

The QLD subpopulations are predominantly located in four highly disjunct localities (i.e. Mt Etna near Rockhampton, Cape Hillsborough near Mackay, Camooweal [bordering the Northern Territory] and Kings Plain near Cooktown) (TSSC, 2016). Limited information is available for any other colonies, but most are considered to be small with fewer than 50 individuals.

There are no records of the Ghost Bat within approximately 130 km of the Action area (ALA, 2016).

Targeted Surveys

Parsons Brinckerhoff (2010) describe that they conducted targeted bat surveys within the Middlemount Coal Mine in accordance with the Commonwealth *Survey Guidelines for Australia's Threatened Bats* (SEWPaC, 2000) during November 2009 and February 2010. Survey methods included active and passive Anabat surveys (a total of 16 survey nights) and utilisation of harp traps (a total of 12 trap nights). Parsons Brinckerhoff (2010) recorded a total of 12 bat species. The Ghost Bat was not recorded during these surveys.

In addition, Naturecall (2014; 2015) describe that they conducted bat surveys in the existing offset areas in accordance with the Commonwealth *Survey Guidelines for Australia's Threatened Bats* (SEWPaC, 2010) and a number of native bat species were recorded (e.g. Little Pied Bat, Eastern Cave Bat, Eastern Bentwing-bat, etc). The Ghost Bat was not recorded during these surveys.

Given the wide range of the potentially occurring threatened bat species and the continuity of habitats between the Action area, the Middlemount Coal Mine and existing offset area, the surveys in the adjacent areas are considered to provide a good indication of the presence (or likelihood of occurrence) of threatened bat species within the Action area.

Habitat in the Action Area and Surrounds

Ghost Bats occupy habitats ranging from the arid Pilbara to tropical savanna woodlands and rainforests. During the daytime this species roost in caves, rock crevices and old mines. Roost sites are generally deep natural caves or disused mines with a relatively stable temperature and a moderate to high relative humidity (TSSC, 2016).

Ghost Bats are carnivores, with a broad diet comprising small mammals including other bats, birds, reptiles, frogs and large insects (TSSC, 2016). They move between a number of caves seasonally or as dictated by weather conditions, and require a range of cave sites (TSSC, 2016). Most breeding sites appear to require multiple entranced caves (TSSC, 2016). Ghost bats disperse widely when not breeding, but concentrate in a relatively few roost sites when breeding.

Habitat assessments were conducted to determine whether the Action area provided suitable habitat for the Ghost Bat by Naturecall. The Action area does not contain caves, rock crevices or disused mine shafts that would provide habitat for this species. The Action area contains foraging resources for the Ghost Bat (i.e. small mammals and birds), however the lack of suitable roosting habitat nearby would significantly reduce the likelihood that the Ghost Bat would forage within the Action area.

No habitat within the Action area has been identified as important or critical habitat for the Ghost Bat in any recovery plans or listed on the EPBC Act *Register of Critical Habitat* maintained by the Minister of the Environment under the EPBC Act.

Likelihood of Occurrence

The distribution of this species throughout QLD is predominantly restricted to four key populations (none of which occur near the Action area) and there are no database records of this species within approximately 130 km of the Action area. In addition, the Action area does not contain suitable roosting habitat for this species (hence no habitat critical to the survival of the species). Given this, it is unlikely that the Ghost Bat would utilise the habitat within the Action area, and therefore the Action would not result in a significant impact to this species.

As such, no further assessment of potential impacts to the Ghost Bat is considered warranted.

2.1.4 Yakka Skink

The Yakka Skink is listed as ‘Vulnerable’ under the EPBC Act.

Distribution

The Yakka Skink is endemic to QLD where its distribution is patchy. Isolated populations occur throughout subhumid areas in the interior of QLD from St George in the south, to Coen and Cape York in the north. In the southern half of the Brigalow Belt it occurs near Rockhampton, south to St George and west to Chesterton Range National Park. The core habitat of this species is within the Mulga Lands and Brigalow Belt South Bioregions (TSSC, 2014). Other populations have been recorded throughout the Brigalow Belt North and Einasleigh Uplands Bioregions (TSSC, 2014). Populations have been recorded across a range of land tenures including Thrushton National Park and Culgoa Floodplain National Park.

There are no records of the Yakka Skink within approximately 100 km of the Action area (ALA, 2016).

Targeted Surveys

Naturecall (2016a) describe that they undertook targeted surveys for the Yakka Skink from 12 to 16 October 2015 in accordance with the following Commonwealth guidelines:

- *Draft Referral Guidelines for the Nationally Listed Brigalow Belt Reptiles* (SEWPaC, 2011b); and
- *Survey Guidelines for Australia's Threatened Reptiles* (SEWPaC, 2011c).

These guidelines identify a number of survey techniques which could be employed to detect the presence of the Yakka Skink, including searching for burrow systems and communal defecation sites, and nocturnal spotlighting (DEE, 2016; SEWPaC, 2011c).

As prescribed by these guidelines Naturecall (2016a) conducted herpetofauna searches and nocturnal spotlighting to survey for the Yakka Skink (Figure 6).

Herpetofauna Searches

Searches targeting the Yakka Skink were undertaken within 50 m x 50 m quadrats at eight locations within the Action area.

Searching for burrow systems and communal defecation sites involved active diurnal lifting up and rolling of timber and debris, inspection of dense vegetation and leaf litter, observation of likely basking sites and for a total of 60 person minutes per site. Nocturnal herpetofauna torch searches were carried out in conjunction with walking spotlight transects.

Spotlighting

Spotlighting was conducted approximately one hour after dusk for 1.5-2 hours per night for four nights over the Action area. This involved driving transects from a vehicle moving at walking pace along roads and tracks and walking transects using hand-held spotlights through both vegetated areas and along tracks.

Habitat in the Action Area and Surrounds

The Yakka Skink is found in open dry sclerophyll forest or woodland (Cogger, 2014). This species will often take refuge among dense ground vegetation, large hollow logs, cavities in soil-bound root systems of fallen trees and beneath rocks (Cogger, 2014). They may also excavate burrow systems among low vegetation or below logs (TSSC, 2014). In cleared habitat, Yakka Skinks may persist where shelter sites such as tunnel erosion, rabbit warrens and log piles exist (TSSC, 2014).

The Action area is considered to offer low quality/marginal habitat for the Yakka Skink due to the lack of preferred vegetation associations and substrates (e.g. Brigalow and clay soils), the disturbance history of the site and extent of local fragmentation (Naturecall, 2016a). Better quality potential habitat for this species is more widespread in the landscape outside the Action area (e.g. more abundant suitable habitat occurs to the south-west of the Middlemount Coal Mine) (Naturecall, 2016b).

Likelihood of Occurrence

Given this species has not been recorded within approximately 100 km of the Action area and that only low quality/marginal habitat is available for the Yakka Skink, it is unlikely that this species would utilise the habitat within the Action area, and therefore the Action would not result in a significant impact to this species. As such, no further assessment of potential impacts to the Yakka Skink is considered warranted.

2.2 ASSESSMENT OF POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

This section describes the potential direct and indirect adverse impacts on Matters of National Environment Significance (MNES) from the Action (Sections 2.2.1 and 2.2.2) including an assessment of significance for each potentially occurring MNES against the Commonwealth *Significant Impact Guidelines 1.1: Matters of National Environmental Significance* (DotE, 2013) (Section 2.2.3) and proposed mitigation measures to be implemented by MCPL (Section 2.2.4).

2.2.1 Direct Impacts

The Action would require the removal of approximately 181 ha of Regional Ecosystem (RE) 11.5.3 (Poplar Box Woodland) (Figure 4). In a local and regional context, the removal of vegetation associated with the Action would account for only a fraction (less than 2%) of the remaining extent of RE 11.5.3.

Table 4 identifies the area of potential habitat for the Koala and South-eastern Long-eared Bat which is proposed to be cleared by the Action. The description of the habitat within the Action area provided in Table 4 highlights the conservative nature of the potential habitat estimates.

Table 4
Potential Habitat Clearance

MNES	Area of Habitat to be Cleared (ha)[1]	Description
Koala	181	Comprised entirely of RE 11.5.3. This habitat is located on poor quality soils and contains minimal Queensland Blue Gums (identified as an important Koala food tree [Van Dyck and Strahan, 2008; Land for Wildlife, 2014]) with only one patch of less than five small trees identified.
South-eastern Long-eared Bat	181	Comprised entirely of RE 11.5.3. This habitat has been subject to past disturbance for cattle grazing and no bat roosts or confirmed records of the South eastern Long-eared Bat are located within this habitat. The habitat in the impact area is lacking complexity.

[1] Refer to Figure 4.

2.2.2 Indirect Impacts

As described in Section 1.2, the Action comprises the extension of an approved waste dump (i.e. no additional mining activities are proposed). Although the Action would result in clearance of native vegetation it is unlikely that it would result in any indirect impacts which could significantly impact MNES (Naturecall, 2016a).

Potential indirect impacts associated with the Action may include erosion and sedimentation, dust, noise and vibration, artificial lighting and/or the introduction of introduced species (Naturecall, 2016a). These potential impacts would be reduced by the existing mitigation measures already implemented by MCPL at the Middlemount Coal Mine (e.g. erosion and sedimentation control, noise and dust management and control of introduced/exotic species).

2.2.3 Assessment of Significance

The potential impacts of the Action on MNES that are known or likely to occur within the Action area are assessed in this section in accordance with DotE (2013) *Significant Impact Guidelines 1.1: Matters of National Environmental Significance*. This includes the Koala and South-eastern Long-eared Bat.

Relevant Plan/Agreements

Relevant plan/agreements which have been considered include:

- *EPBC Act Referral Guidelines for the Vulnerable Koala (Combined Population in Queensland, New South Wales and the Australian Capital Territory)* (DotE, 2014).
- *Commonwealth Conservation Advice on Phascolarctos cinereus (Combined Population in Queensland, New South Wales and the Australian Capital Territory)* (TSSC, 2012a).
- *Listing Advice for Phascolarctos cinereus (Koala)* (TSSC, 2012b).
- *National Koala Conservation and Management Strategy 2009-2014* (Natural Resource Management Ministerial Council, 2009).
- *Approved Conservation Advice for Nyctophilus corbeni (South-eastern Long-eared Bat)* (TSSC, 2015a).
- *Commonwealth Listing Advice on Ten Species of Bats* (TSSC, 2001).
- *Threat Abatement Plan for Predation by the European Red Fox* (QLD Department of Environment, Water, Heritage and the Arts [DEWHA], 2008a).
- *Threat Abatement Plan for Predation by Feral Cats* (DEWHA, 2008b).

The Action is not inconsistent with any relevant recovery plans, conservation advice or agreements.

2.2.3.1 Koala (Phascolarctos cinereus)

Table 5 provides an assessment of adverse impacts on the Koala in accordance with DotE's (2013) *Significant Impact Guidelines 1.1: Matters of National Environmental Significance* and considering the assessment guidelines.

Table 5
Likelihood of a Significant Adverse Impact on the Koala

EPBC Act Assessment Criteria[1] Is the action likely to:	**Assessment**
Lead to a long-term decrease in the size of an important population of a species?	The Action would result in the removal/modification of approximately 181 ha of potential habitat resources for the Koala (Figure 4; Table 4). No critical habitat would be removed by the Action. The removal/modification of a portion of habitat for the Koala is unlikely to disrupt the lifecycle such that a local viable population of this species would be placed at risk of extinction given: • the Koala has not been recorded within the Action area; • minimal Queensland Blue Gums (identified as an important Koala food tree [Van Dyck and Strahan, 2008; Land for Wildlife, 2014]) are located within the Action area with only one patch of less than five small trees identified;

Table 5 (Continued)
Likelihood of a Significant Adverse Impact on the Koala

EPBC Act Assessment Criteria[1] Is the action likely to:	Assessment
Lead to a long-term decrease in the size of an important population of a species? (Cont.)	• soils within the Action area are of poor quality resulting in a low quality of habitat for the Koala, were it to occur; • better quality potential habitat for the Koala is more widespread in the landscape outside the Action area (e.g. important koala food trees [Queensland Blue Gum – *Eucalyptus tereticornis*] occur along the watercourses to the south-west of the Middlemount Coal Mine); and • Koala records are widespread in the landscape outside the Action area, as demonstrated by numerous Koala records in the wider surrounds (Figure 5). A number of measures would be implemented for the Action to minimise potential impacts on flora and fauna which would be relevant to occurrences of this species within the Action area and adjacent lands. Mitigation measures would include a vegetation clearance protocol and feral animal control (Section 2.2.4). The potential indirect impacts on the Koala associated with the Action (e.g. vehicle strike, noise, vibration, artificial lighting and/or the introduction of introduced species) are considered to be minimal and would only incrementally increase the likelihood of existing indirect impacts associated with the existing mining operations. Therefore, removal/modification of this area of habitat would have minimal impact on resources for the Koala and would not lead to a decrease in the size of the population.
Reduce the area of occupancy of an important population?	There is no evidence of Koala breeding within the locality and no critical koala habitat would be disturbed by the Action. The Action would not reduce the area of occupancy of a population.
Fragment an existing important population into two or more populations?	While potential habitat clearing would occur as a result of the Action, the nature of clearing would reduce the area of habitat rather than fragment it or further isolate habitat. This species is known to move across open paddocks/grasslands to locate suitable food resources. Given the mobile nature of the species and lack of records within the Action area, the loss of the vegetation within the Action area would not fragment the wider Koala population.
Adversely affect habitat critical to the survival of a species?	Table 3 provides an appraisal of the habitat within the Action area. Based on the rating system provided in the EPBC Act Referral Guidelines for the Koala (DotE, 2014), the habitat in the Action area does not constitute critical habitat for this species.
Disrupt the breeding cycle of an important population?	There is no evidence of Koala breeding within the locality. The Action would not disrupt the breeding cycle of the wider Koala population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	The habitat which would be removed/modified as a result of the Action (Figure 4) is expected to have a minimal impact on resources for this species and would not lead the species declining given: • the Koala has not been recorded within the Action area; • minimal Queensland Blue Gums (identified as an important Koala food tree [Van Dyck and Strahan, 2008; Land for Wildlife, 2014]) are located within the Action area with only one patch of less than five small trees identified; • soils within the Action area are of poor quality resulting in a low quality of habitat for the Koala, were it to occur; • better quality potential habitat for the Koala is more widespread in the landscape outside the Action area (e.g. important koala food trees [Queensland Blue Gum – *Eucalyptus tereticornis*] occur along the watercourses to the south-west of the Middlemount Coal Mine); and • Koala records are widespread in the landscape outside the Action area, as demonstrated by numerous Koala records in the wider surrounds (Figure 5).

Table 5 (Continued)
Likelihood of a Significant Adverse Impact on the Koala

EPBC Act Assessment Criteria[1] Is the action likely to:	Assessment
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?	Feral pests which pose a threat to the Koala are already present in the Action area (i.e. feral cats, dogs and foxes) and are likely to displace into adjoining areas during construction, however, the number of feral pests that would be displaced would be reduced by controlling feral pests in the Action area. The control of feral pests is an existing measure at the Middlemount Coal Mine that would be adopted for the Action and wider area. With the implementation of management measures, the potential impacts to Koala associated with feral animals is likely to be low. The Action is not inconsistent with the Threat Abatement Plan for Predation by the European Red Fox (DEWHA, 2008a).
Introduce disease that may cause the species to decline?	There are no known diseases potentially spread by soil movement or mining equipment that would affect the Koala.
Interfere substantially with the recovery of the species?	The Action would not have a negative impact on Koala numbers, or significantly reduce available resources in the immediate landscape. Whilst potential Koala habitat would be cleared it is effectively not currently utilised by the species and therefore very unlikely to substantially interfere with the species recovery.

[1] As defined by the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (DotE, 2013).

The woodland/forest vegetation types in the Action area could provide potential habitat for the Koala. Approximately 181 ha of foraging habitat resources may be removed/modified. Consistent with the *EPBC Act Significant Impact Guidelines* criteria, this small loss of habitat is not expected to significantly affect this 'Vulnerable' species (after DotE, 2013), because the Action removes potential foraging habitat which is common in the surrounding landscape.

Notwithstanding the above, the proposed offset area provides for the conservation and management of 306 ha of potential foraging habitat resources for the Koala and 193 ha of derived grassland that would be managed to encourage natural regeneration to provide a net gain in habitat (Section 2.3).

2.2.3.2 South-eastern Long-eared Bat (Nyctophilus corbeni)

Table 6 provides an assessment of adverse impacts on the South-eastern Long-eared Bat in accordance with DotE's (2013) *Significant Impact Guidelines 1.1: Matters of National Environmental Significance*.

Table 6
Likelihood of a Significant Adverse Impact on the South-eastern Long-eared Bat

EPBC Act Assessment Criteria[1] Is the action likely to:	Assessment
Lead to a long-term decrease in the size of an important population of a species?	The Action would result in the removal/modification of approximately 181 ha of potential habitat for the South-eastern Long-eared Bat (Figure 4). The Action is unlikely to significantly impact the South-eastern Long-eared Bat given: • this species has not been confirmed to occur within 250 km of the Action area despite targeted surveys on surrounding land; • much of the known and potential habitat to be cleared has been subject to past disturbances for cattle grazing; and • better quality potential habitat for this species is more widespread in the landscape outside the Action area (e.g. more abundant foraging and roosting resources occurs in suitable habitat to the south-west of the Middlemount Coal Mine).

Table 6 (Continued)
Likelihood of a Significant Adverse Impact on the South-eastern Long-eared Bat

EPBC Act Assessment Criteria[1] Is the action likely to:	Assessment
Lead to a long-term decrease in the size of an important population of a species? (Cont.)	A number of measures would be implemented for the Action to minimise potential impacts on flora and fauna which would be relevant to occurrences of this species within the Action area and adjacent lands. Mitigation measures would include a vegetation clearance protocol and feral animal control (Section 2.2.4). The potential indirect impacts on the South-eastern Long-eared Bat associated with the Action (e.g. noise, vibration, artificial lighting and/or the introduction of introduced species) are considered to be minimal and would only incrementally increase the likelihood of existing indirect impacts associated with the existing mining operations. Therefore, removal/modification of this area of habitat would have minimal impact on resources for the South-eastern Long-eared Bat and would not lead to a decrease in the size of the population.
Reduce the area of occupancy of an important population?	There is no evidence of South-eastern Long-eared Bat breeding within the Action area and no roosts have been identified (Naturecall, 2016a). The Action would not reduce the area of occupancy of a population.
Fragment an existing important population into two or more populations?	Given the highly mobile and dispersive nature of this species, the loss of the vegetation within the Action area would not fragment the wider South-eastern Long-eared Bat population.
Adversely affect habitat critical to the survival of a species?	No habitat within the Action area has been identified as important or critical habitat for the South-eastern Long-eared Bat in any recovery plans or listed on the EPBC Act *Register of Critical Habitat* maintained by the Minister of the Environment under the EPBC Act. The habitat in the Action area is not considered to be critical to the survival of the species as: • the small extent of habitat (with minimal carrying capacity) and the greater extent of habitat in the locality and species range; • existing threatening processes have degraded the habitat (the habitat is grazed by livestock, prone to impacts by feral animals and weeds); • the species is more widely distributed in the region and the habitat in the action area is not at a limit of the species range; • the habitat is lacking complexity (e.g. the habitat in the proposed offset area contains ten more regional ecosystems and riparian habitats along creeks); and • the closest record is 250 km from the action area.
Disrupt the breeding cycle of an important population?	There is no evidence of South-eastern Long-eared Bat breeding within the Action area and no roosts have been identified (Naturecall, 2016a). The Action would not disrupt the breeding cycle of the wider South-eastern Long-eared Bat population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline?	The habitat which would be removed/modified as a result of the Action is expected to have a negligible impact on resources for this species and would not lead the species declining, given: • this species has not been confirmed to occur within 250 km of the Action area despite targeted surveys on surrounding land; • much of the known and potential habitat to be cleared has been subject to past disturbances for cattle grazing; and • better quality potential habitat for this species is more widespread in the landscape outside the Action area (e.g. more abundant foraging and roosting resources occurs in suitable habitat to the south-west of the Middlemount Coal Mine).

