

Dugald River Project

Initial Advice Statement

Prepared for:
Zinifex Australia Limited

February 2008



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LIST OF ABBREVIATIONS

AARC	-	AustralAsian Resource Consultants
ANC	-	Acid Neutralising Capacity
ANFO	-	Ammonium Nitrate/Fuel Oil
EA	-	Environmental Authority
EIS	-	Environmental Impact Statement
EMOS	-	Environmental Management Overview Strategy
EPBC	-	Environment Protection Biodiversity Conservation Act, 1999 (Cth)
EPM	-	Exploration Permit Minerals
ERA	-	Environmentally Relevant Activity
FIFO	-	Fly-In-Fly-Out
IAS	-	Initial Advice Statement
Kt	-	Kilo tonnes
MDL	-	Mineral Development Lease
ML	-	Mining Lease
Moz	-	Million ounces
MPA	-	Maximum Potential Acidity
Mtpa	-	Million tonnes per annum
MW	-	Megawatts
NAPP	-	Net Acid Producing Potential
NCWR	-	Nature Conservation Wildlife Regulations, 2006 (Qld)
PAF	-	Potentially Acid Forming
QEPA	-	Queensland Environmental Protection Agency
RE	-	Regional Ecosystem
ROM	-	Run of Mine



ToR	-	Terms of Reference
tpa	-	tonnes per annum
TSF	-	Tailings Storage Facility
Zinifex	-	Zinifex Australia Limited



INTRODUCTION

AustralAsian Resource Consultants Pty Ltd (AARC) was commissioned by Zinifex Australia Limited (Zinifex) to prepare an Initial Advice Statement (IAS) for the development of the Dugald River Project (the Project).

Zinifex is applying to the chief executive under Chapter 3, Part 2, Sections 70 and 71 of the *Environmental Protection Act 1994* for approval to prepare a Voluntary Environmental Impact Statement (EIS). This IAS contains supporting information as required by Section 2 of the Approval to Prepare a Voluntary EIS application form.

1.1 PROJECT OVERVIEW

Zinifex acquired the Mining Leases (MLs) that comprise the Project site in 2004, and are planning to develop a zinc/lead/silver mining operation, using both conventional open cut methods and mechanised underground technology. The expected mine life is 16+ years with the Project expected to mine 2 Million tonnes per annum (Mtpa) of ROM ore, and produce 450,000 tonnes per annum (tpa) of zinc/lead/silver concentrate.

There is also an option for copper mining and concentrate production, although mining and processing rates are yet to be determined. Should the option for copper mining and processing be pursued, the mining rate and processing rates for the copper stream will be in addition to those noted above for the zinc/lead/silver stream.

Prior to Zinifex obtaining the Project MLs, the site was owned by Pasminco Limited, who developed the Dugald River camp site and conducted substantial exploration works. Prior to Pasminco, the Project site was owned by CRA Exploration, who also undertook exploration and evaluation of the mineral resources on the Project site for over a decade. The site lies in an historic mining region, with the Dugald River deposits being discovered in 1870. The deposit was mined on a small scale by prospectors in the late 1800s and early 1900s. Exploration facilities and associated infrastructure have been largely removed.

1.2 PROJECT LOCATION

The Project is located approximately 85 kilometres north-east of Mt Isa and 60 km north-west of Cloncurry (Figure 1), in north-western Queensland. The Project is located adjacent to the proposed Roseby Copper Project.



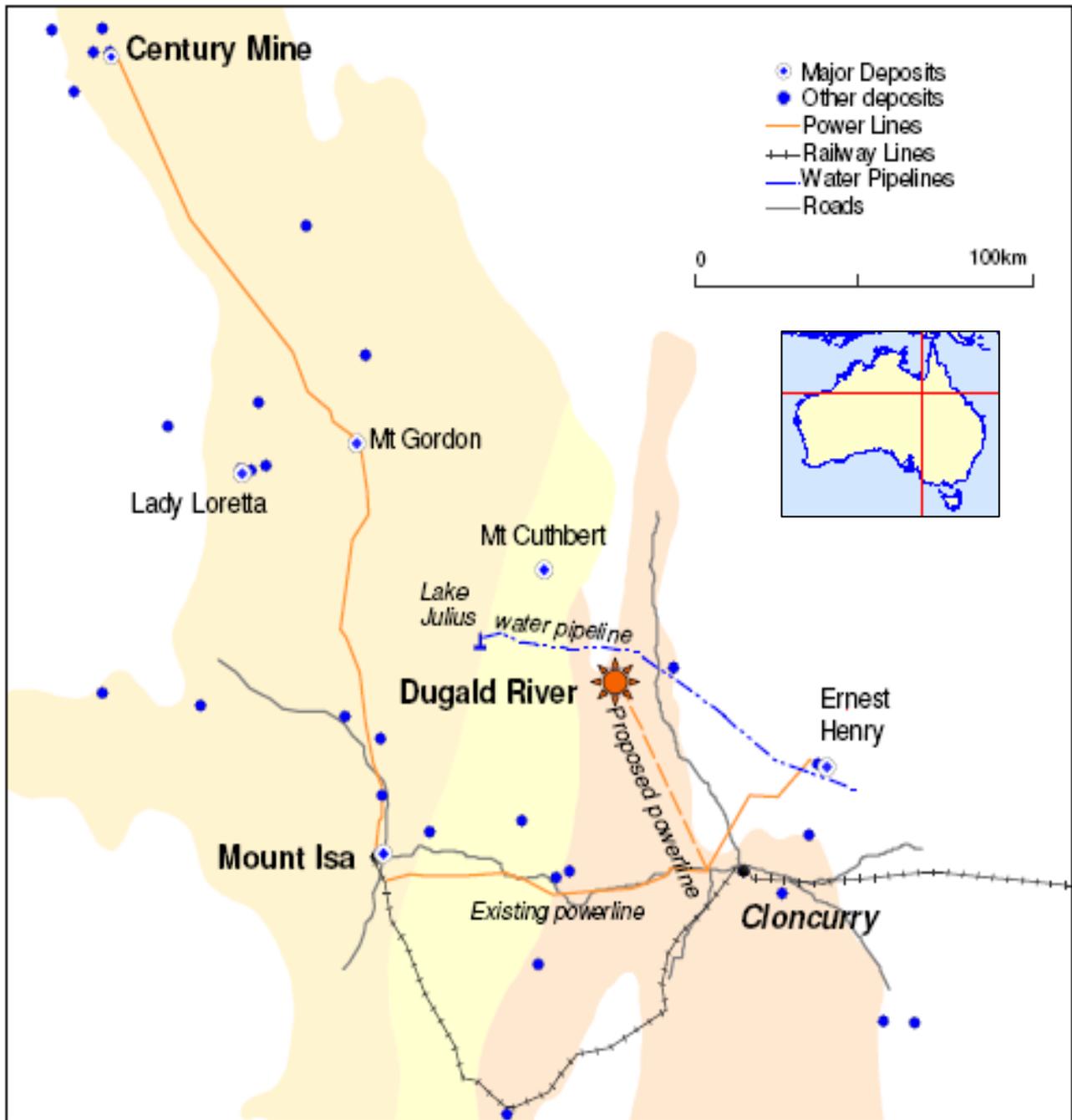


Figure 1: Project Location

1.3 PROJECT OWNERS AND TENEMENTS

Proponent: Zinifex Australia Limited

Principal Development Advisor: Mel Palancian

Proponent Address: Zinifex Australia Limited
Freshwater Place
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MELBOURNE VIC 3004

Email: mel.palancian@zinifex.com

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The Project consists of thirty three (33) current MLs, an EPM (12163) and MDL (79) (see Table 1). A ML application will be submitted to cover the Project area under the EPM and MDL, not currently covered by the MLs. The location of these MLs, EPM and MDL are shown in Figure 2. Zinifex currently holds a Standard Level 2 Environmental Authority (EA) for mining activities on the existing MLs, and an EA (exploration) for the EPM. The tenements also have a current Plan of Operations for exploration activities.