Table 6 (Continued)
Likelihood of a Significant Adverse Impact on the South-eastern Long-eared Bat

EPBC Act Assessment Criteria[1] Is the action likely to:	Assessment
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat?	The impact of feral predation is unknown but has been documented as a threat for bat species closely related to South-eastern Long-eared Bat (DEE, 2016). Bats have been recorded being evicted from tree hollows by feral species, including the Common Starling (*Sturnus vulgaris*) (DEE, 2016). Feral pests which pose a threat to the South-eastern Long-eared bat are already present in the Action area (i.e. feral cats, dogs and foxes) and are likely to displace into adjoining areas during construction, however, the number of feral pests that would be displaced would be reduced by controlling feral pests in the Action area. The control of feral pests is an existing measure at the Middlemount Coal Mine that would be adopted for the Action and wider area.
Introduce disease that may cause the species to decline?	There are no known diseases potentially spread by soil movement or mining equipment that would affect South-eastern Long-eared Bat.
Interfere substantially with the recovery of the species?	The Action would not have a negative impact on South-eastern Long-eared Bat numbers, or significantly reduce available resources in the immediate landscape. Thus the Action would not interfere with the recovery of the species.

[1] As defined by the *Significance Significant Impact Guidelines 1.1 Matters of National Environmental* (DotE, 2013).

The woodland/forest vegetation types in the Action area could provide potential habitat for the South-eastern Long-eared Bat. Approximately 181 ha of foraging and roosting habitat resources may be removed/modified. Consistent with the *EPBC Act Significant Impact Guidelines* criteria, this small loss of habitat is not expected to significantly affect this 'Vulnerable' species (after DotE, 2013), because the Action removes potential foraging habitat which is common in the surrounding landscape.

Notwithstanding the above, the proposed offset area provides for the conservation and management of 339 ha of potential foraging and roosting habitat resources for the South-eastern Long-eared Bat and 193 ha of derived grassland that would be managed to encourage natural regeneration to provide a net gain in habitat (Section 2.3).

2.2.4 Mitigation Measures

Table 7 provides a consolidated list of avoidance and mitigation measures proposed to be undertaken to minimise the impacts of the Action on the Koala and the South-eastern Long-eared Bat, including:

- a description of proposed avoidance and mitigation measures to deal with relevant impacts of the Action;
- assessment of the expected or predicted effectiveness of the mitigation measures;
- a description of the outcomes that the avoidance and mitigation measures are likely to achieve; and
- statutory or policy basis for the proposed mitigation measures.

The management and mitigation measures proposed as part of the Action are considered consistent with current best practice in the mining industry. The majority of these matters have substantial evidence of success over a long period of time (e.g. feral pest control).

MCPL is the proponent for the Action and would be responsible for undertaking and funding the management measures.

Table 7
MNES and Mitigation Measures

Common Name	Conservation Status under the EPBC Act[1]	List of Avoidance and Mitigation Measures	Description	Predicted Effectiveness	Outcome	Statutory Or Policy Basis
Koala	V	Vegetation clearance protocol	Provides for the avoidance of impacts on individuals of this species which may be present at the time of clearance.	There is a moderate to high likelihood that this measure would effectively minimise direct impacts to this species.	Impacts to Koalas on site at the time of clearance (were they to occur) would be minimised.	*EPBC Act Referral Guidelines for the Vulnerable Koala* (DotE, 2014) *Listing Advice for Phascolarctos cinereus (Koala)* (TSSC, 2012b) *Threat Abatement Plan for Predation by the European Red Fox* (DEWHA, 2008a) *Threat Abatement Plan for Predation by Feral Cats* (DEWHA, 2008b)
		Feral pest control	Provides for the avoidance of impacts from predation or competition to the Koala.	There is a high likelihood that this measure would effectively mitigate potential impacts as a result of feral animals.	Impacts from exotic fauna (e.g. predation and competition) to the Koala (were they to occur) would be minimised.	
South-eastern Long-eared Bat	V	Vegetation clearance protocol	Provides for the avoidance of impacts on individuals of this species which may be present at the time of clearance.	There is a moderate to high likelihood that this measure would effectively minimise direct impacts to this species.	Impacts to South-eastern Long-eared Bats on site at the time of clearance (were they to occur) would be avoided.	*Commonwealth Listing Advice on Ten Species of Bats* (TSSC, 2001) *Approved Conservation Advice for Nyctophilus corbeni (southeastern long-eared bat)* (TSSC, 2015a) *Threat Abatement Plan for Predation by the European Red Fox* (DEWHA, 2008a) *Threat Abatement Plan for Predation by Feral Cats* (DEWHA, 2008b)
		Feral pest control	Provides for the avoidance of impacts from predation or competition to South-eastern Long-eared Bat.	There is a high likelihood that this measure would effectively mitigate potential impacts as a result of feral animals.	Impacts from exotic fauna (e.g. predation and competition) to South-eastern Long-eared Bat (were they to occur) would be minimised.	

[1] Threatened species status under the EPBC Act (current at August 2016).
V = Vulnerable.

2.2.5 Conclusions

This assessment provides more detailed information than available at the time the Action was referred to the Commonwealth government. This assessment describes how the removal of limited potential habitat would not significantly impact any threatened species or communities listed under the EPBC Act (Table 8).

Table 8
Assessment Summary

Common Name	Scientific Name	Conservation Status[1]	Assessment Summary
Mammals			
Koala	*Phascolarctos cinereus*	V	The Koala is unlikely to be significantly impacted by the Action given: • the Koala has not been recorded within the Action area; • minimal Queensland Blue Gums (identified as an important Koala food tree [Van Dyck and Strahan, 2008; Land for Wildlife, 2014]) are located within the Action area with only one patch of less than five small trees identified; • soils within the Action area are of poor quality resulting in a low quality of habitat for the Koala, were it to occur; • better quality potential habitat for the Koala is more widespread in the landscape outside the Action area (e.g. important Koala food trees [Queensland Blue Gum – *Eucalyptus tereticornis*] occur along the watercourses to the south-west of the Middlemount Coal Mine); and • Koala records are widespread in the landscape outside the Action area, as demonstrated by numerous Koala records in the wider surrounds (Figure 5).
South-eastern Long-eared Bat	*Nyctophilus corbeni*	V	The South-eastern Long-eared Bat is unlikely to be significantly impacted by the Action given: • this species has not been confirmed to occur within 250 km of the Action area despite targeted surveys on surrounding land; • much of the known and potential habitat to be cleared has been subject to past disturbances for cattle grazing; and • better quality potential habitat for this species is more widespread in the landscape outside the Action area (e.g. more abundant foraging and roosting resources occurs in suitable habitat to the south-west of the Middlemount Coal Mine).

[1] Threatened species status under the EPBC Act (current as at August 2016).
V = Vulnerable.

The Action is not inconsistent with any relevant recovery plans, conservation advice or agreements.

The impacts of the Action at a local scale would be minimal. Impacts on protected matters would be localised and negligible on a regional, state and national scale. The Action would not have a significant negative impact on the conservation status, condition or trend of any MNES at a local or regional scale.

2.3 PROPOSED BIODIVERSITY OFFSET PACKAGE

While MCPL does not consider that the Action would have a significant impact on MNES (Section 2.2), DEE has determined the North-eastern Extension to be a Controlled Action, and requires an offset to mitigate potential impacts to the Squatter Pigeon (southern). Accordingly, MCPL has prepared a biodiversity offset package to mitigate potential impacts to the Squatter Pigeon (southern).

Further details of the proposed biodiversity offset package are provided in the Middlemount Coal Mine North-eastern Extension Offset Proposal within Attachment C and the Middlemount Coal Mine North-eastern Extension Offset Management Plan/Vegetation Management Plan within Attachment D.

2.3.1 Relevant MNES

A proposed biodiversity offset package to mitigate the clearance of Squatter Pigeon (southern) habitat associated with the Action is described in this section. In addition, the proposed offset area would provide suitable habitat resources for the Koala and South-eastern Long-eared Bat.

Table 9 identifies the MNES relevant to the proposed biodiversity offset package along with the area of potential habitat to be cleared by the Action.

Table 9
MNES Relevant to the Proposed Biodiversity Offset Package

Species	Conservation Status under the EPBC Act[1]	Habitat Clearance (ha)
Squatter Pigeon (southern)	V	181
Koala	V	181
South-eastern Long-eared Bat	V	181

[1] Threatened fauna species status under the EPBC Act (current at August 2016).

V = Vulnerable.

The proposed biodiversity offset package for the Action is described in the following subsections.

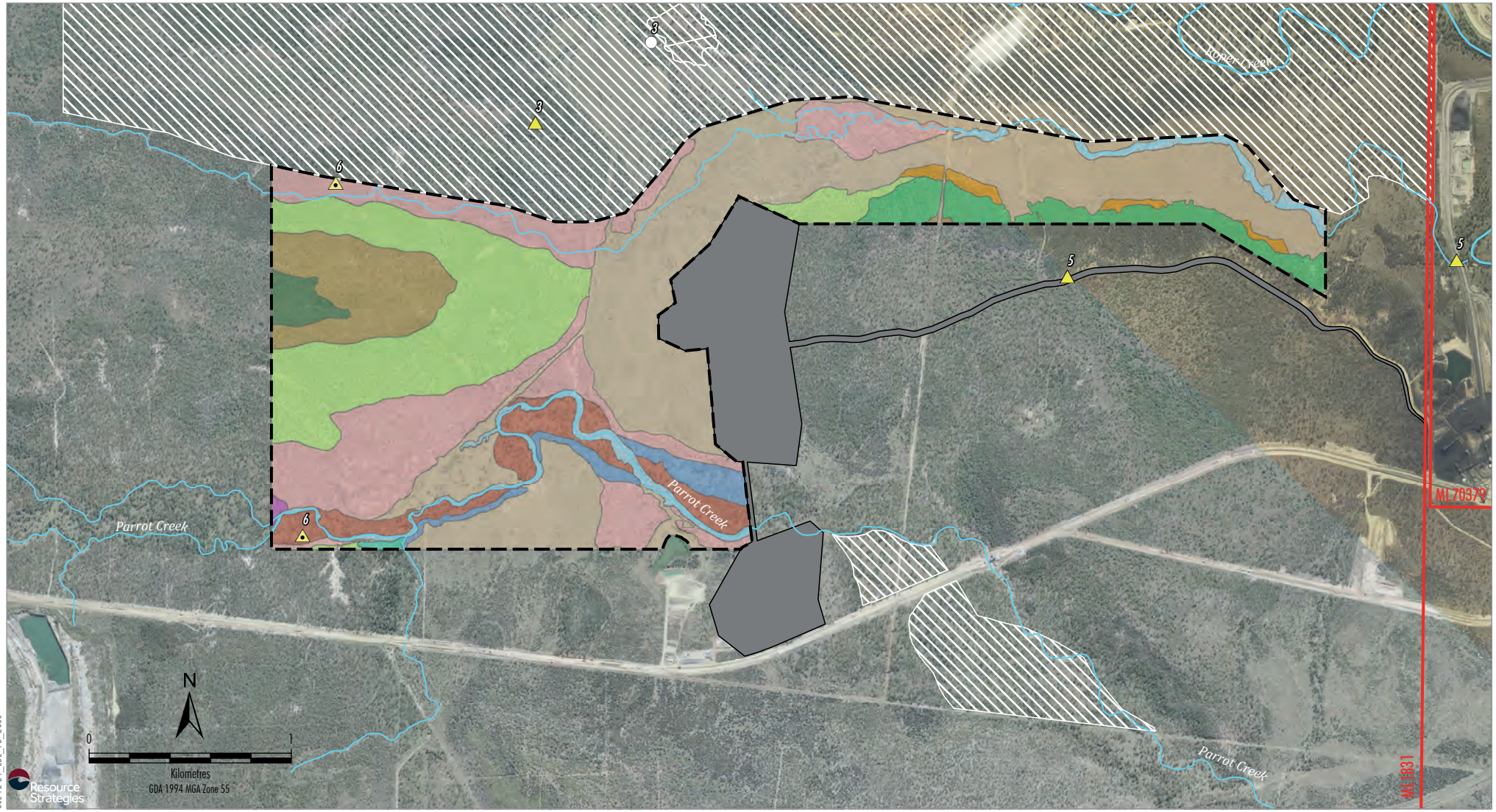
2.3.2 Type of Offset Proposed

The offset proposed for the Action is a land-based offset on land owned by MCPL.

2.3.3 Location and Suitability of Offset

The proposed offset area is located approximately 7 km south-west of the Middlemount township (Figure 5). It falls within in the Isaac-Comet Downs subregion of the North Brigalow Belt Bioregion, within the Fitzroy catchment and is adjacent to two existing offset areas secured for previous stages of the Middlemount Coal Mine (Figure 5).

The proposed offset area includes a combination of forested/woodland areas along with cleared grazing land. A total of 11 remnant REs have been mapped within the proposed offset area by Naturecall (2016b) (Table 10; Figure 7).



GCL-12-21_EDE_PD_205C

LEGEND

- Mining Lease Boundary
- Parrot Quarry
- Existing Offset Area
- Proposed Offset Area

Threatened Species Records

- Koala
- Koala Scratches/Scats
- Squatter Pigeon

Regional Ecosystem Mapping

11.3.2	11.5.2a
11.3.25	11.5.3
11.3.4	11.5.9
11.3.4a	11.7.2
11.4.8	11.7.4
11.5.18	Non-remnant

Reference: 3 Ecology and Heritage Partners (2012)
5 Naturecall Environmental (2014)
6 Naturecall Environmental (2016)

Note: There are no references 1, 2 and 4 on this figure.

Source: Naturecall (2016); MCPL (2014); Department of Natural Resources and Mines (2016) Orthophoto: MCPL (2014, 2012)

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NORTH-EASTERN EXTENSION

Ground-truthed Regional Ecosystem Mapping and Recorded EPBC Act Listed Fauna Species in the Proposed Offset Area and Immediate Surrounds

Figure 7

Table 10
Regional Ecosystems Mapped within the Proposed Offset Area

Regional Ecosystem Number	Regional Ecosystem Name	Area Mapped within Offset Area (ha)[1]
11.3.2	*Eucalyptus populnea* woodland on alluvial plains.	12.5
11.3.25	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines.	18.5
11.3.4	*Eucalyptus tereticornis* and/or Eucalyptus spp. woodland on alluvial plains.	28.0
11.3.4a	Floodplain (other than floodplain wetlands). *Corymbia tessellaris* woodland. On alluvial sand ridges to elevated levees and level terraces adjacent to larger stream channels which are irregularly flooded or possibly relict.	0.5
11.4.8	*Eucalyptus cambageana* woodland to open forest with *Acacia harpophylla* or *A. argyrodendron* on Cainozoic clay plains.	1.0
11.5.18	*Micromyrtus capricornia* shrubland on Cainozoic sand plains/remnant surfaces.	6.5
11.5.2a	*Allocasuarina luehmannii* low tree layer with or without emergent woodland.	98.0
11.5.3	*Eucalyptus populnea* +/- *E. melanophloia* +/- *Corymbia clarksoniana* woodland on Cainozoic sand plains and/or remnant surfaces.	108.0
11.5.9	*Eucalyptus crebra* and other Eucalyptus spp. and Corymbia spp. woodland on Cainozoic sand plains and/or remnant surfaces.	34.5
11.7.2	Acacia spp. woodland on Cainozoic lateritic duricrust. Scarp retreat zone.	26.5
11.7.4	*Eucalyptus decorticans* and/or Eucalyptus spp., Corymbia spp., Acacia spp., *Lysicarpus angustifolius* woodland on Cainozoic lateritic duricrust.	5.0
	Total	**339**
-	Non-remnant Vegetation	193

[1] Refer to Figure 7.

The proposed biodiversity offset package is consistent with the principles of the *EPBC Act Environmental Offsets Policy* (SEWPaC, 2012a), and the *EPBC Act Offsets Assessment Guide* (SEWPaC, 2012b) was used to determine the appropriate size of the offset area in order to exceed 100% of the offset requirement (Table 11; Attachment C). Attachment C contains the inputs and outputs for the Commonwealth offset calculator (i.e. the *EPBC Act Offset Assessments Guide*).

Table 11
Habitat for MNES Known or Considered Likely to Occur in the Action Area and Proposed Offset Area and Summary of Percentage Offset Requirements Met

MNES	Conservation Status[1]	Area of Habitat to be Impacted (ha)[2]	Total Area of Existing Habitat in Offset Area (ha)[3]		Recorded in Offset Area	Percent Offset by Commonwealth Offset Areas
			Remnant Vegetation	Non-Remnant Vegetation		
Squatter Pigeon (southern) (*Geophaps scripta scripta*)	V	181	339	193	No	**139.03%**
Koala (*Phascolarctos cinereus*)	V	181	306	193	Yes	**128.11%**
South-eastern Long-eared Bat (*Nyctophilus corbeni*)	V	181	339	193	No	**114.36%**

[1] Threatened species status under the EPBC Act (current as at August 2016).

[2] Area based on vegetation mapped by Naturecall (2016a).

[3] Area based on vegetation mapped by Naturecall (2016b).

V = Vulnerable.

2.3.4 Conservation Gain

The proposed offset area would result in a net conservation gain for the Squatter Pigeon (southern), Koala and South-eastern Long-eared Bat. This conservation gain would be achieved through the implementation of environmental management strategies that would improve the site and avert future loss/degradation to habitat features utilised by each of these MNES.

A key step to achieving this conservation gain would be through an arrangement for the enduring protection and management of the proposed offset area (Section 2.3.7). Once this arrangement is in place, it is highly unlikely that the habitat features relevant to the Squatter Pigeon (southern), Koala or South-eastern Long-eared Bat would be lost with the proposed offset area.

Consistent with MCPL's existing approved Offset Management Plan/Vegetation Management Plan for the existing offset areas, a number of measures would be implemented by MCPL to allow for this conservation gain to occur (Table 12). The Middlemount Coal Mine North-eastern Extension Offset Management Plan/Vegetation Management Plan is provided within Attachment D.

Table 12
Management Measures to be Implemented in the Proposed Offset Area

Management Measure	Description
Management of livestock in the offset area	Livestock grazing will be strategically used in the proposed offset area. Rotational livestock grazing may be used as a method of managing Buffel Grass and reducing fuel loads in the proposed offset area. It is intended that the regeneration areas progressively change from a grassland dominated system to woodland/forest. Livestock will be excluded from the offset areas once it is no longer required for strategic management of weed species.
Management of weeds	The spread and introduction of weeds/declared plants to and within the proposed offset area would be minimised by restricting vehicles to designated access tracks. The introduction, establishment and spread of non-native weeds will be minimised through regular monitoring and treatment activities.
Control of feral animal populations	Appropriately qualified persons will be engaged to undertake pest animal control. Control measures would consider the relevant guidelines and legislation. Control methods will target feral pigs, wild dogs, European Rabbits, Feral Cats and European Foxes.
Setting up the proposed offset area on the ground	After protection of the proposed offset area has been established, the area will be set-up on the ground by: • identifying/establishing fire trails/access tracks required for fire management or other management purposes; • fencing the perimeter of the proposed offset area to manage grazing livestock; • installing locks on gates; and • installing signage along main access roads which recognised that the area is protected for conservation purposes to deter third party access into the area.
Fire management	Fire management activities will be undertaken including identifying/establishing fire trails, consultation with local fire wardens and development of fire awareness and response procedures. Ground fuel loads may be controlled through the strategic rotational grazing of cattle to prevent thick grass biomass from accumulating over time.

Table 12 (Continued)
Management Measures to be Implemented in the Proposed Offset Area

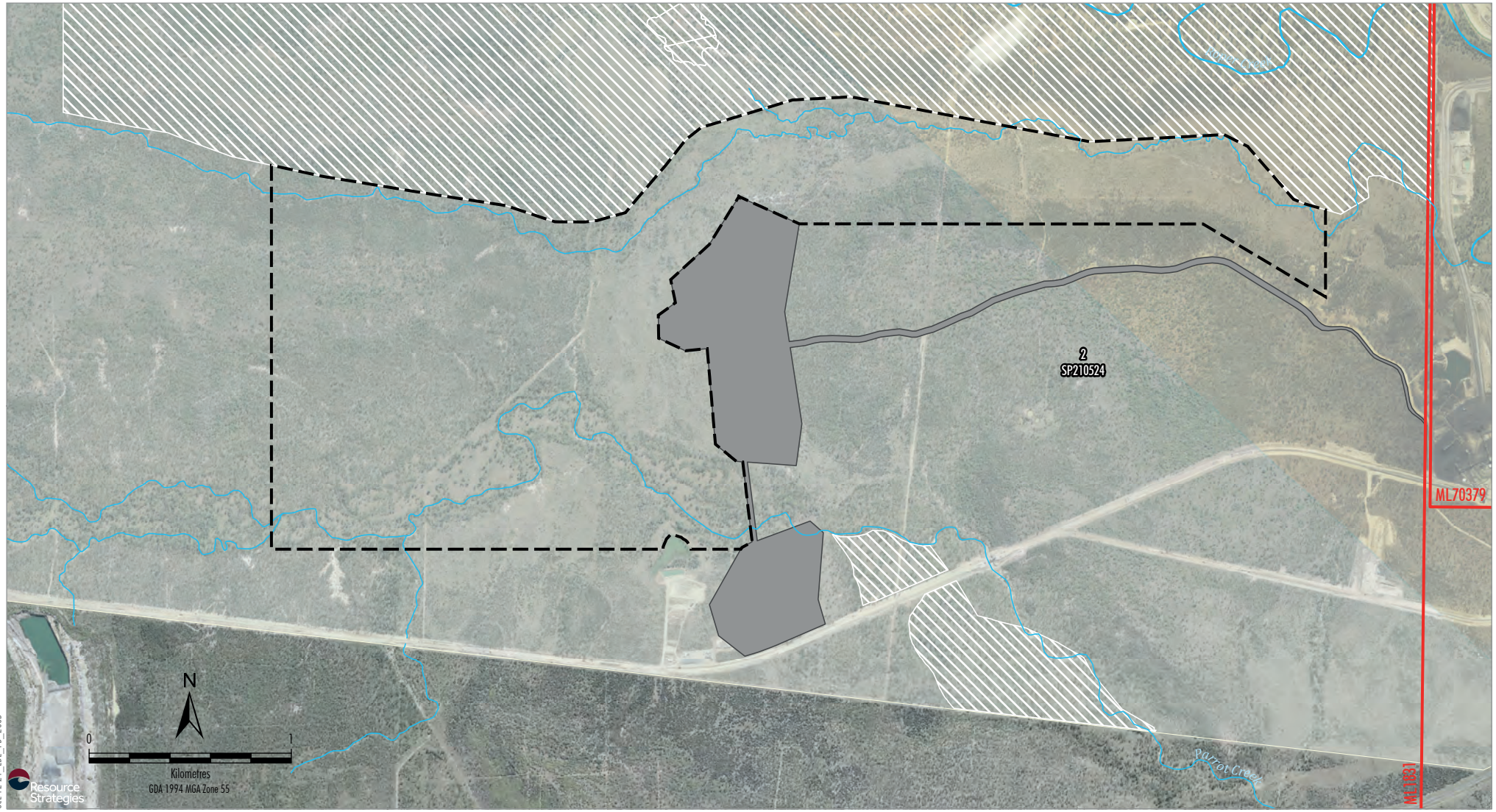
Management Measure	Description
Erosion and sediment control	Erosion potential in the proposed offset area will be reduced by grazing management, restricting vehicle access to the proposed offset area and control of animal pests. Selective plantings/direct seeding of local endemic species may be undertaken to stabilise the soil and or the use of surface water management structures.
Restrictions to access	Access into the proposed offset area will be restricted to authorised personnel. Locks will be installed on gates into the proposed offset area. Vehicles will be restricted to designated access tracks.

Within the next 20 years, without the offset, it is considered that there is a risk that the ecological values relevant to the Squatter Pigeon (southern), Koala and South-eastern Long-eared Bat will be lost.

2.3.5 Land Tenure and Proposed Offset Security Mechanism

The proposed offset area is located entirely on freehold land owned by MCPL. The land tenure information is shown on Figure 8.

MCPL would secure the proposed offset area through a legally binding mechanism such as a voluntary declaration of an area of high nature conservation value (VDec) under the QLD *Vegetation Management Act, 1999* or by providing DEHP with a *Request for Environmental Offset Protection Area Declaration* in accordance with section 30 of the QLD *Environmental Offsets Act, 2014*.



LEGEND
- Mining Lease
- Parrot Quarry
- Existing Offset Area
- Proposed Offset Area
- MCPL Owned Land

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Proposed Offset Area
Land Tenure

Source: MCPL (2014);
Department of Natural Resources and Mines (2015)
Orthophoto: MCPL (2014, 2012); Esri Basemap

Figure 8

2.3.6 Reconciliation against EPBC Act Offset Policy

A reconciliation of the proposed biodiversity offset package against the Commonwealth offset principles is presented in Table 13.

Table 13
Reconciliation of the Proposed Biodiversity Offset Package against the Commonwealth Offset Principles

Offset Principles[1]	Elements of the Proposed Biodiversity Offset Package that Address these Requirements
Deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environmental law and affected by the action.	The proposed offset area is specifically tailored to the relevant protected matters (i.e. Squatter Pigeon [southern], Koala and South-eastern Long-eared Bat) and to deliver an overall conservation outcome that improves or maintains the viability of each protected matter.
Be built around direct offsets but may include other compensatory measures.	The *EPBC Act Offsets Assessment Guide* (SEWPaC, 2012b) was used to assess the proposed offset area against the Commonwealth biodiversity offset requirements (Section 2.3.3). The proposed offset area is a direct offset which satisfies 100% of the offset requirements under the EPBC Act. The proposed offset area is owned by MCPL. MCPL intends to reach an agreement with the Commonwealth Government for the enduring protection and management of the offset area.
Be in proportion to the level of statutory protection that applies to protected matters.	The *EPBC Act Offsets Assessment Guide* (SEWPaC, 2012b), which was used for the Action, accounts for the level of statutory protection (vulnerable to critically endangered [Table 9]) of the relevant protected matters in calculating the offset requirement.
Be of a size and scale proportionate to the impacts on the protected matter.	The size and scale of the offset was determined using the *EPBC Act Offsets Assessment Guide* (SEWPaC, 2012b). The following was considered: • the level of statutory protection (vulnerable to critically endangered [Table 9]); • specific attributes of the relevant protected matters and its habitat (Section 2.3.3); • the quality and importance of the habitat; • the level of risk to the habitat in the offset area without the Action (e.g. grazing); • the time it would likely take for a conservation gain for each relevant protected matter; and • the risk of the conservation gain not occurring. With reference to the *EPBC Act Environmental Offsets Policy* (SEWPaC, 2012a), the impacts of the Action are conservatively assumed to be permanent for the purpose of the offset requirement, but in reality the Action area would be rehabilitated and revegetated.
Effectively account for and manage the risks of the offset not succeeding.	The Action would result in residual impacts on the Squatter Pigeon (southern), Koala and South-eastern Long-eared Bat (through the loss of habitat). The potential impacts on the protected matters have been evaluated and it is concluded that none of the protected matters are likely to be significantly impacted (Section 2.2.5). However, the offset areas would compensate for the impacts on the protected matters and help maintain the viability of the protected matters. The *EPBC Act Offsets Assessment Guide* (SEWPaC, 2012b), which was used for the Action, accounts for the risks of the offset area not succeeding in calculating the offset requirement.
Be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs.	The offset areas are beyond existing requirements, in that it is not part of any private conservation reserve system. The offset areas are new and additional under duty of care or any environmental planning laws.

Table 13 (Continued)
Reconciliation of the Proposed Biodiversity Offset Package against the Commonwealth Offset Principles

Offset Principles[1]	Elements of the Proposed Biodiversity Offset Package that Address these Requirements
Be efficient, effective, transparent, proportionate, scientifically robust and reasonable.	The offset areas would efficiently and effectively compensate for the impacts on the protected matters and help maintain the viability of the protected matters. Flora and fauna surveys of the offset areas were undertaken by Naturecall (2016b).
Have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	MCPL intends to reach an agreement with the Commonwealth Government for the enduring protection and management of the offset area.

[1] SEWPaC, 2012a.

2.3.7 Relevant Conservation Advice and Threat Abatement Plans

Referral guidelines, conservation advice, management strategies and threat abatement plans relevant to the proposed offset area which have been considered include:

- *Approved Conservation Advice Geophaps scripta scripta (Squatter Pigeon [Southern])* (TSSC, 2015b).
- *EPBC Act Referral Guidelines for the Vulnerable Koala* (DotE, 2014).
- *Commonwealth Conservation Advice on Phascolarctos cinereus (Combined Population in Queensland, New South Wales and the Australian Capital Territory)* (TSSC, 2012a).
- *Listing Advice for Phascolarctos cinereus (Koala)* (TSSC, 2012b).
- *National Koala Conservation and Management Strategy 2009-2014* (Natural Resource Management Ministerial Council, 2009).
- *Approved Conservation Advice for Nyctophilus corbeni (South-eastern Long-eared Bat)* (TSSC, 2015a).
- *Commonwealth Listing Advice on Ten Species of Bats* (TSSC, 2001).
- *Threat Abatement Plan for Predation by the European Red Fox* (DEWHA, 2008a).
- *Threat Abatement Plan for Predation by Feral Cats* (DEWHA, 2008b).

Given the conservation of habitat within the proposed offset area and the implementation of management measures described in Section 2.2.4, MCPL considers that the proposed offset area described in this document is consistent with the above-listed referral guidelines, conservation advice, management strategies and threat abatement plans.

3 ECONOMIC AND SOCIAL IMPACTS

3.1 COSTS AND BENEFITS ASSOCIATED WITH THE ACTION AND EMPLOYMENT OPPORTUNITIES

The Action does not involve any change to the currently approved operating hours or workforce. The existing mine workforce would continue to be employed for the Action and therefore the Action would not materially result in any additional demand for employees/contractors.

As such, it is not anticipated that there will be any negative impacts to population, infrastructure, services or housing in the local community. Road use is also anticipated to remain consistent, with no additional negative impacts as a result of the Action.

3.2 STAKEHOLDER CONSULTATION

MCPL held a pre-lodgement meeting with DEHP regarding the Action (and the amendment application to Environmental Authority (EA) EPML00716913) on 9 December 2015.

The application was publically notified in accordance with sections 152(2)(a) and 153 of the QLD *Environmental Protection Act, 1994* (EP Act) and section 252B of the QLD *Mineral Resources Act, 1989*. As part of this process, MCPL has:

- given written notice (an 'Application Notice') to each owner of land to which the amendment relates (the 'relevant land') and any other land necessary for access to the relevant land;
- given the Application Notice to each holder, or applicant for, an exploration permit or mineral development licence over the relevant land for a mineral other than a mineral to which the proposed amendment relates;
- given the Application Notice to the local government; and
- published the Application Notice in a newspaper circulating in the locality of the Action (in this case, the Central Queensland News).

Consultation with the Barada Barna People and BBKY #4 native title claimants will be conducted in accordance with the requirements of the QLD *Native Title Act, 1993* in relation to Native Title issues. Consultation in relation to Indigenous cultural heritage will be conducted in accordance with the requirements of the QLD *Aboriginal Cultural Heritage Act, 2003*.

4 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

4.1 OVERVIEW

The concept of sustainable development came to prominence at the World Commission on Environment and Development (1987), in the report titled *Our Common Future*, which defined sustainable development as:

> *Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*

In recognition of the importance of sustainable development, the Commonwealth Government developed a *National Strategy for Ecologically Sustainable Development* (NSESD) (Commonwealth of Australia, 1992) that defines Ecologically Sustainable Development (ESD) as:

> *using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.*

The NSESD was developed with the following core objectives:

- enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
- provide for equity within and between generations; and
- protect biological diversity and maintain essential processes and life support systems.

In addition, the NSESD contains the following goal:

> *Development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.*

In accordance with the core objectives and a view to achieving this goal, the NSESD presents private enterprise in Australia with the following role:

> *Private enterprise in Australia has a critical role to play in supporting the concept of ESD while taking decisions and actions which are aimed at helping to achieve the goal of this Strategy.*

In accordance with the DEE Preliminary Documentation Information Request (Attachment B), an assessment of the consistency of the Action with section 3A of the EPBC Act has been undertaken. The principles of ESD as outlined in section 3A of the EPBC Act are as follows:

(a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;

(b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;

(c) the principle of inter-generational equity--that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;

(d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making;

(e) improved valuation, pricing and incentive mechanisms should be promoted.

The design, planning and assessment of the Action has been carried out applying the principles of ESD, through:

- incorporation of risk assessment and analysis at various stages in the detailed design, environmental assessment and decision-making processes;
- adoption of high standards for environmental and workplace health and safety performance;
- consultation with relevant regulatory and community stakeholders; and
- consideration of social and economic benefits to the community arising from the development of the Action.

In addition, it can be demonstrated that the Action can be operated in accordance with ESD principles through the application of mitigation and management measures to minimise environmental impacts of the Action. The following sub-sections describe the consideration and application of the principles of ESD to the Action.

4.2 LONG-TERM AND SHORT-TERM CONSIDERATIONS

The integration of long-term and short-term economic, environmental, social and equitable considerations is recognised as a principle of ESD in section 3A(a) of the EPBC Act.

Assessment of potential short and long-term impacts of the Action have been carried out during the preparation of this assessment on aspects of land, surface water and groundwater, ecology, air quality, noise emissions, water and socio-economics.

The Action also includes offset measures to maintain or improve biodiversity values in the surrounding region in the medium to long-term (Section 2.3).

The assessments undertaken for the Action also included other environmental considerations (Section 2), socio-economic considerations (Section 3) and equity considerations (this section).

4.3 PRECAUTIONARY PRINCIPLE

The precautionary principle (i.e. where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation) is recognised as a principle of ESD in section 3A(b) of the EPBC Act.

Environmental assessment involves predicting what the environmental outcomes of a development are likely to be. The precautionary principle reinforces the need to take risk and uncertainty into account, especially in relation to threats of irreversible environmental damage.

A range of mitigation measures have been adopted as components of the Action design to minimise the potential for serious impacts to the environment, including the continuation of environmental management and monitoring programmes and compensatory measures.

Minimal uncertainty regarding the information used in these specialist assessments is expected given:

- the number of site-based surveys and assessments conducted at the Middlemount Coal Mine, surrounding offset areas and for the Action;
- the comprehensive nature of the assessments; and
- the consultation process conducted with key stakeholders (Section 3.2).

4.4 SOCIAL EQUITY

Social equity is defined by inter-generational and intra-generational equity. Inter-generational equity is the concept that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations, while intra-generational equity is applied within the same generation.

The principles of social equity are addressed through:

- assessment of the social and economic impacts of the Action, including the distribution of impacts between stakeholders (Section 3);
- management measures to be implemented in relation to the potential impacts of the Action on ecology (Section 2);
- implementation of environmental management and monitoring programmes (Section 2) to minimise potential environmental impacts (which include environmental management and monitoring programmes covering the life of the Action); and
- implementation of compensatory measures over the life of the Action to compensate for potential localised impacts that have been identified for the development, such as the offset strategy described in Section 2.3.

In addition, the Action would benefit current and future generations through the maintenance of employment. It would also provide continued significant stimulus to local and regional economies, thus contributing to future generations through social welfare, amenity and infrastructure.

4.5 CONSERVATION OF BIOLOGICAL DIVERSITY AND ECOLOGICAL INTEGRITY

The consideration of the conservation of biological diversity and ecological integrity in decision-making is recognised as a principle of ESD in section 3A(d) of the EPBC Act.

Biological diversity or 'biodiversity' is considered to be the number, relative abundance, and genetic diversity of organisms from all habitats (including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are a part) and includes diversity within species and between species as well as diversity of ecosystems (Lindenmayer and Burgman, 2005). For the purposes of this assessment, ecological integrity has been considered in terms of ecological health and ecological values.

Measures to Maintain or Improve the Biodiversity Values of the Surrounding Region

A range of impact avoidance, mitigation and offset measures would be implemented for the Action to maintain or improve the biodiversity values of the surrounding region in the medium to long-term, as described below.

Section 2 summarises a number of measures that would assist in maintaining the biodiversity of the region. A biodiversity offset package has been developed to address the potential residual impacts on biodiversity values associated with the Action, such that biodiversity values of the region are maintained or improved in the medium to long term.

In addition, the disturbance areas associated with the Action would be progressively rehabilitated. The rehabilitation objectives for the existing Middlemount Coal Mine would be applied to the Action, including the following:

- to ensure the final landform is safe to humans and wildlife;
- to ensure the site is non-polluting;
- to ensure the final landform is stable; and
- to ensure the site is able to sustain an agreed post-mining land use.

Rehabilitation of the Action area would commence within two years of the areas becoming available.

Plants would be selected to establish a vegetative cover to prevent erosion and recreate RE 11.5.3 (*Eucalyptus populnea* ± *E. Melanophloia* ± *Corymbia clarksoniana* on Cainozoic sand plains/remnant surfaces). The proposed final land use of a recreated native ecosystem of RE 11.5.3 would be representative of the existing ecosystem within and adjacent to the Action area.

4.6 VALUATION

The adoption and promotion of improved valuation, pricing and incentive mechanisms is recognised as a principle of ESD in section 3A(e) of the EPBC Act.

One of the common broad underlying goals or concepts of sustainability is economic efficiency, including improved valuation of the environment. Resources should be carefully managed to maximise the welfare of society, both now and for future generations.

In the past, some natural resources have been misconstrued as being free or underpriced, leading to their wasteful use and consequent degradation. Consideration of economic efficiency, with improved valuation of the environment, aims to overcome the underpricing of natural resources and has the effect of integrating economic and environment considerations in decision making, as required by ESD.

While historically, environmental costs have been considered to be external to development costs, improved valuation and pricing methods attempt to internalise environmental costs and include them within development costing. The economic benefit associated with the Action has, where possible, considered the environmental costs (e.g. biodiversity offset costs) associated with the Action.

5 OUTCOMES-BASED CONDITIONS

MCPL is not proposing to pursue outcomes-based conditions for the Action. MCPL is of the understanding that prescriptive conditions or systems-based conditions would be better suited to the Action. As such, this document does not include the information required to allow for the development of outcomes-based conditions. Should outcomes-based conditions be required to be developed for the Action, these would be done in consultation with the Commonwealth DEE.