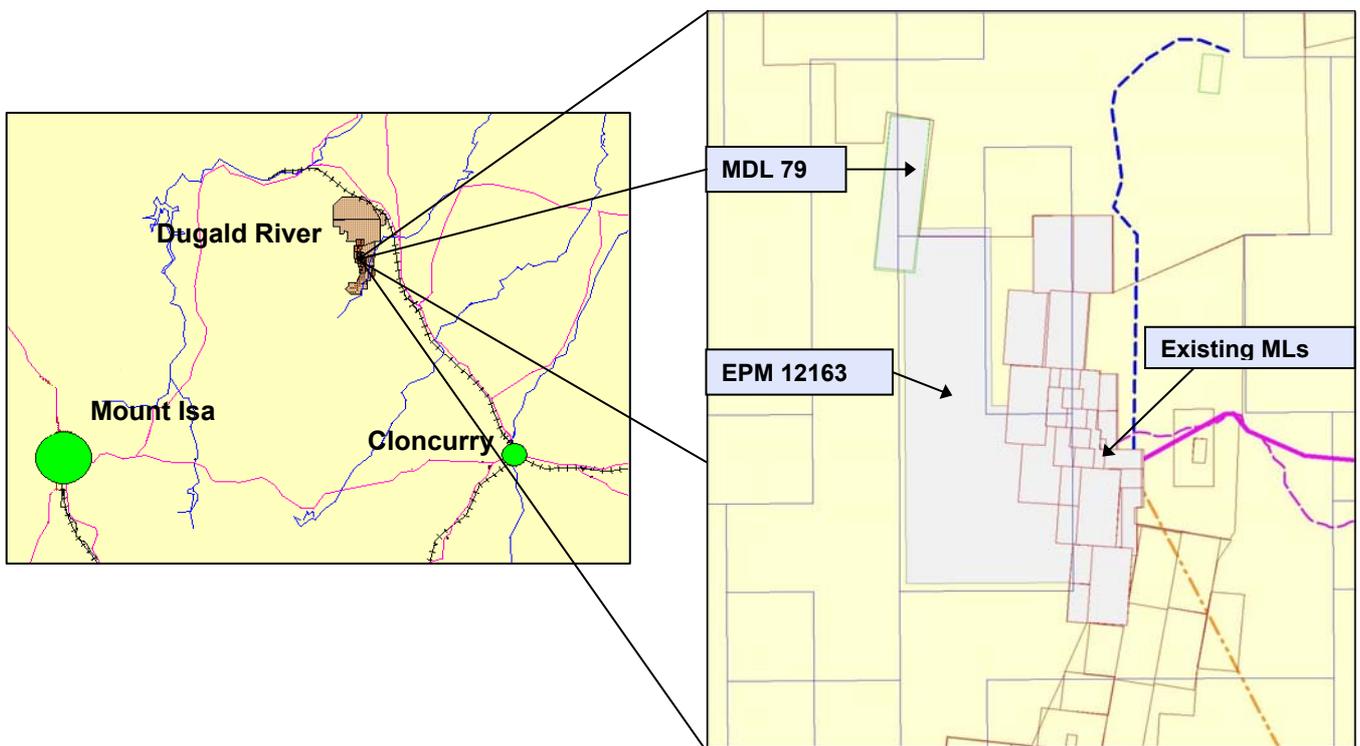


Figure 2: The Location of Zinifex Tenements

Table 1: Project Tenements

Mining Lease(s)	Expiry Dates	Tenure Holder / Applicant Name & Contact Details:	Operational Land (i.e. Lot on Plan.)
EPM12163	26 th June, 2008	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
MDL79	30 th September, 2011	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168 Lot 59 Plan TG40
ML 2467	30 th November, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2478	31 st December, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2497	31 st December, 2010.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2556	31 st January, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2601	31 st January, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 90047	31 st January, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2468	30 th November, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2479	31 st December, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2498	31 st December, 2010.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 36 B15753 Lot 3692 PH2168
ML 2557	31 st January, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2638	30 th September, 2014	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 90049	31 st December, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2469	30 th November, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2480	31 st December, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168

Mining Lease(s)	Expiry Dates	Tenure Holder / Applicant Name & Contact Details:	Operational Land (i.e. Lot on Plan.)
ML 2499	31 st December, 2010.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2558	31 st January, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2684	31 st January, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 35 B15753 Lot 36 B15753
ML 90050	31 st December, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2470	30 th November, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2481	31 st December, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2500	31 st December, 2010.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2559	31 st January, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2685	31 st January, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 27 B15753 Lot 35 B15753 Lot 3692 PH2168
ML 90051	31 st January, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2471	30 th November, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2482	31 st December, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2501	31 st December, 2010.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 27 B15753 Lot 35 B15753 Lot 3692 PH2168
ML 2596	31 st January, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 7496	31 st July, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 27 B15753 Lot 35 B15753 Lot 36 B15753
ML 2477	31 st December, 2006.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2496	31 st December, 2010.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 27 B15753 Lot 3692 PH2168

Mining Lease(s)	Expiry Dates	Tenure Holder / Applicant Name & Contact Details:	Operational Land (i.e. Lot on Plan.)
ML 2502	31 st December, 2010.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168
ML 2599	31 st January, 2012.	Zinifex Australia Limited Level 29 / 2 Southbank Boulevard Southbank VIC 3004	Lot 3692 PH2168

2.0 DESCRIPTION OF EXISTING ENVIRONMENT

The Project site has a history of exploration and has had several ownership transferrals. As such, several environmental studies have been undertaken over the last two decades. Environmental pre-feasibility studies were undertaken by Woodward-Clyde on behalf of CRA Exploration in 1991 and 1993. Following this period, the Project was taken over by Pasminco Ltd and SKM undertook environmental studies in accordance with the environmental approval process in 1997 and 1998. SKM produced an Environmental Management Overview Strategy in 1998 in preparation for the commencement of construction and mining activities. Environmental monitoring reports were prepared in 2001 by SKM as part of compliance with Pasminco's Environmental Authority. Zinifex took control of the MLs in 2004 and are now undertaking further environmental studies in accordance with their application to undertake a voluntary EIS.

The following sections provide supporting information for the voluntary EIS application process and have been taken from current information as well as past sources. Additional environmental baseline studies will be undertaken for the Project, to update the previous studies where required.

2.1 REGIONAL CLIMATE

Figure 3 below combines data from the Bureau of Meteorology's Cloncurry AERO weather station (operated 1939 – 1975) and the Cloncurry Airport weather station (operated 1978 to now), to give mean annual maximum and minimum temperatures for the Project region.

The mean annual maximum temperature is 32.8°C with the hottest months November through to January (37-38.4°C). The mean annual minimum temperature is 18.6°C with the coolest months June through to August (10.4-12°C). The mean daily maximum and minimum temperatures for each month are shown in Figure 2.