6 CONCLUSION

Three threatened fauna species listed under the EPBC Act are considered likely to occur within the Action area, namely the Squatter Pigeon (southern), Koala and South-eastern Long-eared Bat.

Potential impacts on these MNES as a result of the Action have been investigated within this document, including an assessment of significance for each potentially occurring MNES against the Commonwealth *Significant Impact Guidelines 1.1: Matters of National Environmental Significance*. Mitigation measures to reduce the potential impacts on MNES have been proposed by MCPL, including implementation of a vegetation clearance protocol and weed and feral pest control measures. A biodiversity offset package addressing the potential significant impact on the Squatter Pigeon (southern) has also been proposed by MCPL. In addition, the proposed offset area would provide suitable habitat resources for the Koala and South-eastern Long-eared Bat.

The proposed biodiversity offset package has been developed in accordance with the Commonwealth *EPBC Act Environmental Offsets Policy* (and the *EPBC Act Offsets Assessment Guide*) via a land-based offset which would compensate for the loss of approximately 181 ha of potential habitat for the Squatter Pigeon (southern), Koala and South-eastern Long-eared Bat.

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MIDDLEMOUNT COAL MINE
NORTH-EASTERN EXTENSION (EPBC 2016/7717)
EPBC Act Preliminary Assessment Documentation

Attachment A

EPBC Act Referral for the
Middlemount Coal Mine North-eastern Extension

middlemount coal PTY LTD

Referral of proposed action

Action title: MIDDLEMOUNT COAL NORTH-EASTERN EXTENSION

1 Summary of proposed action

1.1 Short description

Middlemount Coal Pty Ltd (MCPL), an incorporated joint venture between Peabody Energy Australia Pty Ltd and Yancoal Australia Ltd, owns and operates the Middlemount Coal Mine. The Middlemount Coal Mine is an existing open cut coal mine located approximately 7 kilometres (km) to the south-west of the Middlemount township within the Isaac Regional Local Government Area, Queensland (QLD) (Figure 1).

The Middlemount Coal Mine is approved under the QLD *Environment Protection Act, 1994* (EP Act) via Environmental Authority (EA) EPML00716913.

The approved Middlemount Coal Mine is an open cut mining operation extracting run-of-mine (ROM) coal up to 24 hours per day, seven days per week, using a conventional truck and shovel fleet at a rate of up to 5.4 million tonnes per annum (Mtpa). ROM coal is mined in a general west to east direction within Mining Lease (ML) 70379, with overburden and interburden material emplaced in-pit behind the advancing open cut operations, and within the East Dump, located within ML 70417. The general arrangement of the approved Middlemount Coal Mine is presented on Figure 2.

Approvals History

Stage 1 of the Middlemount Coal Mine was initially approved for the production of 1.8 Mtpa of ROM coal, designated under ML 70379, and an amended EA (Mining Activities) Non Code Compliant Level 1 MIN100646307 – Middlemount Coal Mine, effective from 24 November 2009. Stage 1 of the approved Middlemount Coal Mine was subject to a self-assessment under the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act) and based on advice received in 2007 from the then Commonwealth Department of Environment, Water Heritage and the Arts (now the Commonwealth Department of the Environment [DotE]), Stage 1 was not referred.

The Middlemount Coal Mine EA was amended on 29 June 2012 to approve the expansion of open cut mining operations within ML 70379 and ML 70417 (referred to as “Stage 2” of the Middlemount Coal Mine). The EA was most recently amended on 8 February 2016. Stage 2 of the approved Middlemount Coal Mine was determined to be a Controlled Action on 16 April 2010 (EPBC 2010/5394).

This Referral

MCPL has lodged an amendment application to the Middlemount Coal Mine EA EPML00716913 in accordance with section 224 of the EP Act to approve the extension of the East Dump at the Middlemount Coal Mine (herein referred to as the Middlemount Coal Mine North-eastern Extension Action [the Action]).

This referral under the EPBC Act relates only to the North-eastern Extension Action, including the extension of the approved East Dump beyond part of the eastern extent of ML 70417 (Figure 3).

The Action does not include the approved Middlemount Coal Mine that has either been previously referred and determined to be a Controlled Action or previously determined not to require referral under the EPBC Act but has received all relevant State approvals.

Further clarification of the details of the Action that are the subject of this referral and the aspects of existing operations that are not the subject of this referral are provided in Section 2.1.

1.2 Latitude and longitude

The location points in Table 1 provide the approximate extents of the Action area, as presented on Figure 3.

Table 1
Location of the Action

Location Point	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
1	-22	48	54	148	39	3
2	-22	48	54	148	39	8
3	-22	49	26	148	39	49
4	-22	49	54	148	40	3
5	-22	49	54	148	39	3

1.3 Locality and property description

The Action is located immediately adjacent to the approved Middlemount Coal Mine, on freehold land owned by MCPL (Lot 3 SP210524), within Mining Lease Application (MLA) 700014. The land within the Action area is currently used for low intensity cattle grazing under an agistment agreement.

Middlemount township is located approximately 2.4 km to the east of the Action, at its nearest point. The Action and the town are separated by Middle Mountain which rises approximately 100 metres (m) above the surrounding landscape (to a height of approximately 280 m Australian Height Datum [AHD]) (Figure 2).

1.4	**Size of the development footprint or work area (hectares)**	The Action covers an area of approximately 189 hectares (ha). Vegetation clearance associated with the Action is estimated to be approximately 174 ha.
1.5	**Street address of the site**	The Middlemount Coal Mine is located along Dysart Middlemount Road.

1.6 Lot description

The Action would involve development within MLA 700014 (Figure 3), on freehold land owned by MCPL (Lot 3 SP210524). Relevant land tenure information is presented on Figure 4.

1.7 Local Government Area and Council contact (if known)

The Action is located within the Isaac Regional Local Government Area (Figure 1). The Action is not subject to a local government planning approval, however, does require planning approval from the QLD Department of Environment and Heritage Protection (DEHP).

1.8 Time frame

It is anticipated that construction and operational activities associated with the Action would commence as soon as practicable after all necessary consents, approvals and licences for the Action have been obtained.

The Action would be developed in two phases. The south-west quarter of the North-eastern extension would be developed initially (nominally from 2016-2018), with the remainder developed in a second stage some years later (nominally from 2024-2026). It is noted that a number of factors may influence the development of the Middlemount Coal Mine (e.g. coal prices and operating conditions) which would influence the timing of the development of the Action.

1.9	**Alternatives to proposed action**		No
		✓	Yes, you must also complete section 2.2
1.10	**Alternative time frames etc**	✓	No
			Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.11	**State assessment**		No
		✓	Yes, you must also complete Section 2.5
1.12	**Component of larger action**	✓	No
			Yes, you must also complete Section 2.7
1.13	**Related actions/proposals**		No
		✓	Yes, provide details: The Action is separate from, but related to, the approved Middlemount Coal Mine. The Middlemount Coal Mine is approved under the EP Act via Environmental Authority EPML00716913. Stage 2 of the approved Middlemount Coal Mine was determined to be a Controlled Action on 16 April 2010 (EPBC 2010/5394). Further clarification of the details of the Action that are the subject of this referral and the aspects of existing operations that are not the subject of this referral are provided in Section 2.1.
1.14	**Australian Government funding**	✓	No
			Yes, provide details:
1.15	**Great Barrier Reef Marine Park**	✓	No
			Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

2.1 Description of proposed action

MCPL has identified an opportunity to improve the mining efficiency and rehabilitation outcomes at the approved Middlemount Coal Mine by extending the East Dump beyond part of the eastern extent of ML 70417 (Figure 3). The extension would alleviate the "saw tooth" layout of the currently approved dump (i.e. overburden emplacement) design which would in-turn improve the efficiency of the mine plan and reduce the area of the dump slope that requires rehabilitation.

The Action would involve the extension of the currently approved East Dump beyond part of the eastern extent of ML 70417 (Figure 3), using the same overburden emplacement methodology currently employed at the Middlemount Coal Mine. The Action does not involve any change to the currently approved mining rate, operating hours, open cut footprint, processing rate or workforce.

Vegetation Clearance and Topsoil Stockpiling

Prior to overburden placement, the Action area would be progressively cleared and topsoil would be stripped and stockpiled for use in rehabilitation works. Where topsoil cannot be directly used for progressive rehabilitation it would be stockpiled for use at a later date.

Overburden Removal and Handling

Overburden would be transported from the open cut to the East Dump using the existing Middlemount Coal Mine overburden haul fleet.

The East Dump extension would be constructed to the same height as the currently approved East Dump (i.e. up to 64 m above existing ground level).

Geochemical testwork has found that there is a low to negligible risk of acid mine drainage from overburden at the Middlemount Coal Mine. Notwithstanding, laboratory characterisation of overburden material during operations would be conducted to confirm acid generation potential, consistent with existing operations. Any material that is found to be potentially acid forming will not be used as capping material and would continue to be buried within the overburden dump with material that has a positive acid neutralising capacity (MCPL, 2011).

Water Management

Consistent with the site's existing water management strategy, runoff from undisturbed areas would be diverted around mining activities.

No new sediment dams to those already constructed or approved (as described in MCPL, 2011) are required to manage runoff from the Action, however the increased area of the East Dump (approximately 189 ha) would result in an increased runoff volume of approximately 156 megalitres from the East Dump for the 10 year Average Recurrence Interval (ARI) 24-hour design event, which would report to Sediment Dam 7. The capacity of Sediment Dam 7 would need to be increased by approximately 191 megalitres to manage the additional runoff reporting to it. This would be achieved by excavating the base of Sediment Dam 7 by approximately 2.7 m. A detailed design for the works to increase Sediment Dam 7 would be prepared by a suitably qualified person.

Runoff from the Action area would report to Sediment Dam 7 via a new drainage channel, constructed in accordance with the Erosion and Sediment Control Plan (ESCP) to provide effective separation of clean and sediment laden water for a 100 year ARI 24-hour design event.

The overburden dump design incorporates water management principles including contour banks and rock lined drains. Rehabilitation of the overburden dump will include measures to minimise erosion, including compost blankets, gravel/rock application, mulching and revegetation. Overburden dumps would be rehabilitated to control drainage, including the use of rock lined drains to reduce sediment load where required.

Rehabilitation and Post-Mining Land Use

The rehabilitation objectives for the existing Middlemount Coal Mine would be applied to the Action, including the following:

- to ensure the final landform is safe to humans and wildlife;
- to ensure the site is non-polluting;
- to ensure the final landform is stable; and
- to ensure the site is able to sustain an agreed post-mining land use.

The Action would be rehabilitated consistent with the existing rehabilitation landform design criteria and post mining land use described in the EA.

2.2 Alternatives to taking the proposed action

Alternatives to the proposed Action including the location and scale have been considered by MCPL, along with the option of not proceeding with the Action. An overview of some considerations is provided below:

- **Action location** – The presence of the existing East Dump, an open cut mining area, the extent of current mining tenements, land tenure and the presence of existing approved offset areas to the west of the Middlemount Coal Action determines the location of the Action.
- **Scale** - The footprint of the Action has been minimised where possible, based on the volume of waste rock required to be emplaced, in consideration of the dump design. A more uniform dump design (i.e. by removing part of the "saw tooth" configuration) will also improve mining efficiency and the overall viability of the Middlemount Coal Mine.
- **No Action** – MCPL has considered not extending the East Dump of the approved Middlemount Coal Mine. However, in the event that the Action is not developed, MCPL would forgo opportunities to improve mining efficiency and rehabilitation outcomes at the Middlemount Coal Mine. The Action would alleviate the "saw tooth" layout of the currently approved dump design which will in-turn improve the efficiency of the mine plan and reduce the area of the dump slope that requires rehabilitation.

2.3 Alternative locations, time frames or activities that form part of the referred action

Alternatives that have been considered for the Action are discussed in Section 2.2. The timing of the Action is dependent on the scheduled development of the open cut.

2.4 Context, planning framework and state/local government requirements

Commonwealth Environment Protection and Biodiversity Conservation Act, 1999

The Action is being referred to the Commonwealth Minister for the Environment for consideration as to whether the Action is a 'Controlled Action' and requires approval under the EPBC Act.

QLD Environmental Protection Act, 1994

Approval for the Action is proposed via the EA amendment provisions under Chapter 5, Part 7 of the EP Act.

An EA amendment application was lodged with DEHP on 27 July 2015. DEHP subsequently made its Assessment Level Decision on 7 August 2015 that the proposed amendment is a major amendment requiring public notification. DEHP issued an Information Request on 11 September 2015 to request additional information from MCPL to enable it to make a decision on the application. An Environmental Assessment Report (EAR) was prepared to provide MCPL's response to the Information Request. This EAR is currently on public exhibition.

QLD Mineral Resources Act, 1989

Concurrent to the EA amendment application, MCPL is applying for a Mining Lease for infrastructure across the Action area under the QLD *Mineral Resources Act, 1989* (MR Act). The Action is located within a Restricted Area 384 zone under the MR Act, however the restriction does not apply to infrastructure, including overburden emplacements.

Public notification of the application for a Mining Lease is being conducted at the same time as the public notification for the EA amendment application.

QLD Aboriginal Cultural Heritage Act, 2003

MCPL has approved Cultural Heritage Management Plans (CHMPs) in place with the Barada Barna People and BBKY #4 native title claimants. Management of Aboriginal cultural heritage will continue to be conducted in accordance with the CHMPs.

Other Leases, Licences and Approvals

No further approvals under the QLD *Water Act, 2000,* the QLD *Sustainable Planning Act, 2009* or the QLD *Vegetation Management Act, 1999* are required for the Action.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

MCPL has lodged an amendment application to the Middlemount Coal Mine EA EPML00716913 in accordance with section 224 of the EP Act to approve the Action. An EAR has been prepared to assess the potential environmental impacts associated with the development of the Action in accordance with the DEHP's Information Request. Tara Smith is the relevant contact officer at the DEHP and the application reference number is EPML00716913.

A description of the public consultation process is provided in Section 2.6 below.

2.6 Public consultation (including with Indigenous stakeholders)

MCPL held a pre-lodgement meeting with DEHP regarding the Action (and the amendment application to EA EPML00716913) on 9 December 2015.

The application is being publically notified in accordance with sections 152(2)(a) and 153 of the EP Act and section 252B of the QLD *Mineral Resources Act, 1989*. As part of this process, MCPL has:

- given written notice (an 'Application Notice') to each owner of land to which the amendment relates (the 'relevant land') and any other land necessary for access to the relevant land;
- given the Application Notice to each holder, or applicant for, an exploration permit or mineral development licence over the relevant land for a mineral other than a mineral to which the proposed amendment relates;
- given the Application Notice to the local government; and
- published the Application Notice in a newspaper circulating in the locality of the Action (in this case, the Central Queensland News).

Consultation with the Barada Barna People and BBKY #4 native title claimants will be conducted in accordance with the requirements of the QLD *Native Title Act, 1993* in relation to Native Title issues. Consultation in relation to Indigenous cultural heritage will be conducted in accordance with the requirements of the QLD *Aboriginal Cultural Heritage Act, 2003*.

2.7 A staged development or component of a larger project

The Action is not a staged development or a component of a larger Action.

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

3.1 (a) World Heritage Properties

Description

No World Heritage Properties are situated in the Action area or surrounds. The closest World Heritage Property to the Action is the Great Barrier Reef, situated, at its closest point, approximately 112 km to the east of the Action (DotE, 2016a).

Nature and extent of likely impact

The Action is unlikely to have an impact on any World Heritage Properties given that there is no real chance or possibility that it will cause:

- one or more of the World Heritage values to be lost;
- one or more of the World Heritage values to be degraded or damaged; or
- one or more of the World Heritage values to be notably altered, modified, obscured or diminished.

As such, the Action would not have, and is not likely to have, a significant impact on the World Heritage values of any World Heritage Properties.

3.1 (b) National Heritage Places

Description

No National Heritage Places are situated in the Action area or surrounds. The closest National Heritage Place to the Action is the Great Barrier Reef, situated, at its closest point, approximately 112 km to the east of the Action (DotE, 2016b).

Nature and extent of likely impact

The Action is unlikely to have an impact on any National Heritage Places given that there is no real chance or possibility that it will cause:

- one or more of the National Heritage values to be lost;
- one or more of the National Heritage values to be degraded or damaged; or
- one or more of the National Heritage values to be notably altered, modified, obscured or diminished.

As such, the Action would not have, and is not likely to have, a significant impact on the National Heritage values of any National Heritage Places.

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

No Ramsar wetlands are situated in the Action area. The closest Ramsar wetland to the Action is the Shoalwater and Corio Bays Area, located approximately 160 km north-east of the Action area on the QLD coastline.

Nature and extent of likely impact

The Shoalwater and Corio Bays Area are situated approximately 160 km north-east of the Action, and it is unlikely that the Shoalwater and Corio Bays Area would be affected by any potential direct or indirect effect of the Action. Secondary effects, such as the Action's contribution to global greenhouse gas emissions, would be relatively small.

The Action would not have a significant impact on the ecological character of the Shoalwater and Corio Bays Area Ramsar site as it would:

- not result in areas of the wetland being destroyed or substantially modified;
- not result in a substantial and measurable change in the hydrological regime of the wetland;
- not result in the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the wetland being seriously affected;
- not result in a substantial and measurable change in the water quality of the wetland; and
- not result in an invasive species that is harmful to the ecological character of the wetland being established (or an existing invasive species being spread) in the wetland.

3.1 (d) Listed threatened species and ecological communities

Description

The Action area and surrounds has been investigated during numerous previous surveys, investigations and assessments, including:

- Ecological Assessment Report for Bingegang Pipeline Relocation (Naturecall, 2014).
- Middlemount Coal Action, Stage 2 Terrestrial Ecological Impact Assessment (Parsons Brinckerhoff, 2010).
- Various monitoring reports and investigations undertaken at the Middlemount Coal Mine.

Threatened Flora Species

Naturecall (2016) conducted detailed flora surveys across the Action area over five days from 12 to 16 October 2015. The surveys aimed to verify and field-validate the type, distribution and remnant status of vegetation communities and regional ecosystems, develop an inventory of flora species present on site, identify and describe any Matters of National Environmental Significance (MNES) and to collect sufficient data to conduct a terrestrial habitat quality assessment. Targeted searches for conservation significant flora were also undertaken.

A list of threatened flora species under the EPBC Act that have the potential to occur in the Action area was generated from database searches (including the EPBC Protected Matters Search Tool) of a 10 x 10 km search area centred on the Action (DotE, 2016c).

King Blue-grass (*Dichanthium queenslandicum*) is the only threatened flora species listed under the EPBC Act which has the potential to occur in the Action area. However, the King Blue-grass was not recorded during the surveys undertaken in the Action area, and has not been recorded during targeted surveys in the immediate surrounds (Parsons Brinckerhoff, 2010). It is further noted that Naturecall (2016) considers that this species is unlikely to occur within the Action area on the basis that no cracking clay soils were identified in the Action area or surrounds and given the highly disturbed nature of the Action area.

Vegetation mapping (i.e. ground-truthed regional ecosystems) within the Action area is presented on Figure 5.

Threatened Fauna Species

Naturecall (2016) conducted detailed fauna surveys across the Action area over five days from 12 to 16 October 2015.The surveys aimed to develop an inventory of fauna species present on site and to identify and describe any MNES. The field surveys were undertaken in accordance with relevant guidelines. General survey techniques included transects, opportunistic records, habitat assessments, spot lighting, call playback, herpetofauna surveys, diurnal bird surveys, passive infrared camera stations, and scat, track and secondary evidence searches. Targeted searches for conservation significant fauna were also undertaken.