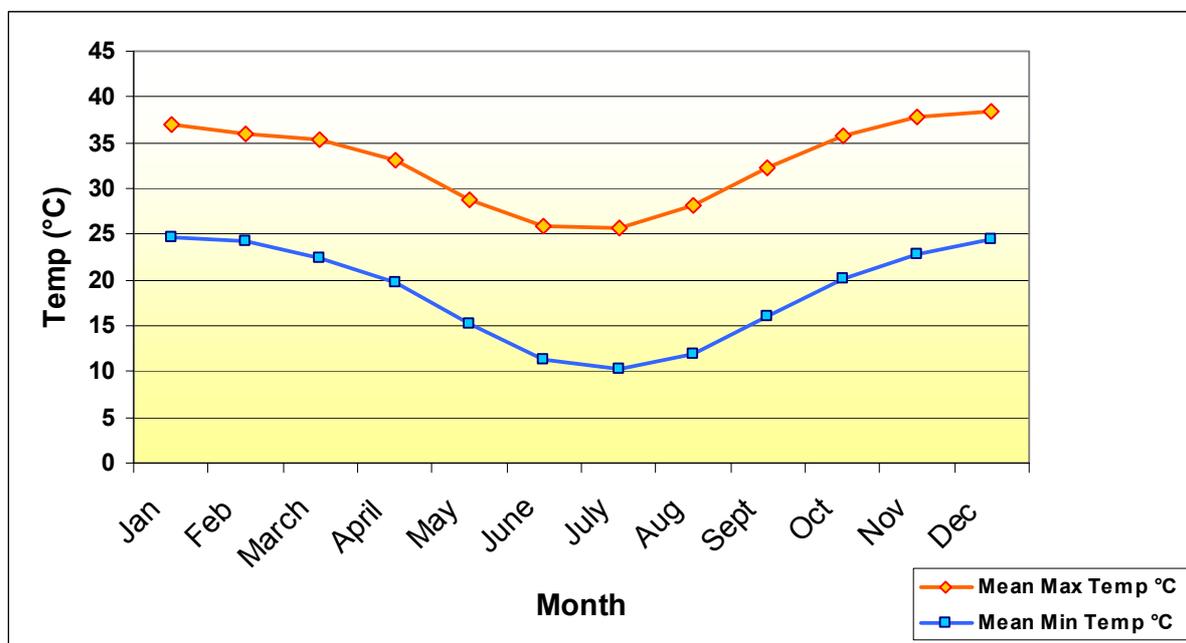


Figure 3: Mean Daily Maximum and Minimum Temperatures by Month

Rainfall data from the weather stations at Cloncurry AERO and Cloncurry Airport, show that January and February exhibit the highest mean monthly rainfall, averaging 140.35mm and 117.6mm respectively. These months also experience the most rainy days, with more than 8 rain days per month. The driest month of the year is July, recording an average of just 3.45mm with less than one day of rain for the month. Figure 4 illustrates that the Cloncurry region experiences a distinctive wet season (between December and March), with very little rain falling in the remaining months of the year. The average annual rainfall for the region is 499.5mm per year.

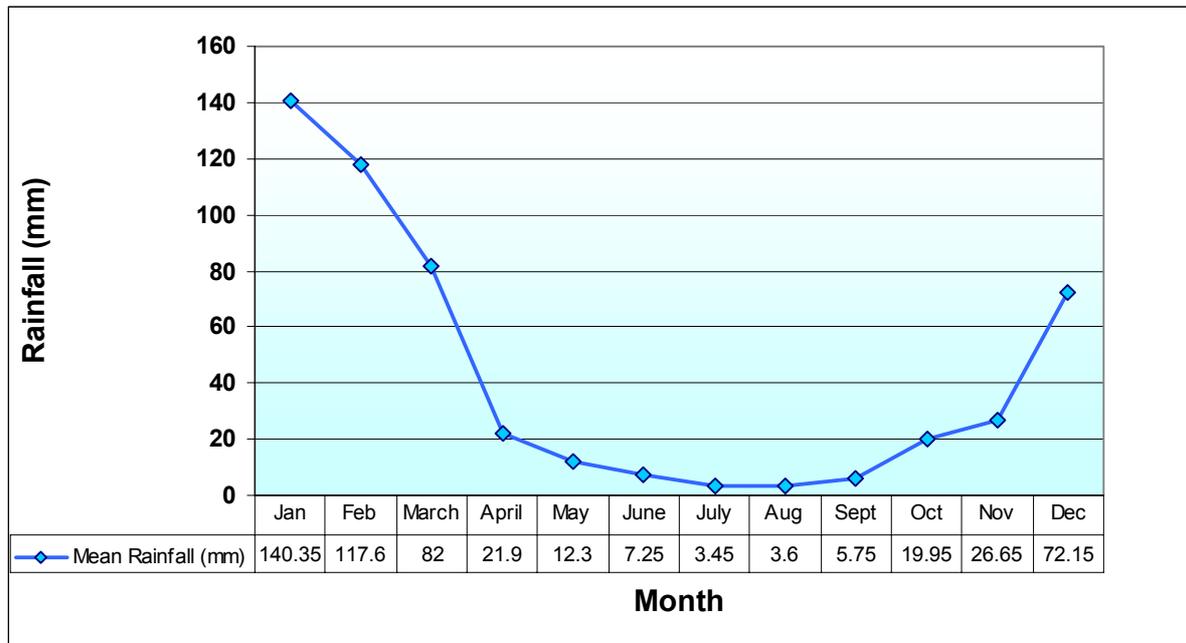
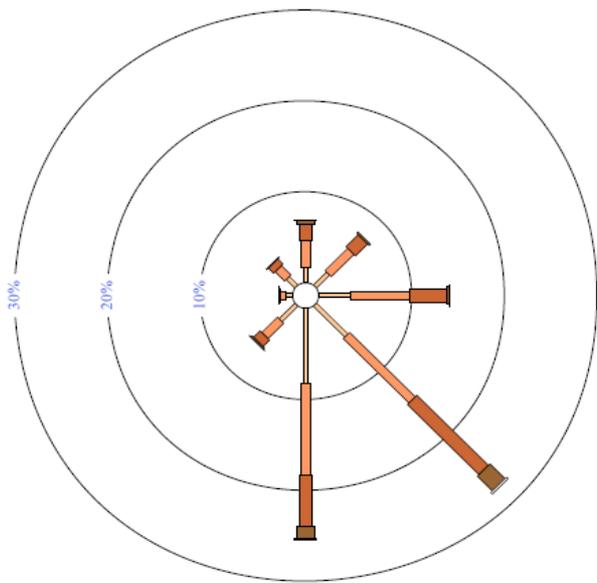