A list of threatened fauna species under the EPBC Act that have the potential to occur in the Action area was generated from database searches (including the EPBC Protected Matters Search Tool and the Wildlife Online database) of a 10 x 10 km search area centred on the Action (DotE, 2016c; DEHP, 2016a), and is presented in Table 2 below. No amphibian species listed as threatened under the EPBC Act have the potential to occur within the Action area and surrounds (Table 2).

Table 2
Threatened Fauna Species with Potential to Occur

Species	Status[1]	Source of Record		Distribution/Habitat in relation to the Action[4]	Likelihood of Occurrence within Action Area and Immediate Surrounds[4]
		EPBC Protected Matters Search[2]	Wildlife Online[3]		
Reptiles					
Collared Delma (*Delma torquate)*	V	•	-	No suitable habitat occurs in the Action area or surrounds (DotE, 2016d).	Unlikely
Ornamental Snake (*Denisonia maculate)*	V	•	•	Recorded about 4.5km to the south of the Action area, however not found in the Action area during this or previous surveys despite targeted searches. The site does not contain defined habitat requirements for this species such as Brigalow habitats, wetlands and clay soils and has been disturbed as a result of cattle grazing and weed invasion. Suitable habitat does however occur within 1km of the site. Low chance of occurrence.	Low
Yakka Skink (*Egernia rugosa)*	V	•	-	Action area contains broadly suitable vegetation associations and habitat components for this species however it has not been recorded on MCPL lands during previous surveys. Low chance of occurrence.	Low

Table 2 (Continued)
Threatened Fauna Species with Potential to Occur

Species	Status[1]	Source of Record		Distribution/Habitat in relation to the Action[4]	Likelihood of Occurrence within Action Area and Immediate Surrounds[4]
		EPBC Protected Matters Search[2]	Wildlife Online[3]		
Reptiles (Continued)					
Southern Snapping Turtle, White-throated Snapping Turtle (*Elseya albagula)*	CE	•	-	No suitable habitat occurs in the Action area or surrounds. Unlikely to occur.	Unlikely
Dunmall's Snake (*Furina dunmalli)*	V	•	-	No preferred Brigalow habitats for this species occur in the Action area, and the Action area and general area has been highly modified as a result of past and current activities. No local records and not recorded on MCPL lands to date. Unlikely to occur.	Unlikely
Allan's Lerista, Retro Slider (*Lerista allanae)*	E	•	-	No suitable habitat occurs in the Action area or surrounds. Unlikely to occur.	Unlikely
Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver (*Rheodytes leukops)*	V	•	-	No suitable habitat occurs in the Action area or surrounds. Unlikely to occur.	Unlikely
Birds					
Red Goshawk (*Erythrotriorchis radiates)*	V	•	-	Action area and general area comprises low quality foraging habitat due to lack of permanent waterways. No local or regional records. Unlikely to occur.	Unlikely
Squatter Pigeon (southern) (*Geophaps scripta scripta)*	V	•	-	Not recorded within the Action area despite targeted searches, however has been recorded outside of the Action area during previous surveys. Action area contains potential habitat for this species, however exotic groundcover over most of the Action area is a limitation. High chance of occurrence given suitable habitat within the Action area.	High
Star Finch (eastern), Star Finch (southern) (*Neochmia ruficauda ruficauda)*	E	•	-	Action area represents poor potential habitat for this species due to lack of permanent water and disturbance history. No local records. Unlikely to occur.	Unlikely
Black-throated Finch (southern) (*Poephila cincta cincta)*	E	•	-	Action area represents poor potential habitat for this species. No local records and Action area occurs beyond known distribution. Unlikely to occur.	Unlikely
Australian Painted Snipe (*Rostratula australis)*	E	•	-	No wetlands or waterways occur on Action area, hence this species is unlikely to occur.	Unlikely

Table 2 (Continued)
Threatened Fauna Species with Potential to Occur

Species	Status[1]	Source of Record		Distribution/Habitat in relation to the Action[4]	Likelihood of Occurrence within Action Area and Immediate Surrounds[4]
		EPBC Protected Matters Search[2]	Wildlife Online[3]		
Mammals					
Northern Quoll (*Dasyurus hallucatus)*	E	•	-	Action area may provide generic foraging and denning habitat, however disturbance history of Action area and general area, presence of feral predators, coupled with lack of records would significantly reduce potential. Unlikely to occur.	Unlikely
Ghost Bat (*Macroderma gigas*)	V	•	-	Action area may provide suitable habitat (DEHP, 2016b), however there is a lack of records in the vicinity of the Action area and surrounds, and the species was not detected during surveys. Unlikely to occur.	Unlikely
Corben's Long-eared Bat, South-eastern Long-eared Bat (*Nyctophilus corbeni)*	V	•	-	Action area contains generic foraging habitat as part of the larger area. Not recorded in the locality or during previous surveys on MCPL land. Fair chance of occurrence.	Moderate
Greater Glider (*Petauroides volans*)	V	•	-	Action area may provide suitable habitat (Threatened Species Scientific Committee, 2016), however there is a lack of records in the vicinity of the Action area and surrounds, and the species was not detected during surveys. Unlikely to occur.	Unlikely
Koala (*Phascolarctos cinereus)*	V	•	•	Recorded within approximately 5km of the Action area to the south-west by previous surveys. Preferred browse trees are however very rare in the Action area and soils are low nutrient. Further, no evidence of the Koala was recorded during the survey. As such, Koalas are unlikely to occupy the site. The Action area forms part of larger area of habitat hence there is a low chance Koalas moving through the site between preferred habitats or as dispersing males during the breeding season.	Low
Grey-headed Flying-fox (*Pteropus poliocephalus)*	V	•	-	Action area contains a generic nectar foraging resource, however no potential roosting habitat occurs in the Action area or adjacent. No local records and not recorded on MCPL lands to date. Unlikely to occur.	Unlikely

[1] Conservation Status under the EPBC Act (current as at 20 May 2016). CE – critically endangered, E – endangered, V – vulnerable.
[2] DotE (2016c).
[3] DEHP (2016a).
[4] Naturecall (2016).

As described in Table 2, a total of 18 species listed under the EPBC Act have been considered for their potential to occur within the Action area or surrounds. The habitat requirements for each of the fauna species listed in Table 2 were reviewed using species profiles provided on the DEHP and DotE websites, and other material referenced in Table 2. This information was compared with the habitats identified within the Action area by contemporary surveys and an assessment was made of the likelihood of suitable habitat for each species being present. Threatened species whose habitats do not occur within the Action area are considered to have an 'unlikely' likelihood of occurrence (Naturecall, 2016).

The habitat filtering identified three EPBC Act listed species that are considered to have a low likelihood of occurring with the Action area (Table 2), Ornamental Snake (*Denisonia maculate*), Yakka Skink (*Egernia rugosa*) and Koala (*Phascolarctos cinereus*). One EPBC Act listed species is considered to have a moderate likelihood of occurring within the Action area (Table 2), Corben's Long-eared Bat (*Nyctophilus corbeni*). One EPBC Act listed species is considered to have a high likelihood of occurring within the Action area (Table 2), Squatter Pigeon (southern) (*Geophaps scripta scripta*).

These five species (along with all the other species) were specifically targeted during the field surveys conducted in the Action area. No EPBC Act listed threatened species were recorded during the 2015 surveys in the Action area (Naturecall, 2016). Further details on the Squatter Pigeon (southern), which is considered to have a high potential for occurring in the Action area, are provided below.

Squatter Pigeon (Southern)

The Squatter Pigeon (southern) has not been recorded in Action area or immediate surrounds, however it has also been conservatively assumed that there is a high chance of the species would use the habitat in the Action area from time to time given the species has been recorded in the wider landscape.

The Squatter Pigeon (southern) has a known distribution extending from the Burdekin-Lynd divide in Central QLD, west to Hughenden, Longreach and Charleville, east to the coastline between Townsville and Port Curtis (near Gladstone), south to scattered sites throughout south-eastern QLD and the Border Rivers region of northern NSW (DotE, 2016e).

Natural foraging habitat for the Squatter Pigeon (southern) comprises any remnant or regrowth open-forest to sparse, open-woodland or scrub dominated by Eucalyptus, Corymbia, Acacia or Callitris species, on sandy or gravelly soils, within 3 km of a suitable, permanent or seasonal waterbody (Squatter Pigeon Workshop, 2011). Breeding habitat occurs on stony rises occurring on sandy or gravelly soils, within 1 km of a suitable, permanent waterbody (Squatter Pigeon Workshop, 2011).

Threatened Ecological Communities

Despite targeted searches during the flora survey conducted by Naturecall (2016), no threatened ecological communities were identified within the Action area, and none have been previously identified in the immediate surrounds.

A single regional ecosystem was ground-truthed within the Action area, namely RE 11.5.3 (*Eucalyptus populnea* ± *E. melanophloia* ± *Corymbia clarksoniana* on Cainozoic sand plains and/or remnant surfaces) along with small areas of a sub-type of this community comprising RE 11.5.3b (*E. populnea* woodland on closed depressions in sandplains).

Nature and extent of likely impact

This section assesses the potential impacts on threatened species or threatened ecological communities under the EPBC Act as a result of the Action, and identifies the nature and extent of any likely impacts in accordance with DotE (2013a) EPBC Act Policy Statement – Matters of National Environmental Significance – Significant Impact Guidelines 1.1.

The Action would require clearance of the following regional ecosystems in the approximate areas listed below:

- RE 11.5.3 (*Eucalyptus populnea* ± *E. melanophloia* ± *Corymbia clarksoniana* on Cainozoic sand plains and/or remnant surfaces) – 171 ha.
- RE 11.5.3b (*E. populnea* woodland on closed depressions in sandplains) – 3 ha.

Non-native and non-vegetative areas are excluded from the lists above, including cleared areas, plantings and existing infrastructure.

Threatened Flora Species

The Action is not likely to impact any EPBC Act listed flora species given the absence of records in or near the Action area.

Threatened Fauna Species

Table 3 evaluates the likelihood and nature of impacts of the Action on each individual threatened fauna species described in the above sections.

Table 3
Potential Impacts on Fauna Species and their Habitats

Species	Status[1]	Nature and Extent of Likely Impact[2]
Ornamental Snake (*Denisonia maculate)*	V	Due to the lack of records within the Action area and surrounds, and the abundance of potential habitat surrounding it, it is unlikely that the Action would have a significant impact on this species.
Yakka Skink (*Egernia rugosa)*	V	Due to the lack of records within the Action area and surrounds, and the abundance of potential habitat surrounding it, it is unlikely that the Action would have a significant impact on this species.
Squatter Pigeon (southern) (*Geophaps scripta scripta)*	V	Due to the lack of records within the Action area and immediate surrounds, and the abundance of suitable habitat surrounding the Action area, it is unlikely that the Action would have a significant impact on this species. Further details provided below.
Corben's Long-eared Bat, South-eastern Long-eared Bat (*Nyctophilus corbeni)*	V	Due to the lack of records within the Action area and surrounds, and the abundance of potential habitat surrounding it, it is unlikely that the Action would have a significant impact on this species.
Koala (*Phascolarctos cinereus)*	V	Due to the lack of records within the Action area and surrounds, and the abundance of potential habitat surrounding it, it is unlikely that the Action would have a significant impact on this species.

[1] Conservation Status under the EPBC Act (current as at 20 May 2016). CE – critically endangered, E – endangered, V – vulnerable.
[2] Naturecall (2016).

<u>Squatter Pigeon (Southern)</u>

The removal of the potential habitat for the Squatter Pigeon in the Action area is highly unlikely to reduce the availability of habitat for the Squatter Pigeon in the immediate landscape, region or through-out the species range in Australia. This is because:

- Areas of remnant woodland on Land Zones 3, 4, 5, 7 and 10 are abundant in the landscape.
- The Action would result in the clearance of approximately 0.3% of the potential habitat for the Squatter Pigeon in the wider landscape.
- There are 20 records of the Squatter Pigeon in the wider landscape (Figure 6), and none within the Action area, despite targeted searches. The closest record is approximately 1.4 km south-east of the Action area.

- The Action area is approximately 240 km north of Carnarvon Ranges in Central Queensland, and therefore any potential occurrence of the Squatter Pigeon in the proposed extension area is not likely to be part of the sub-populations which are considered to be important sub-populations of the subspecies (DotE, 2016e).

The potential habitat for the Squatter Pigeon in the Action area is not likely to be necessary for the species movement in the immediate landscape, region or through-out the species range in Australia. This is because the potential habitat for the Squatter Pigeon in the Action area is connected to other habitat by potential habitat approximately 0.3 km wide and that connection would still exist after clearance for the Action.

Further, it is noted that the patches of RE 11.5.3b mapped within the Action area are not associated with palustrine wetlands, despite RE 11.5.3b generally being associated with wetlands (according to the Queensland RE database). Naturecall (2016) mapped RE 11.5.3b in Action area in areas of poorly-draining soils (slight clay depressions) and these areas are only capable of holding water for short periods of time after heavy rain (in the wet season). Naturecall (2016) specifically state that no wetlands were identified in the proposed extension area and there is no surface water present which may be used by the Squatter Pigeon.

Other Fauna Species

The Action is not likely to impact any of the other individual fauna species listed in Table 3.

Threatened Ecological Communities

The Action is not likely to impact any EPBC Act listed threatened ecological communities within the Action area or immediate surrounds.

3.1 (e) Listed migratory species

Description

Migratory species are identified as those species which migrate to Australia and its external territories, or pass through or over Australian waters during their annual migrations (DotE, 2016f). Table 4 provides a full list of migratory species, listed under the EPBC Act, that have been identified as occurring or having the potential to occur within the Action area and the area surrounding the Action. These were identified by the EPBC Act Protected Matters Search (DotE, 2016c) and recent fauna surveys in the Action area (Naturecall, 2016).

As described in Section 3.1(d) above, the patches of RE 11.5.3b mapped within the Action area are not associated with palustrine wetlands. These areas are only capable of holding water for short periods of time after heavy rain (in the wet season), and there is no surface water present which may be used by migratory species.

Only one migratory species listed under the EPBC Act was recorded within the Action area during the recent survey by Naturecall (2016), namely the Rainbow Bee-eater (*Merops ornatus*) (Table 4) (Figure 5).

Table 4
Migratory Species with Potential to Occur

Species	Status[1]	Source of Record		Distribution/Habitat in relation to the Action[4]	Likelihood of Occurrence within Action Area and Immediate Surrounds[4]
		EPBC Protected Matters Search[2]	Wildlife Online[3]		
Fork-tailed Swift (*Apus pacificus*)	M	●	-	Fair potential, as transient, between October-April.	Moderate
Oriental Cuckoo, Horsfield's Cuckoo (*Cuculus optatus*)	M	●	-	Broadly suitable habitat occurs in the Action area. Low chance of occurrence.	Low
Rainbow Bee-eater (*Merops ornatus*)	M	●	-	**Recorded on site** during field surveys.	Known to Occur
Black-faced Monarch (*Monarcha melanopsis*)	M	●	-	Broadly suitable habitat occurs in the Action area. Low chance of occurrence.	Low
Yellow Wagtail (*Motacilla flava*)	M	●	-	No suitable habitat occurs in the Action area or surrounds. Unlikely to occur.	Unlikely
Satin Flycatcher (*Myiagra cyanoleuca*)	M	●	-	Broadly suitable habitat occurs in the Action area. Low chance of occurrence.	Low
Rufous Fantail (*Rhipidura rufifrons*)	M	●	-	No suitable habitat occurs in the Action area or surrounds. Unlikely to occur.	Unlikely
Great Egret, White Egret (*Ardea alba*)	M	●	-	No suitable habitat occurs in the Action area or surrounds. Unlikely to occur.	Unlikely
Cattle Egret (*Ardea ibis*)	M	●	-	Suitable habitat occurs in the Action area and surrounds. Moderate chance of occurrence.	Moderate
Latham's Snipe, Japanese Snipe (*Gallinago hardwickii*)	M	●	-	No suitable habitat occurs in the Action area or surrounds. Unlikely to occur.	Unlikely
Osprey (*Pandion haliaetus*)	M	●	-	No suitable habitat occurs in the Action area or surrounds. Unlikely to occur.	Unlikely

[1] Conservation Status under the EPBC Act (current as at 20 May 2016). M - migratory.
[2] DotE (2016c).
[3] DEHP (2016a).
[4] Naturecall (2016).

Nature and extent of likely impact

The Action is not likely to have a significant impact on migratory species listed under the EPBC Act as it is unlikely that the Action would:

- substantially modify, destroy or isolate an area of important habitat for a migratory species;
- result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or
- seriously disrupt the lifecycle of an ecologically significant proportion of the population of a migratory species.

This is because:

- None of the species are considered to be at the limit of their known migratory ranges.
- Each of these species is highly mobile and foraging and territorial ranges far exceed the Action area.
- The Action area is not considered to contain limiting foraging or breeding habitat for these species.
- The Action area does not constitute an area of important habitat for any of these species.

The proposed action is unlikely to disrupt the lifecycle of any of these species.

3.1 (f) Commonwealth marine area

Description

There are no Commonwealth Marine Areas located within the vicinity of the Action. The Commonwealth Marine Area generally stretches from 3 to 200 nautical miles from the Australian coast (DotE, 2016g). As the Action is not situated within a Commonwealth Marine Area, it is not expected to impact marine species within a Commonwealth Marine Area.

Nature and extent of likely impact

The Action is unlikely to have an impact any Commonwealth Marine Areas, and as a result is not expected to impact any marine species within a Commonwealth Marine Area.

3.1 (g) Commonwealth land

Description

The Action would not take place on Commonwealth land and no Commonwealth lands are located in the area surrounding the Action.

Nature and extent of likely impact

The Action would not affect any Commonwealth land.

3.1 (h) The Great Barrier Reef Marine Park

Description

The Action is not located within the Great Barrier Reef Marine Park, or the catchment area of the Great Barrier Reef Marine Park.

Nature and extent of likely impact

The Action would not impact the Great Barrier Reef Marine Park.

3.1 (i) A water resource, in relation to coal seam gas development and large coal mining development

Description

Surface Water

Locally, the Action is located within the Roper Creek catchment, which forms part of the Mackenzie North-western Tributaries sub-catchment, within the Mackenzie River Sub-basin of the greater Fitzroy Basin.

No watercourses or drainage lines are located within the proposed Action area. One drainage line, an unnamed ephemeral tributary of Roper Creek, is located approximately 4 km south-east of the Action. It is poorly defined in some areas upstream of Dysart Middlemount Road, with a channel depth of less than 0.5 m in some locations (WRM Water & Environment [WRM], 2015a). Flow is interrupted at two locations by farm dams and the channel is not apparent on aerial photographs and survey about 185 m upstream of Dysart Middlemount Road. The drainage line reappears at Dysart Middlemount Road where it discharges under the road via several box culverts.

The QLD Department of Natural Resources and Mines (DNRM) confirmed that within ML 70417 (and therefore upstream of ML 70417), this drainage line is not a watercourse, rather a drainage feature defined under the *Water Act, 2000* that facilitates overland flow (DNRM, 2014). Any flow in the drainage feature was determined to be of an insufficient volume to sustain basic ecological processes and maintain biodiversity. Accordingly, no watercourses are located within or adjacent to the Action area.

It is noted that the Queensland Government's Environmentally Sensitive Areas (ESA) Mapping Tool does not map any Category B Environmentally Sensitive Areas along the drainage feature beyond the approved extent of the Middlemount Coal Mine (Middlemount, 2016).

Water quality in the vicinity of the Middlemount Coal Mine is considered to be highly turbid, with moderate and variable electrical conductivity (EC), low nutrient levels and low dissolved oxygen levels at times. The concentrations of some metals are also elevated above the water quality objectives for the area (WRM, 2015b).

Groundwater

Groundwater aquifers in the vicinity of the Action area are present in three general geological units, namely the alluvium (generally <5 m thick), the Tertiary unit and the coal measures. Alluvium is limited to narrow, shallow bands along watercourses, namely Thirteen Mile Gully and Roper Creek and their tributaries. No alluvium is located within the Action area.

Shallow groundwater flow and recharge is expected to be limited by significant clay deposits within the Alluvium and Tertiary units, however sand layers are likely to contain local aquifers, with groundwater considered to be brackish to saline (MCPL, 2011). Similarly, groundwater within the Permian strata is brackish to saline.

Groundwater use in the vicinity of the Action is limited, with the closest landholder bores located to the north of Middlemount township. Low yields and relatively high salinity are reported in nearby registered groundwater bores. A census of nearby landholder bores, the closest being approximately 4 km from the open cut mining extent, generally found that groundwater is used on rare occasions for stock watering. The groundwater level in registered and census bores was found to be approximately 15 to 40 m below ground level (MCPL, 2011).

The Action lies within the "Mackenzie Groundwaters" zone. The following environmental values for groundwater relevant to the Action have been identified:

- Aquatic ecosystems.
- Farm supply/use.
- Stock water.
- Cultural and spiritual values.

As no irrigation, recreation or industrial activities rely on groundwater in the vicinity of the Action, these values are not considered relevant. Similarly, there is no reliance on groundwater in the vicinity of the Action for drinking water, and as such, this is not considered a relevant environmental value.

Nature and extent of likely impact

A Water Management Plan for the Middlemount Coal Mine (WRM, 2015b) has been prepared in accordance with the EA conditions. The Water Management Plan includes a study of potential contaminants, a water balance model, a description of the site water management system, measures to manage and prevent saline and acid rock drainage, contingency procedures for emergencies and a monitoring and review program for the effectiveness of the water management plan. The Water Management Plan would be revised to incorporate the Action.

Surface Water

Surface water runoff from the disturbed Action catchment (i.e. the out-of-pit waste rock emplacement, prior to its rehabilitation) could potentially contain sediments, dissolved solids and salts. This runoff would be managed as sediment laden runoff, in accordance with the ESCP (WRM, 2015c).

Sediment laden runoff may have suspended sediment loads, but is not expected to have high salt loads or other contaminants (e.g. dissolved metals or hydrocarbons) that could adversely affect water quality, because the overburden material has a negligible to low acid forming potential. The dispersive nature of the material would be managed with the erosion and sediment control measures, with less dispersive material used as capping material.

The Action would increase the footprint of the East Dump by approximately 189 ha. Runoff from the Action area would report to Sediment Dam 7 via a new drainage channel, constructed in accordance with the ESCP to provide effective separation of clean and sediment laden water for a 100 year ARI 24-hour design event.

An extensive surface water monitoring network has been established at the Middlemount Coal Mine which includes upstream and downstream monitoring points and monitoring points on all licensed discharge points. Monitoring of water in sediment dams is also conducted. MCPL would continue to monitor surface water in accordance with the Water Management Plan.

With the monitoring, management and mitigation measures detailed above, it is predicted that water discharging from the site would continue to comply with the EA conditions. The monitoring and reporting requirements detailed in the Water Management Site Practice would continue to be implemented to monitor compliance with the EA and allow early identification of potential issues with the site water management systems.

Groundwater

Geochemical assessment (RGS, 2013) of overburden material identified that the majority of coal and mining waste materials are classified as non-acid forming, have excess acid buffering capacity and a high factor of safety with respect to potential for acid generation.

Heavy metal concentrations in all overburden samples tested for the Middlemount Coal Mine Stage 2 Environmental Impact Statement (MCPL, 2011) were below environmental investigation levels. The excavation and dumping of overburden was predicted to have a low risk of producing heavy metal contamination from leachate seepage or surface runoff from the overburden dumps.

The Action would not affect the potential risk of groundwater contamination via seepage at the Middlemount Coal Mine as the excavation and dumping of overburden would continue to have a low risk of producing heavy metal contamination from leachate seepage or surface runoff and no connective aquifers (i.e. Alluvial aquifers) are located in the Action area.

Groundwater monitoring at the locations specified within the EA would continue to be undertaken quarterly by a suitably qualified person in accordance with the methods prescribed in the latest edition of the administering authority's Monitoring and Sampling Manual 2009 (DEHP, 2010).

Groundwater monitoring includes standing water level and water quality of tertiary and alluvial aquifers. Standing water levels would continue to be monitored in coal seam aquifers. The existing management, monitoring and mitigation measures detailed in the Water Management Plan and the Water Management Site Practice would continue to be implemented for the Action to monitor compliance with the existing EA.

Conclusion

Considering the S*ignificant impact guidelines 1.3: Coal seam gas and large coal mining developments - impacts on water resources* (DotE, 2013b), MCPL considered, that beyond the existing approved impacts associated with the Middlemount Coal Mine, the Action is:

- unlikely to directly or indirectly result in a substantial change in the hydrology of water resources; and
- unlikely to directly or indirectly result in a substantial change in water quality of water resources.

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

3.2 (a)	**Is the proposed action a nuclear action?**	✓	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment		

3.2 (b)	**Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?**	✓	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment		

3.2 (c)	**Is the proposed action to be taken in a Commonwealth marine area?**	✓	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))		

3.2 (d)	**Is the proposed action to be taken on Commonwealth land?**	✓	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))		

3.2 (e)	**Is the proposed action to be taken in the Great Barrier Reef Marine Park?**	✓	No
			Yes (provide details below)
	If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))		

3.3 Other important features of the environment

3.3 (a) Flora and fauna

Threatened flora and fauna species that are known to occur or could potentially occur within the Action area are summarised in Section 3.1(d). The general kinds of flora and fauna that occur in the Action area and surrounds are summarised below, as well as a description of the regional and local setting of the Action.

Regional and Local Setting

The Action is located within the Brigalow Belt North Bioregion, in the Isaac-Comet Downs subregion (Naturecall, 2016). The Brigalow Belt North Bioregion covers an area of approximately 59,824 square kilometres (Thackway & Cresswell, 1995) and has been largely cleared for dryland farming, grazing and mining, with remaining vegetation being highly fragmented and primarily limited to linear strips and isolated remnants (Naturecall, 2016).

Flora

Vegetation communities mapped within the Action area are shown on Figure 5.

As detailed in Section 3.1 (d), flora surveys in the Action area and surrounds have been undertaken by Naturecall (2016). During the 2015 surveys by Naturecall, a total of 62 terrestrial flora species were recorded within the Action area, consisting of 54 native species and eight introduced species.

Weed cover was generally low across the Action area with weed presence generally limited to pasture species such as *Cenchrus ciliaris* (Buffel Grass), *Urochloa mosambicensis* (Sabi Grass), *Stylosanthes* sp. and *Opuntia stricta* (Prickly Pear). *Chloris gayana* (Rhodes Grass) and *Heteropogon contortus* (Black Speargrass) and *Cenchrus ciliaris* (Buffel Grass) have also been previously recorded in the Action area and surrounds (Naturecall, 2014).

Fauna

As detailed in Section 3.1 (d), fauna surveys in the Action area and surrounds have been undertaken by Naturecall (2016). A total of 61 fauna species were identified within the Action area comprising 14 bird species,12 mammal species and eight reptile species. No amphibian species were detected during the field surveys.

A number of pest species were recorded within the Action area, including domestic dog, feral cat, European fox and European rabbit (Naturecall, 2016).

3.3 (b) Hydrology, including water flows

The Action is located within the Roper Creek catchment, which forms part of the Mackenzie North-western Tributaries sub-catchment, within the Mackenzie River Sub-basin of the greater Fitzroy Basin (MCPL, 2016).

The underlying geology of the Action area is comprised of early tertiary mudstone, sandstone, conglomerate, siltstone, oil shale, lignite and basalt.

No watercourses or drainage lines are located within the Action area. One drainage line, an unnamed ephemeral tributary of Roper Creek, is located approximately 500 m east of the Action area. The DNRM confirmed that within ML 70417 (and therefore upstream of ML 70417), this drainage line is not a watercourse, rather a drainage feature defined under the QLD *Water Act 2000* that facilitates overland flow (DNRM, 2014). Any flow in the drainage feature was determined to be of an insufficient volume to sustain basic ecological processes and maintain biodiversity. Accordingly, no watercourses are located within or adjacent to the Action area.

Water resources in proximity to the Action are considered in further detail in Section 3.1(i).

3.3 (c) Soil and Vegetation characteristics

A single regional ecosystem was ground-truthed within the Action area, namely RE 11.5.3 (*Eucalyptus populnea* ± *E. melanophloia* ± *Corymbia clarksoniana* on Cainozoic sand plains and/or remnant surfaces) along with small areas of a sub-type of this community comprising RE 11.5.3b (*E. populnea* woodland on closed depressions in sandplains).

The single regional system (and associated sub-type) recorded within the Action area (i.e. RE 11.5.3/11.5.3b) is not listed as Endangered or Of Concern under the QLD *Vegetation Management Act, 1999*. The field validated regional ecosystem mapping is presented in Figure 5.

The land within the Action area is considered to be agricultural land "Class C", which represents pasture land (i.e. land that is suitable only for improved or native pastures due to limitations which preclude continuous cultivation for crop production) (MCPL, 2011). No Strategic Cropping Land is mapped within, or in the vicinity of the Action (DNRM, 2014).

The environmental values relevant to land were identified using the DEHP Guideline *Application Requirements for Activities with Impacts to Land*. The following environmental values for land relevant to the Action have been identified:

- The existing land uses of low intensity cattle grazing on unimproved pasture, remnant and regrowth vegetation and mining and petroleum exploration activities.
- The intrinsic soil health, function and suitability (i.e. the ability for the soil to sustain growth of native vegetation and grasses for cattle grazing).
- The natural interaction of the land with other ecosystems.
- The cultural and spiritual values of the land.
- The qualities of the land that are conducive to human health and well being.
- The qualities of the land that are conducive to protecting the aesthetics of the environment.

3.3 (d) Outstanding natural features

No outstanding natural features have been identified within the Action area, and there are no environmentally sensitive areas within or in close proximity to the Action area.

3.3 (e) Remnant native vegetation

Refer to Sections 3.1(d), 3.3(a) and 3.3(c) above and Figure 5.

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

The existing land uses within the Action area include low intensity cattle grazing on unimproved pasture, remnant and regrowth vegetation and mining and petroleum exploration activities.

The natural topography within the Action area is relatively flat, with an elevation typically ranging from approximately 160 to 170 m AHD. Approximately 1.5 km to the east of the Action area, Middle Mountain rises to an elevation of approximately 280 m AHD.

3.3 (g) Current state of the environment

The Action is located on freehold land owned by MCPL which is currently used for low intensity cattle grazing under an agistment agreement. Lot 3 on SP210524, within which the Action is located, is listed on the Environmental Management Register as having livestock dips and mine wastes, however an inspection of the land and DEHP records did not identify any potentially contaminated sites such as livestock dips or rubbish dumps.

Introduced fauna species and weed species are discussed in Section 3.3(a).

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

As described in Section 3.1(b), no National Heritage Places are situated within the Action area or immediate surrounds.

3.3 (i) Indigenous heritage values

As described in Section 2.4, MCPL has approved CHMPs in place with the Barada Barna People and BBKY #4 native title claimants.

The plan provides for the engagement of the Indigenous groups prior to the commencement of any disturbance works, which allows for an assessment of the cultural heritage values within the proposed area of disturbance, and for the development of appropriate management strategies.

3.3 (j) Other important or unique values of the environment

No national parks, conservation reserves or wetlands of national significance occur within the Action area or the area surrounding the Action.

3.3 (k) Tenure of the action area (eg freehold, leasehold)

As described in Section 1.6, the Action would involve development within MLA 700014 (Figure 3), on freehold land owned by MCPL (Lot 3 SP210524).

3.3 (l) Existing land/marine uses of area

Existing land uses in the Action area and surrounds are described in Section 3.3(g).

3.3 (m) Any proposed land/marine uses of area

The Action would be rehabilitated consistent with the existing rehabilitation landform design criteria and post mining land use at the Middlemount Coal Mine. As required by the EA, the post mining land use for waste rock emplacements at the Middlemount Coal Mine is a native ecosystem with recreated Regional Ecosystem 11.5.3 (*Eucalyptus populnea* ± *E. Melanophloia* ± *Corymbia clarksoniana* on Cainozoic sand plains/remnant surfaces).

4 Environmental outcomes

The following environmental outcomes, relevant to Matters of National Environmental Significance, would be achieved as a result of the proposed Action:

- No impacts to the World Heritage values of a declared World Heritage property.
- No impacts to the National Heritage values of a National Heritage Place.
- No impacts to the ecological character of a declared Ramsar wetland.
- No significant impacts to listed threatened species or ecological communities or their habitat.
- No significant impacts to listed migratory species.
- No impacts to the environment in a Commonwealth marine area.
- No impacts to the environment on Commonwealth land.
- No impacts to the Great Barrier Reef Marine Park.
- No significant impacts to a water resource, in relation to coal seam gas development and large coal mining development.

5 Measures to avoid or reduce impacts

Environmental management measures, monitoring programmes and reporting procedures are undertaken at the Middlemount Coal Mine in accordance with the existing Environmental Authority EPML00716913 and the approved environmental management plans.

The approved environmental management plans would be updated to incorporate the Project where necessary.

MCPL does not consider that the Action would have a significant impact on MNES and hence a commonwealth offset under the EPBC Act is not considered to be warranted. Notwithstanding, it is noted that an offset for the Squatter Pigeon (southern) is proposed for the Action under the Queensland *Environmental Offset Act, 2014*. This offset is proposed to be located to the west of the Middlemount Coal Mine, immediately south of the existing approved commonwealth offset areas.

6 Conclusion on the likelihood of significant impacts

6.1 Do you THINK your proposed action is a controlled action?

✓	No, complete section 5.2
	Yes, complete section 5.3

6.2 Proposed action IS NOT a controlled action.

On the basis of the reasons provided in Section 3, the Action is not considered to be a Controlled Action as it is not likely to have a significant impact on:

- the World Heritage values of a declared World Heritage property;
- the National Heritage values of a National Heritage Place;
- the ecological character of a declared Ramsar wetland;
- a listed threatened species, threatened ecological community, or their habitat;
- a listed migratory species;
- the environment in a Commonwealth marine area;
- the environment on Commonwealth land;
- the Great Barrier Reef Marine Park; or
- a water resource, in relation to coal seam gas development and large coal mining development.

6.3 Proposed action IS a controlled action

	Matters likely to be impacted
	World Heritage values (sections 12 and 15A)
	National Heritage places (sections 15B and 15C)
	Wetlands of international importance (sections 16 and 17B)
	Listed threatened species and communities (sections 18 and 18A)
	Listed migratory species (sections 20 and 20A)
	Protection of the environment from nuclear actions (sections 21 and 22A)
	Commonwealth marine environment (sections 23 and 24A)
	Great Barrier Reef Marine Park (sections 24B and 24C)
	A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E)
	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
	Protection of the environment from Commonwealth actions (section 28)
	Commonwealth Heritage places overseas (sections 27B and 27C)

7 Environmental record of the responsible party

		Yes	No
7.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** **Provide details** MCPL has a strong record of compliance with its environmental obligations under Environmental Authority EPML00716913 (as modified). MCPL has established and is committed to continuing open and constructive dialogue with the local community and stakeholders regarding environmental management as part of their operations.	✓	
7.2	**Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?** **If yes, provide details**		✓
7.3	**If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?** **If yes, provide details of environmental policy and planning framework** **Our Aim** At Middlemount Coal, we are committed to maintaining a sustainable balance between economic development and the protection of the natural environment. Our goal is to not only meet our environmental and cultural heritage obligations, but strive to exceed in all facets, therefore ensuring the protection of our environmental values within the Middlemount Mine as well as our surrounding communities. **Our Objectives** Our Environment and Cultural Heritage Management System includes but is not limited to: • Planning work activities so as to meet all environmental, sustainability and cultural heritage legislation and guidelines • Operating an environmentally sound and cultural aware business • Reporting and recording environmental practices, including greenhouse gas emissions, as part of our environmental and quality management system • Reviewing and auditing our environmental procedures to enable continual improvement.	✓	

	Our Commitment Middlemount Coal is committed to: • Comply with legislation concerned with the production, minimisation and disposal of waste and the control of hazardous substances, dust and industrial noise • Comply with government acts and requirements for the protection of our cultural heritage • Comply with legislation and regulations concerned with energy efficiency and greenhouse gas emissions • Act with due regard for the requirements and expectations of our of all our key stakeholders • Encourage employee education and participation in improving environmental awareness and practice • Encourage employee education in cultural heritage awareness • Implement an environmental audit and reporting system, to continually improve our environmental management system • Minimise waste generation and dispose of waste responsibly • Identify opportunities to reduce energy use and greenhouse gas emissions and the subsequent implementation of operational changes in response to opportunities that have been identified • Rehabilitate areas no longer required for mining processes. A copy of the Middlemount Coal Mine Environment and Cultural Heritage Policy is available on the Middlemount Coal Mine website.		
7.4	**Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?** **Provide name of proposal and EPBC reference number (if known)** Stage 2 of the Middlemount Coal Action was referred to the then Commonwealth Department of Sustainability, Environment, Water, Population and Communities (now DotE) in 2005 and was determined to be a Controlled Action (EPBC 2010/5394).	✓	

8 Information sources and attachments

(For the information provided above)

8.1 References

Department of Environment and Heritage Protection (2010) *Monitoring and Sampling Manual 2009.*

Department of Environment and Heritage Protection (2016a) Wildlife Online Extract. Website: https://environment.ehp.qld.gov.au/report-request/species-list/. Report generated 9 May 2016.

Department of Environment and Heritage Protection (2016b) *Ghost Bat*. Website: http://www.ehp.qld.gov.au/wildlife/animals-az/micro-bats/ghost_bat.html Accessed: May 2016.

Department of the Environment (2013a) *EPBC Act Policy Statement – Matters of National Environmental Significance – Significant Impact Guidelines.*

Department of the Environment (2013b) *Significant impact guidelines 1.3: Coal seam gas and large coal mining developments – impacts on water resources.* December 2013.

Department of the Environment (2016a) *Australia's World Heritage List.* Website: http://www.environment.gov.au/heritage/places/world-heritage-list. Accessed: May 2016.

Department of the Environment (2016b) *Australia's National Heritage List*. Website: https://www.environment.gov.au/heritage/places/national-heritage-list. Accessed: May 2016.

Department of the Environment (2016c) *EPBC Act Protected Matters Report.* Report created 19 May 2016.

Department of the Environment (2016d) *Delma torquata – Collared Delma*. Website: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1656. Accessed: May 2016.

Department of the Environment (2016e) Geophaps scripta scripta – Squatter Pigeon (southern). Website: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64440 Accessed: May 2016.

Department of the Environment (2016f) *EPBC Migratory Species Lists.* Website: http://www.environment.gov.au/cgi-bin/sprat/public/publicshowmigratory.pl Accessed: May 2016.

Department of the Environment (2016g) *Commonwealth marine areas*. Website: http://www.environment.gov.au/epbc/what-is-protected/commonwealth-marine-areas. Accessed: May 2016.