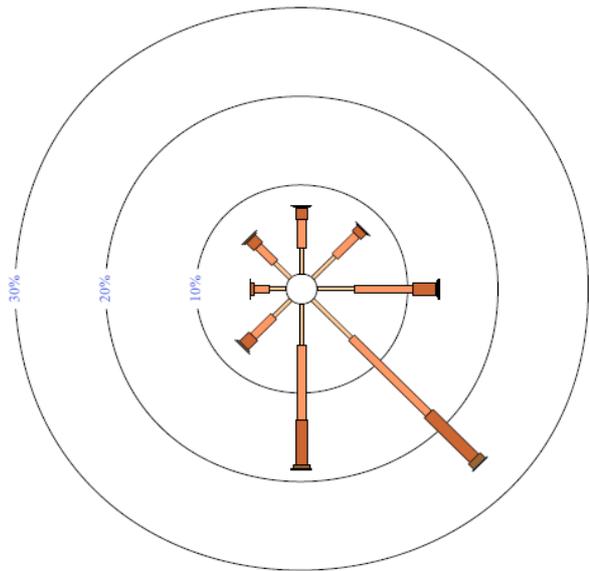
Figure 4: Mean Monthly Rainfall Cloncurry

Mean wind speed measured at Cloncurry AERO and Airport weather station at 9am show that the later months of the year exhibit the highest wind speeds, peaking in October at an average speed of 18.1 km/hr. Wind speeds are lowest from February to March, with an average of 12.5 - 13 km/hr at 9am. Wind speed measured at 3pm shows much less variation throughout the year, with all speeds within a range of 13.4 – 13.95 km/hr. Maximum wind gusts range from 65km/hr in July, up to 145km/hr in March.

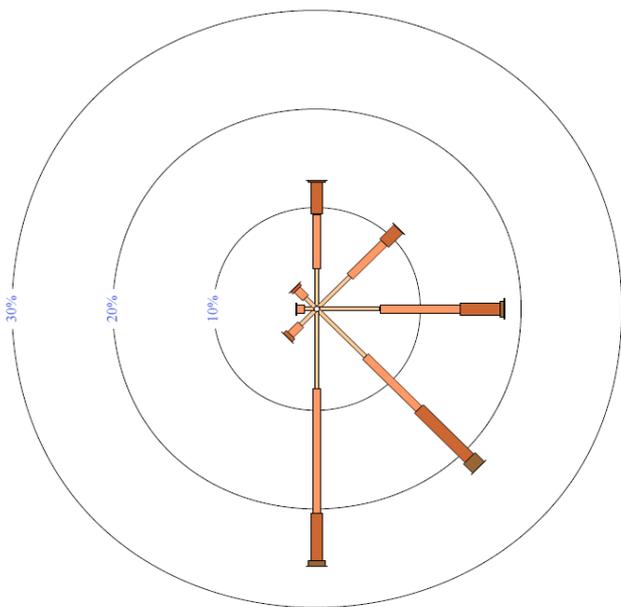
The wind roses presented in Figure 5 show that the wind direction is predominantly from the east and south easterly directions.



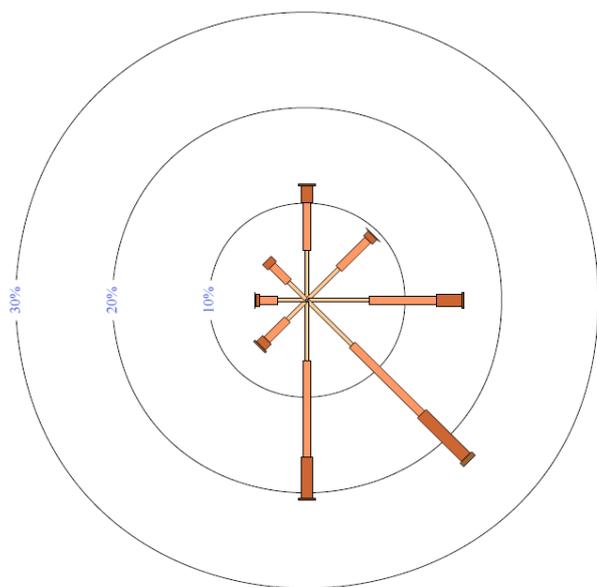
9am Cloncurry AERO –Calm 7%



3pm Cloncurry AERO – Calm 8%



9am Cloncurry Airport – Calm 1%



3pm Cloncurry Airport – 1% Calm

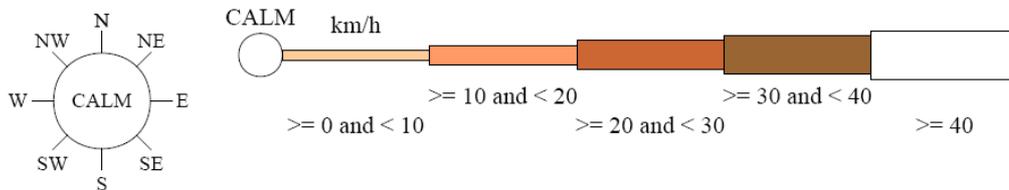


Figure 5: Wind Roses for Cloncurry AERO and Airport

2.2 CURRENT LAND USE

The predominant land use on the Project site is exploration activities and historic mining activities. The Project site has also been used for low intensity grazing which still occurs to a small extent on the Project site currently.

2.3 TOPOGRAPHY

The topography of the site is undulating with a dominant ridgeline (Knapdales) running through the central portion of the Project site in a north-south direction. This ridgeline is associated with the orebody and subsequently the majority of proposed exploration drill sites are located to the east of this ridgeline.

There are no major watercourses on the Project site however there are several minor, ephemeral tributaries which run through the Project site. Ephemeral watercourses on the eastern side of the Project drain in an easterly direction emptying into the Dugald River. On the western side of the Project, ephemeral creeks drain into Cabbage Tree Creek, which is a tributary of the Leichhardt River.

2.4 GEOLOGY

The site is located in the transition zone between two major physiographic divisions, the Mount Isa highlands and the vast Carpentaria plains. Similarly, its bio-geographic location is near the boundary of the Gulf plains regions and the North West Highlands region.

The Dugald River deposit was discovered before 1881 and is an example of a stratabound base-metal deposit in a black shale environment. It forms part of a sedimentary basin within the Carpentarian Corella Formation (calc-silicate rocks). It strikes North-South and dips steeply to the west, with the grade of metamorphism low.

Two dominant and six minor ore types have been recognised. Oxidation is reported to be complete to 12m. The primary sulphides are pyrrhotite, pyrite, sphalerite, and galena, while at least four offshoots are thought to stem from the main lode. Sulphides are often seen as recrystallised bands and veins.

Sporadic copper mineralisation is observed and occurs as chalcopyrite mineralisation at the schist/calc-silicate - slate contact in the hanging wall of the Dugald zinc/lead/silver lode. Copper is also observed with mafic-intermediate porphyry dykes.

2.5 ENVIRONMENTALLY SENSITIVE AREAS

The QEPA Environmentally Sensitive Areas map did not identify any category A or B environmentally sensitive areas on the Project site (Figure 6). However, Regional Ecosystem mapping is not complete in the Project region and Endangered Regional Ecosystems are classified as category B Environmentally Sensitive Areas.

Baseline Studies commissioned by Pasimco in July 1993 identified a riverine vegetation unit containing *Eucalyptus camaldulensis* commonly known as River Red Gum. This vegetation unit is typical of Regional Ecosystem 1.3.7, which is listed as 'Endangered' under the QEPA Biodiversity Status, but 'Not of Concern' under the *Vegetation Management Act*, 1999 (QLD). Areas where Regional Ecosystem 1.3.7 may occur on the Project site are shown in Figure 7.