Department of Natural Resources and Mines (2014) *Statement of Reasons: Watercourse determination for mining lease for Middlemount Mine*. Unpublished advice to Middlemount Coal Pty Ltd.

Middlemount Coal Pty Ltd (2011) *Middlemount Coal Action Stage 2 Environmental Impact Statement.*

Middlemount Coal Pty Ltd (2013) *Mining By-Products Management Plan.*

Middlemount Coal Pty Ltd (2016) *Middlemount Coal North-eastern Extension Environmental Assessment Report*. April 2016.

Naturecall (2014) *Ecological Assessment Report for Bingegang Pipeline Relocation, Middlemount Coal Mine.* Report prepared for Middlemount Coal Pty Ltd.

Naturecall (2016) *EPBC Act 1999 – MNES Self Assessment, North-eastern Extension, Middlemount Coal Mine, Middlemount.* Report prepared for Middlemount Coal Pty Ltd. April 2016.

Parsons Brinckerhoff (2010) *Middlemount Coal Action, Stage 2 Terrestrial Ecological Impact Assessment*. Report prepared for Middlemount Coal Pty Ltd.

RGS Environmental Pty Ltd (2013) *Middlemount Coal Action Geochemical Assessment of Coal and Mining Waste Materials.* Report prepared for Middlemount Coal Pty Ltd.

Squatter Pigeon Workshop (2011). *Proceedings from the workshop for the Squatter Pigeon (southern).* 14-15 December 2011. Toowoomba Office of the Queensland Parks and Wildlife Service.

Thackway, R. and Cresswell, I.D. (1995) *An interim biogeographic regionalisation for Australia: a framework for setting priorities in the National Reserves System Cooperative Program, Version 4.0.*

Threatened Species Scientific Committee (2016) *Conservation Advice Petauroides volans.*

WRM Water & Environment (2015a) *Middlemount Coal North-eastern Extension Surface Water Assessment*. Report prepared for Middlemount Coal Pty Ltd. December 2015.

WRM Water & Environment (2015b) *Middlemount Coal Mine – Water Management Plan.*

WRM Water & Environment (2015c) *Middlemount Coal Mine – Erosion and Sediment Control Plan.*

8.2 Reliability and date of information

Information in Section 3 was sourced from previous and current surveys/assessments undertaken for the Action and the approved Middlemount Coal Mine. Information in this referral was compiled using assessments current as at May 2016 and included:

- MCPL project team (project information);
- baseline terrestrial flora and fauna surveys;
- database searches within and surrounding the Action area; and
- assessments prepared for the Action including by Naturecall (2016).

Minimal uncertainty regarding the information used in Section 3 is expected given:

- the comprehensive nature of the studies;
- the consultation process undertaken to date with key stakeholders; and
- the mitigation measures incorporated into the Action, including the implementation of an adaptive management approach.

8.3 Attachments

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	Attachment A - Geographic Information System (GIS) data supply guidelines Figure 1 – Regional Location Figure 3 – General Arrangement of the Middlemount Coal Mine Incorporating the Action
	GIS file delineating the boundary of the referral area (section 1)		
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Figure 1 – Regional Location Figure 2 – Currently Approved Middlemount Coal Mine General Arrangement Figure 3 – General Arrangement of the Middlemount Coal Mine Incorporating the Action Figure 4 – Relevant Land Tenure Information Figure 5 – Ground-truthed Regional Ecosystem Mapping and Recorded EPBC Act Listed Fauna Species in the Action Area Figure 6 – Potential Squatter Pigeon Habitat
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		
	copies of any flora and fauna investigations and surveys (section 3)		
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)		
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

9 Contacts, signatures and declarations

Action title: MIDDLEMOUNT COAL NORTH-EASTERN EXTENSION

9.1 Person proposing to take action

1. Name and Title:	Mr Gerrie Jordaan – Chief Executive Officer
2. Organisation	Middlemount Coal Pty Ltd
3. EPBC Referral Number	-
4: ACN / ABN	ABN 49 122 348 412
5. Postal address	Middlemount Coal Pty Ltd, GPO Box 241, Brisbane, QLD 4001
6. Telephone:	(07) 3179 2000
7. Email:	gjordaan@middlemountcoal.com.au
8. Name of proposed proponent (if not the same person at item 1 above):	Middlemount Coal Pty Ltd
9. ACN/ABN of proposed proponent (if not the same person named at item 1 above):	-

I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

- ☐ an individual; OR
- ☐ a small business entity (within the meaning given by section 328-110 (other than subsection 328-119(4)) of the *Income Tax Assessment Act 1997*); OR

If you are small business entity you must provide the Date/Income Year that you became a small business entity:

I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations. Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made:

Declaration

I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct.

I understand that giving false or misleading information is a serious offence.

I agree to be the proponent for this action.

I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature

Date 31/5/2016

9.2 Person preparing the referral information (if different from 8.1)

Name	
Title	
Organisation	Organisation name should match entity identified in ABN/ACN search
ACN / ABN (if applicable)	
Postal address	
Telephone	
Email	
Declaration	I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that giving false or misleading information is a serious offence.
Signature	Date

REFERRAL CHECKLIST

HAVE YOU:

- ☑ Completed all required sections of the referral form?
- ☑ Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- ☑ Provided a map showing the location and approximate boundaries of the project area?
- ☑ Provided a map/plan showing the location of the action in relation to any matters of NES?
- ☑ Provided a digital file (preferably ArcGIS shapefile, refer to guidelines at Attachment A) delineating the boundaries of the referral area?
- ☑ Provided complete contact details and signed the form?
- ☑ Provided copies of any documents referenced in the referral form?
- ☑ Ensured that all attachments are less than three megabytes (3mb)?
- ☑ Sent the referral to the Department (electronic and hard copy preferred)?

Attachment A

Geographic Information System (GIS) data supply guidelines

If the area is less than 5 hectares, provide the location as a point layer. If the area greater than 5 hectares, please provide as a polygon layer. If the proposed action is linear (eg. a road or pipline) please provide a polyline layer.

GIS data needs to be provided to the Department in the following manner:

- Point, Line or Polygon data types: ESRI file geodatabase feature class (preferred) or as an ESRI shapefile (.shp) zipped and attached with appropriate title
- Raster data types: Raw satellite imagery should be supplied in the vendor specific format.
- Actionion as GDA94 coordinate system.

Processed products should be provided as follows:

- For data, uncompressed or lossless compressed formats is required - GeoTIFF or Imagine IMG is the first preference, then JPEG2000 lossless and other simple binary+header formats (ERS, ENVI or BIL).
- For natural/false/pseudo colour RGB imagery:
    - If the imagery is already mosaiced and is ready for display then lossy compression is suitable (JPEG2000 lossy/ECW/MrSID). Prefer 10% compression, up to 20% is acceptable.
    - If the imagery requires any sort of processing prior to display (i.e. mosaicing/colour balancing/etc) then an uncompressed or lossless compressed format is required.

Metadata or 'information about data' will be produced for all spatial data and will be compliant with ANZLIC Metadata Profile. (http://www.anzlic.org.au/policies_guidelines#guidelines).

The Department's preferred method is using ANZMet Lite, however the Department's Service Provider may use any compliant system to generate metadata.

All data will be provide under a Creative Commons license (http://creativecommons.org/licenses/by/3.0/au/)

FIGURES

LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Local Government Area Boundary
- Operating Coal Mine

Source: Department of Natural Resource and Mines (2016); Geoscience (2011)

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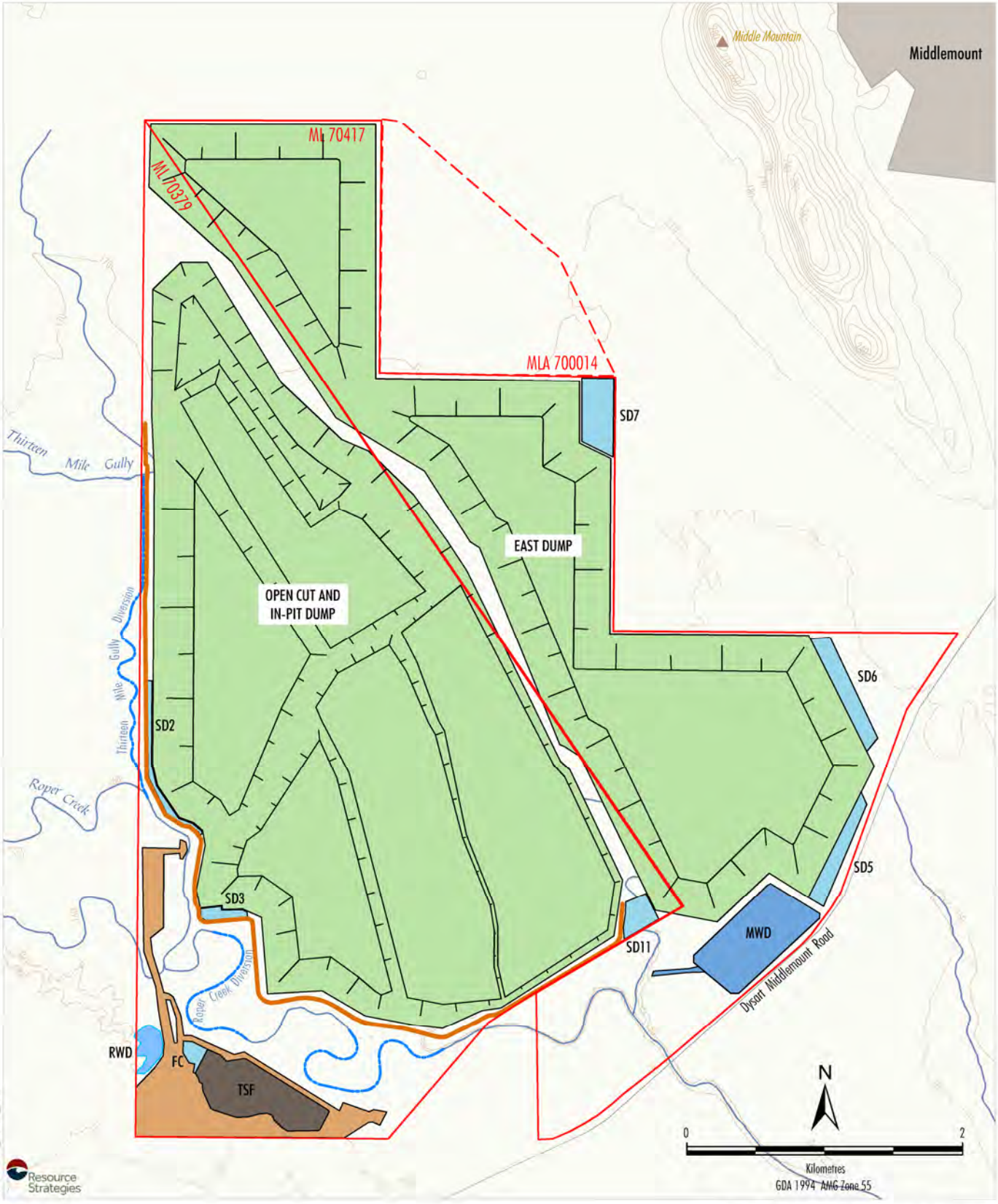
NORTH-EASTERN EXTENSION

Regional Location

Figure 1



LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Mining Pit and Spoil
- Tailings Storage Facility
- Mine Infrastructure Area
- Water Management Dam
- Sediment Dam
- Watercourse
- Watercourse Diversion
- Levee
- Contours

Source: Environmental Authority EPML00716913 - Middlemount Coal Mine

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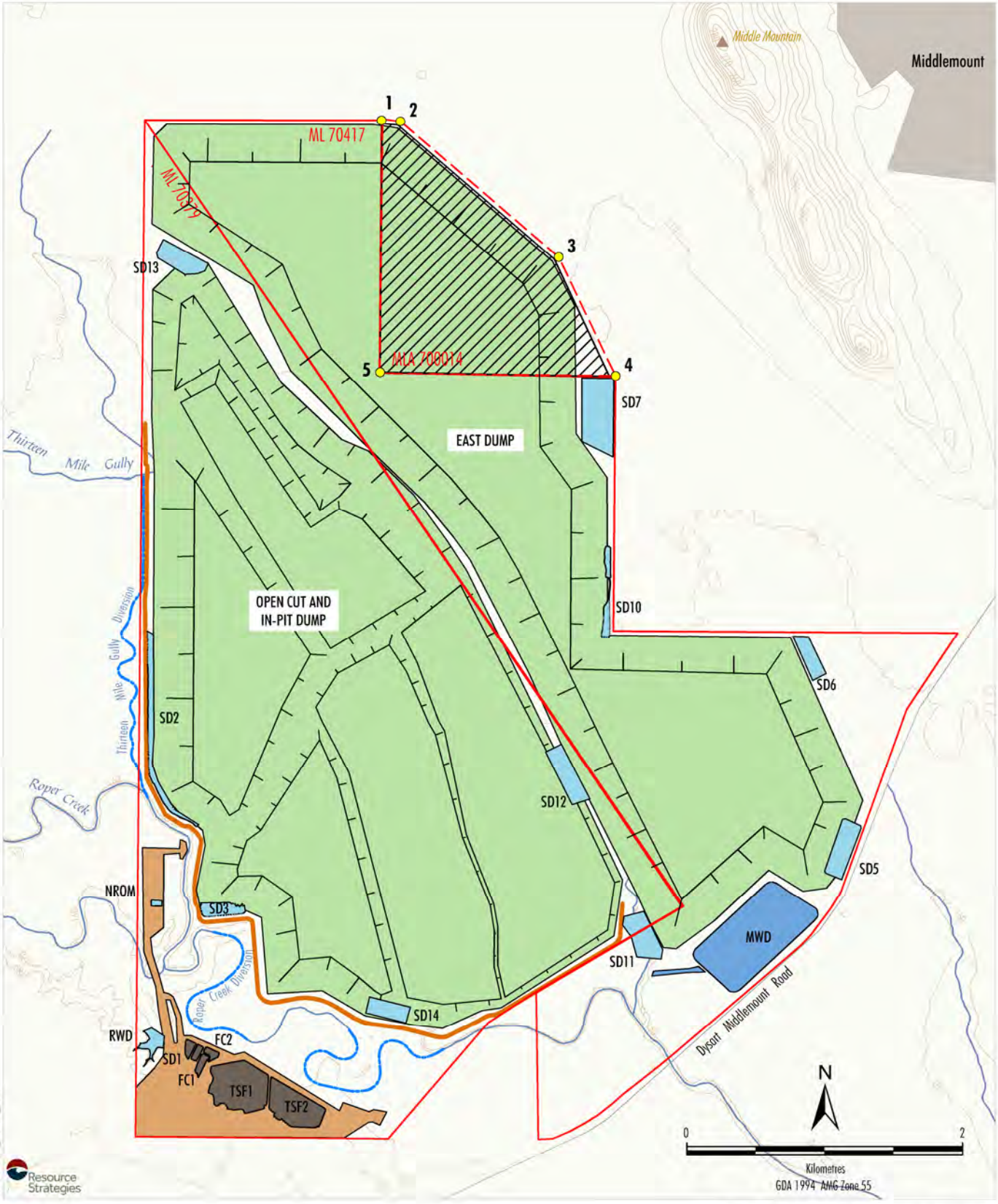
NORTH-EASTERN EXTENSION

Middlemount Coal Mine
General Arrangement

Figure 2



Source: Environmental Authority EPML00716913 - Middlemount Coal Mine

LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Approximate Extent of North-eastern Extension (the Action)
- Mining Pit and Spoil
- Mine Infrastructure Area
- Water Management Dam
- Sediment Dam
- Tailings Storage Facility
- Watercourse
- Watercourse Diversion
- Levee
- Contours
- 1 Location Point

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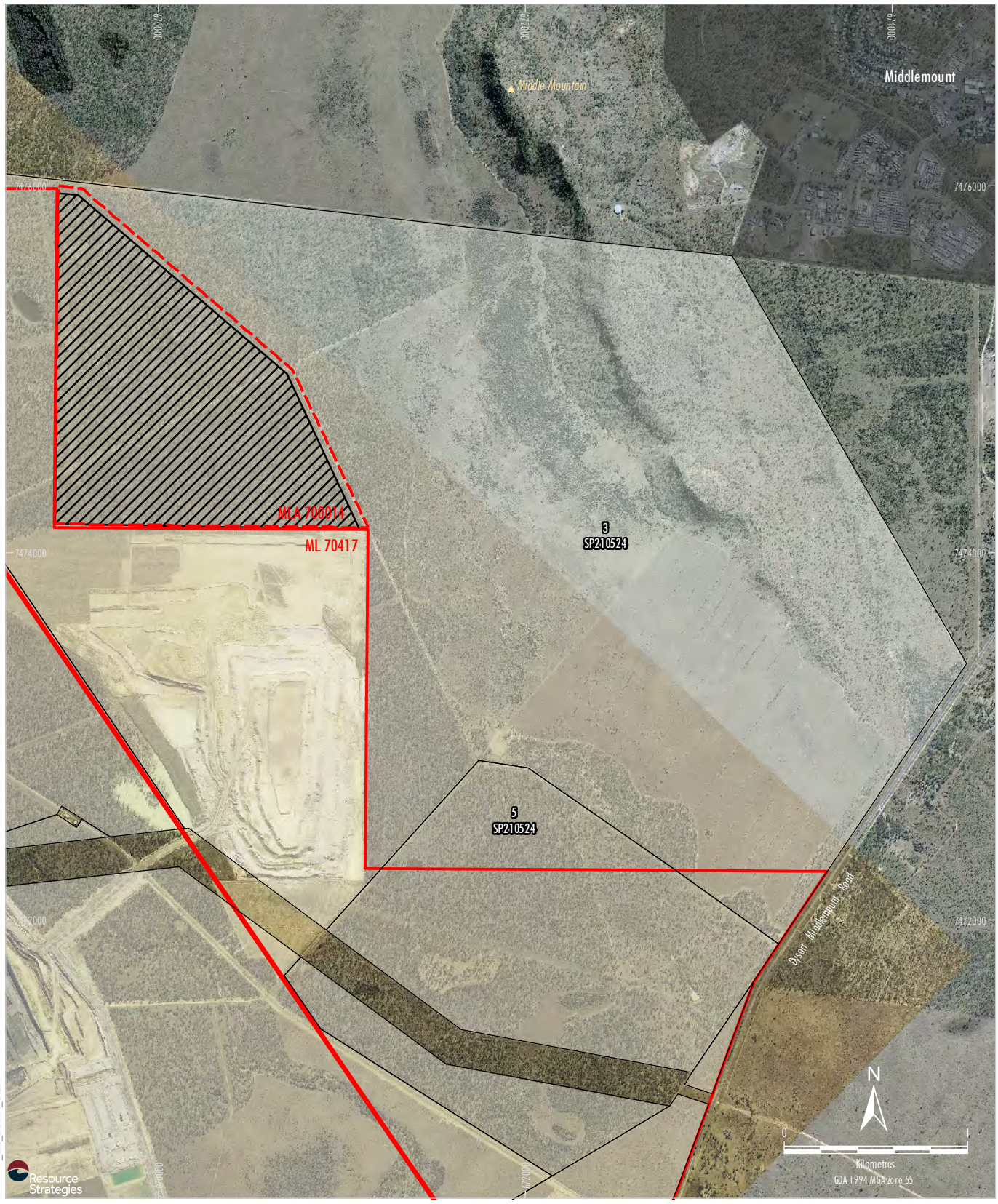
NORTH-EASTERN EXTENSION

General Arrangement of the Middlemount Coal Mine Incorporating the Action

Figure 3



LEGEND

- Mining Lease
- Mining Lease Application Boundary
- MCPL Owned Land
- Approximate Extent of North-eastern Extension (the Action)

Source: MCPL (2016)
Orthophoto: MCPL (2014, 2012)

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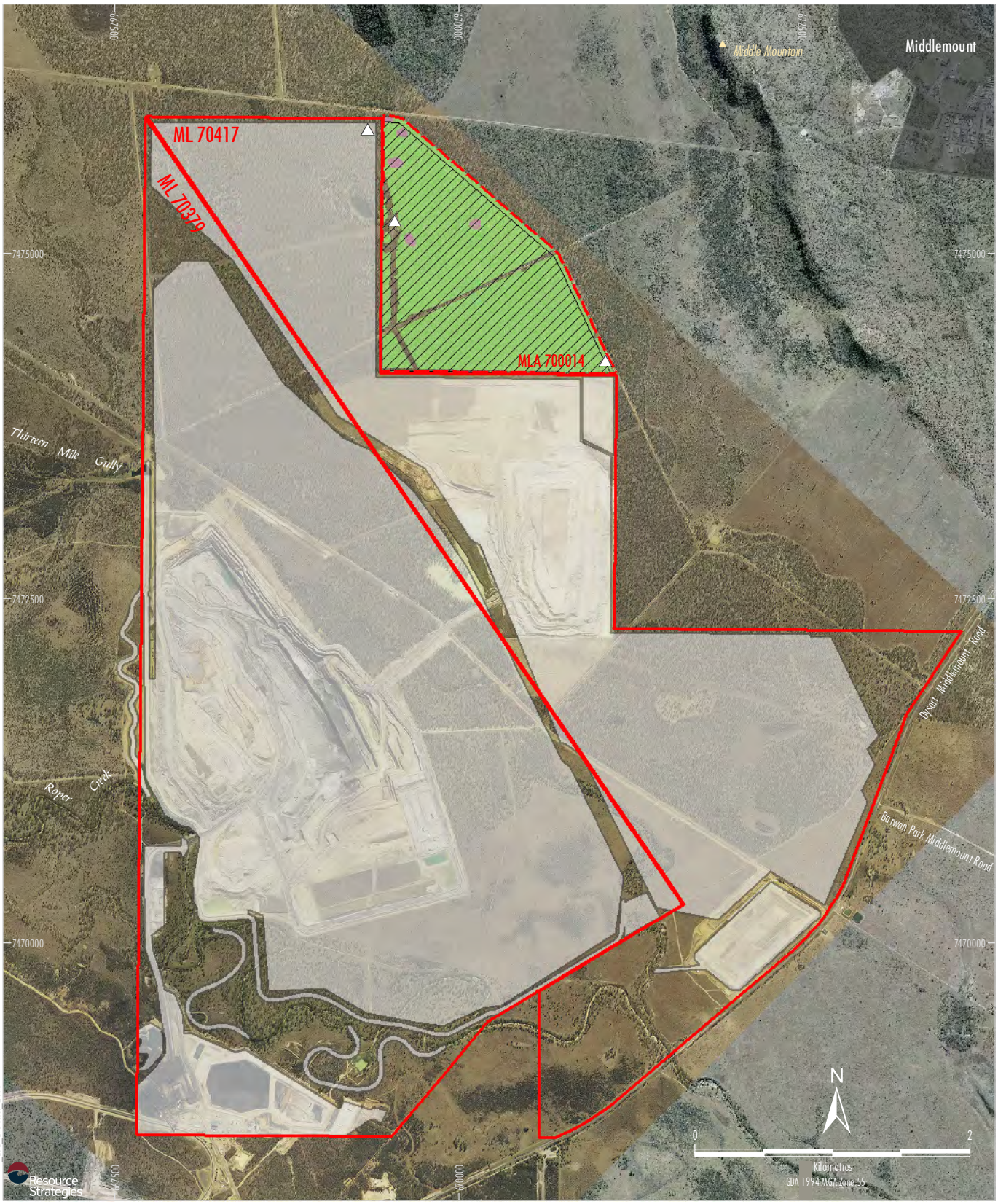
NORTH-EASTERN EXTENSION

Relevant Land Tenure Information

Figure 4



GCL-12-21 EDE EPBC Ref 2016

LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Approved Disturbance Footprint
- Approximate Extent of North-eastern Extension (the Action)

Regional Ecosystem Mapping

- 11.5.3 (Of Least Concern)
- 11.5.3b (Of Least Concern)

Recorded Fauna Species

- △ Rainbow Bee-eater (Migratory)

Source: MCPL (2014); Department of Natural Resources and Mines (2016); Naturecall (2015)
Orthophoto: MCPL (2014, 2012)

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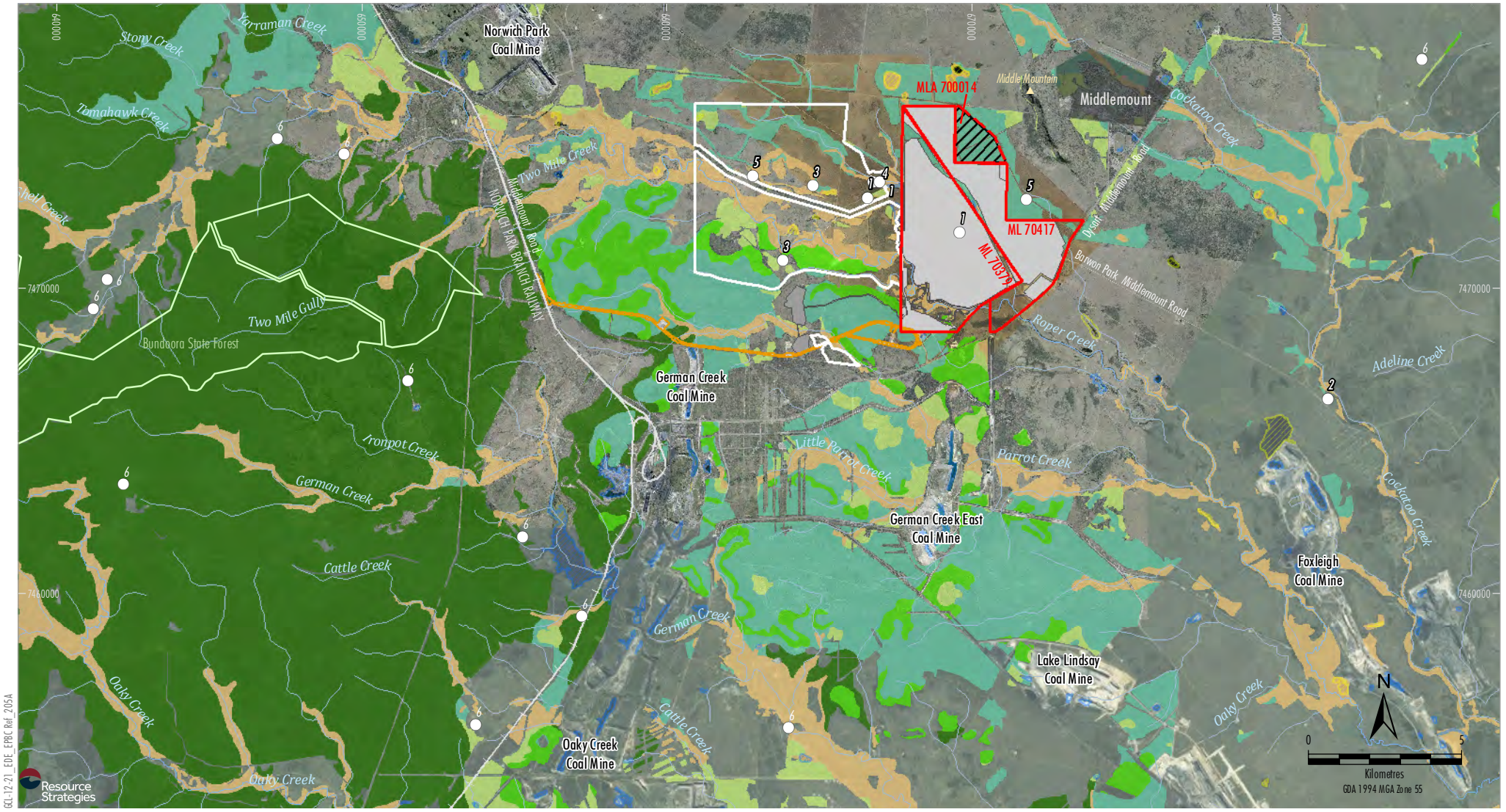
NORTH-EASTERN EXTENSION

Ground-truthed Regional Ecosystem Mapping and Recorded EPBC Act Listed Fauna Species in the Action Area and Immediate Surrounds

Figure 5



LEGEND

- Mining Lease
- Mining Lease Application Boundary
- ApprovedDisturbanceFootprint
- Approximate Extent of North-eastern Extension
- Parrot Quarry
- Existing Offset Area

Regional Ecosystem Land Zone

- 3
- 4
- 5
- 7
- 10

Regional Wetland Mapping

- Lacustrine System
- Palustrine System

○ Squatter Pigeon Record

Reference: 1 Parsons Brinckerhoff (2009-2010)
2 Ecology and Heritage Partners (2012)
3 Naturecall Environmental (2013)
4 Naturecall Environmental (2014)
5 Atlas of Living Australia (2016)

Source: MCPL (2014); Department of Natural Resources and Mines (2015); State of Queensland (Department of National Parks, Sport and Racing) (2016) Department of Environment and Heritage Protection (2016)
Orthophoto: MCPL (2014, 2012); Esri Basemap

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NORTH-EASTERN EXTENSION

Potential Squatter Pigeon Habitat and Records in the Surrounding Region

Figure 6

MIDDLEMOUNT COAL MINE
NORTH-EASTERN EXTENSION (EPBC 2016/7717)
EPBC Act Preliminary Assessment Documentation

Attachment B

Request for Preliminary Documentation

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Australian Government

Department of the Environment and Energy

EPBC Ref: 2016/7717

Mr Gerrie Jordaan
Chief Executive Officer
Middlemount Coal Pty Ltd
GPO Box 241
BRISBANE QLD 4001

Dear Mr Jordaan

ADDITIONAL INFORMATION REQUIRED FOR PRELIMINARY DOCUMENTATION MIDDLEMOUNT COAL MINE, NORTH-EASTERN EXTENSION, BOWEN BASIN, QLD (EPBC 2016/7717)

I am writing to you in relation to your proposal to extend the existing East Dump (overburden placement) site at Middlemount Coal Mine, 2.4 km west of Middlemount, Queensland.

On 7 July 2016, the Minister's delegate decided that the proposed action is a controlled action and that it will be assessed by preliminary documentation. Further information will be required to assess the relevant impacts of the proposed action.

Details outlining the further information required are at Attachment A.

In the letter of 7 July 2016, you were informed that your project is likely to be suitable for the application of outcomes-based conditions in the event that your action is approved with conditions. The requirements of the Department Outcomes-based conditions Policy 2016 are reflected in Attachment A. You may wish to provide the information in Attachment A and discuss this matter further with the Department if you wish to have outcomes- based conditions fully considered for your proposal.

If you have any questions about the assessment process of the further information required, please contact the project officer, Justin Keast, by email to justin.keast@environment.gov.au, or telephone 02 6275 9953.

Yours sincerely

James Barker
Assistant Secretary
Assessments (Qld, Tas, Vic) and Sea Dumping Branch
28 July 2016

1. Listed Threatened Species and Communities

The Department considers that insufficient details have been provided to determine whether a significant impact is likely to occur upon the following four protected matters:

a. Koala (*Phascolarctos cinereus*) – vulnerable;
b. South-eastern long eared bat (*Nyctophilus corbeni*) - vulnerable;
c. Ghost bat (*Macroderma gigas*) – vulnerable; and
d. Yakka skink (*Egernia rugosa*) – vulnerable.

Please provide further information regarding survey methods employed and their adequacy in assessing impacts on the above listed matters including, but not limited to:

a. An explanation about how surveys for koalas were conducted including, but not limited to, methodology used, maps showing transects/trail searched and why those transects were considered to be appropriate;
a. Justification for figures used in koala assessment table, as per the *Referral Guidelines for the Koala* (2014)*;*
b. Justification for not returning to conduct bat surveys using working equipment; or
c. Results of a recent ANABAT survey and/or survey results for nocturnal flying species using mist nets;
d. Appraisal of habitat appropriateness within the project for each of the above four species; and
e. Whether based on this new information a significant impact is likely and if so, what offsets are proposed (using the information requested below for the squatter pigeon as a guideline).

Please also provide a more detailed assessment of direct and indirect impacts for the above listed threatened species, including, but not limited to:

f. a description of proposed avoidance and mitigation measures to deal with any relevant impacts of the action, including mitigation measures proposed to be taken by the Queensland Government and local governments;
g. assessment of the expected or predicted effectiveness of the avoidance and mitigation measures for each species, including the scale and intensity of impacts of the proposed action and the on-ground benefits to be gained through each of these measures. Where an impact on a species is avoided this should be stated;
    i. any statutory or policy basis for the mitigation measures;
    ii. the cost of the mitigation measures.
    iii. survey effort and methodology;
    iv. amount and type of habitat to be impacted;
    v. indirect impacts (for example weed invasion or fragmentation); and
    vi. maps depicting habitat to be impacted.
h. Address how the proposed action is not inconsistent with relevant conservation advice, recovery plans and threat abatement plans;

Based on the information provided in the referral and pre-referral, the Department has a view that a significant impact on the vulnerable squatter pigeon (southern)(*Geophaps scripta scripta*) is likely should the project proceed. In the event that impacts upon the squatter pigeon cannot be avoided or mitigated, please provide details for offsets for loss of squatter pigeon habitat, including:

a. The type of offsets proposed (direct/indirect);

b. The location (including a geo-referenced map) and suitability of proposed direct offsets for squatter pigeons;
c. Conservation gain to be achieved by the offset, ie, positive management strategies that will improve the site or avert future loss and degradation or damage to the protected matter;
d. Current habitat quality scores of the project site and the offset site;
e. Target habitat quality scores at the proposed offset site;
f. Time it will take to achieve the proposed conservation gain;
g. Level of certainty that the proposed offset will be successful;
h. Current land tenure of any proposed offset and the method of securing enduring protection of the offset site and managing the offset for the life of the impact;
i. How the proposed offset is consistent with the *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy* (October 2012); and
j. How the proposed offset will address the relevant conservation advice and threat abatement plans related to the squatter pigeon.

Please note that all figures used to determine the suitability of offsets including habitat quality scores at the project site must be derived using a suitably robust and repeatable framework. Details about each framework must also be provided.

2. **Economic and Social Matters**

Please provide details on the social and economic costs and/or benefits of undertaking the proposed action, including the:

a. Basis for any estimations of costs and/or benefits;
b. Potential employment opportunities expected to be generated during development and operation of the proposed action;
c. If economic benefits and employment opportunities are in addition to what would have been expected if the action were not to take place; and
d. Details of any public stakeholder consultation activities, including the outcomes.

3. Ecologically Sustainable Development

Please provide a description of the proposed action in relation the principles of ecologically sustainable development, as defined in section 3A of the EPBC Act.

4. Outcomes Based Conditions

If you wish to pursue outcomes-based conditions in the event that the action is approved with conditions, the preliminary documentation should provide information on the outcomes that will be achieved for matters of national environmental significance.

Outcomes need to be specific, measurable and achievable, and should be based on robust baseline data. Outcomes should be developed in consideration of the *Department's Outcomes-based Conditions Policy* (2016) and *Outcomes-based Conditions Guidance* (2016), with suitable justification for considerations identified in the policy and guidance.

To allow application of the outcomes-based conditions, the preliminary documentation should include:

a. The specific environmental outcomes to be achieved, and reasoning for these in reference to relevant statutory recovery plans, conservation advices and threat abatement plans.

b. For each proposed environmental outcome:
    i. The risks associated with achieving the outcome;
    ii. The measurability of the outcome, including all suitable performance measures;
    iii. Appropriate baseline data upon which the outcome has been defined and justified;
    iv. The likely impacts that the proposed outcome will address;
    v. Demonstrated willingness and capability of achieving the outcome;
    vi. The level of knowledge about the protected matter or its surrogate, upon which outcomes were based;
    vii. Commitments to independent and periodic audits of performance towards achieving outcomes;
    viii. Assessment of the likely level of control that the proponent will have over achieving the outcome;
    ix. Discussion of the appropriateness of any surrogates for protected matter outcomes; and
    x. Details of proposed management measures to achieve the outcome, including, but not limited to performance indicators, periodic milestones, proposed monitoring and adaptive management, and record keeping, publication and reporting procedures.

Once you have provided the Department with the information requested in this letter, you will then be issued with a direction to publish including details on what you are required to publish and for how long.

5. Presentation

Preliminary documentation should be bound in a single volume and must be accompanied by an index identifying what documents are included. Information must be presented using language that is intelligible to the general reader, and accompanied by maps, figures, tables, etc where appropriate.

Australian Government
Department of the Environment and Energy

EPBC Ref: 2016/7717

Mr Gerrie Jordaan
Chief Executive Officer
Middlemount Coal Pty Ltd
GPO Box 241
BRISBANE QLD 4001

Dear Mr Jordaan

ASSESSMENT OF DRAFT PRELIMINARY DOCUMENTATION - MIDDLEMOUNT COAL MINE, NORTH-EASTERN EXTENSION, BOWEN BASIN, QLD (EPBC 2016/7717)

Thank you for submitting the draft preliminary documentation on 5 October 2016 for the above proposal in response to the Department's additional information request dated 28 July 2016.

The Department has reviewed the draft preliminary documentation and considers that it does not meet the requirements of the additional information request. In particular, further information is required regarding offsets for the squatter pigeon (*Geophaps scripta scripta*), survey methods for koalas (*Phascolarctos cinereus*) and potential impacts upon threatened bats within the project site.

I have attached a table at Appendix A that further describes what information is required. Following submission of the updated draft preliminary documentation, the Department will reassess the information and, if adequate, will issue a direction to publish the document/s for public comment. Please note that as the Stage 2 cost recovery fee has been paid, review of any revised document will commence on submission.

If you have any questions, please contact the project manager, Justin Keast, by phone 02 6275 9953 or by email justin.keast@environment.gov.au for further details.

Yours sincerely

James Barker
Assistant Secretary
Assessments and Sea Dumping Branch
26 October 2016

#	Relevant Matter	Comment
1	Offsets for the squatter pigeon	In order to assess the suitability of the proposed offset, the draft preliminary documentation should include an offset proposal supported by an EBPC Act Environmental Offset Guide, as well as an Offset Management Plan. The information request dated 28 July 2016 outlines what information should be included in these documents and requires that figures quoted in the EBPC Act Environmental Offset Guide must be supported by a robust and repeatable framework. The Queensland Government's 'Guide to determining terrestrial habitat quality (DEHP, 2014)' is an example of an acceptable framework.
2	Koalas	I note that the draft preliminary documentation includes a description of what survey methods were used targeting koalas. However, there is little detail regarding the location of surveys or duration of effort.
3	Threatened bats	The information provided in the draft preliminary documentation provides some discussion regarding the presence or absence of the ghost bat and south-eastern long-eared bat. However, the survey information provided is from 2009 and from an adjacent property. Please provide more recent and site-specific information. While suitable breeding (inferred by the presence of tree hollows), roosting and foraging habitat have been identified for the south-eastern long-eared bat, the documents claim that no habitat critical to the survival of the species exists with the action area. Further information needs to be provided to explain and justify this statement.