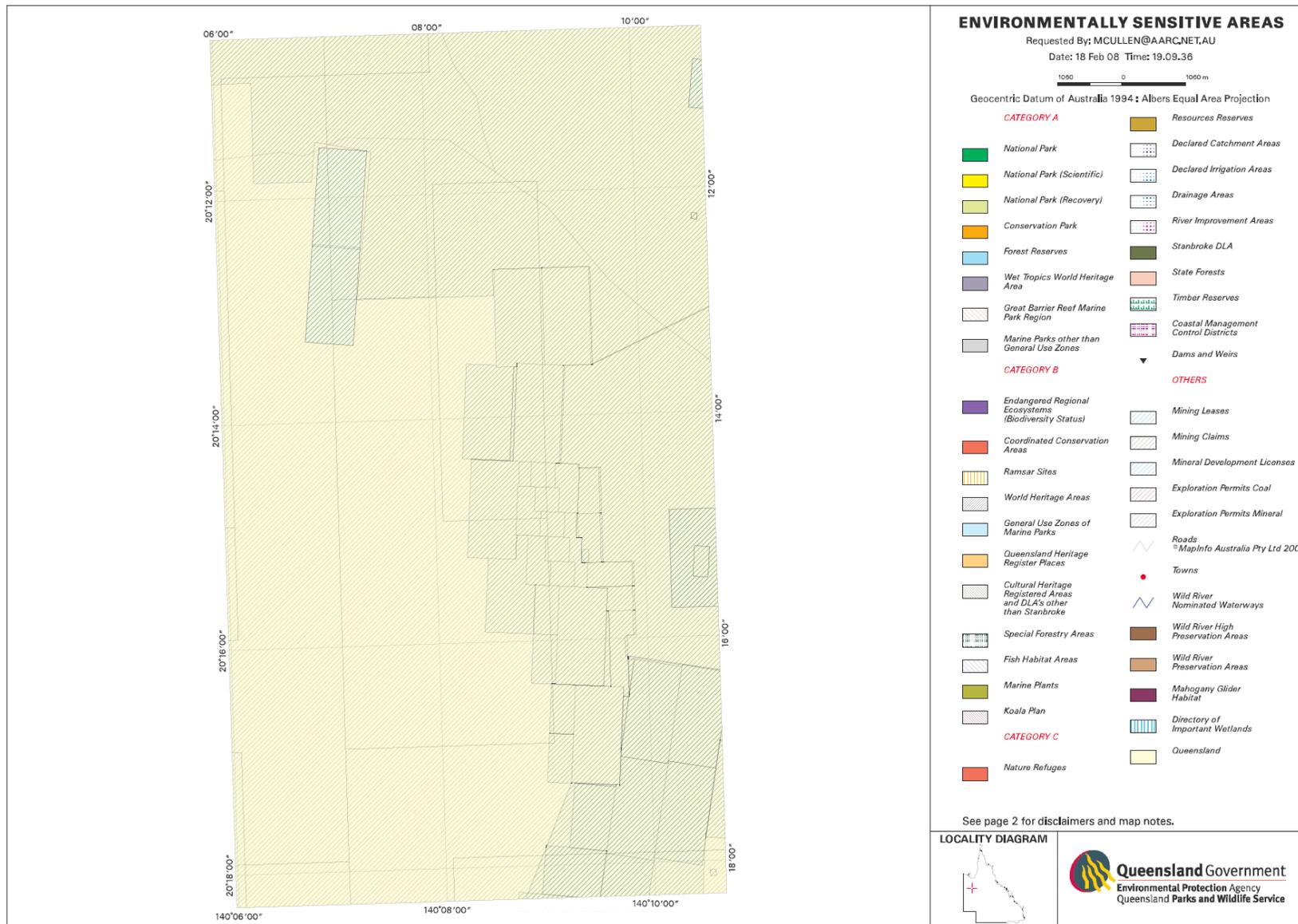


Figure 6: Environmentally Sensitive Areas Map



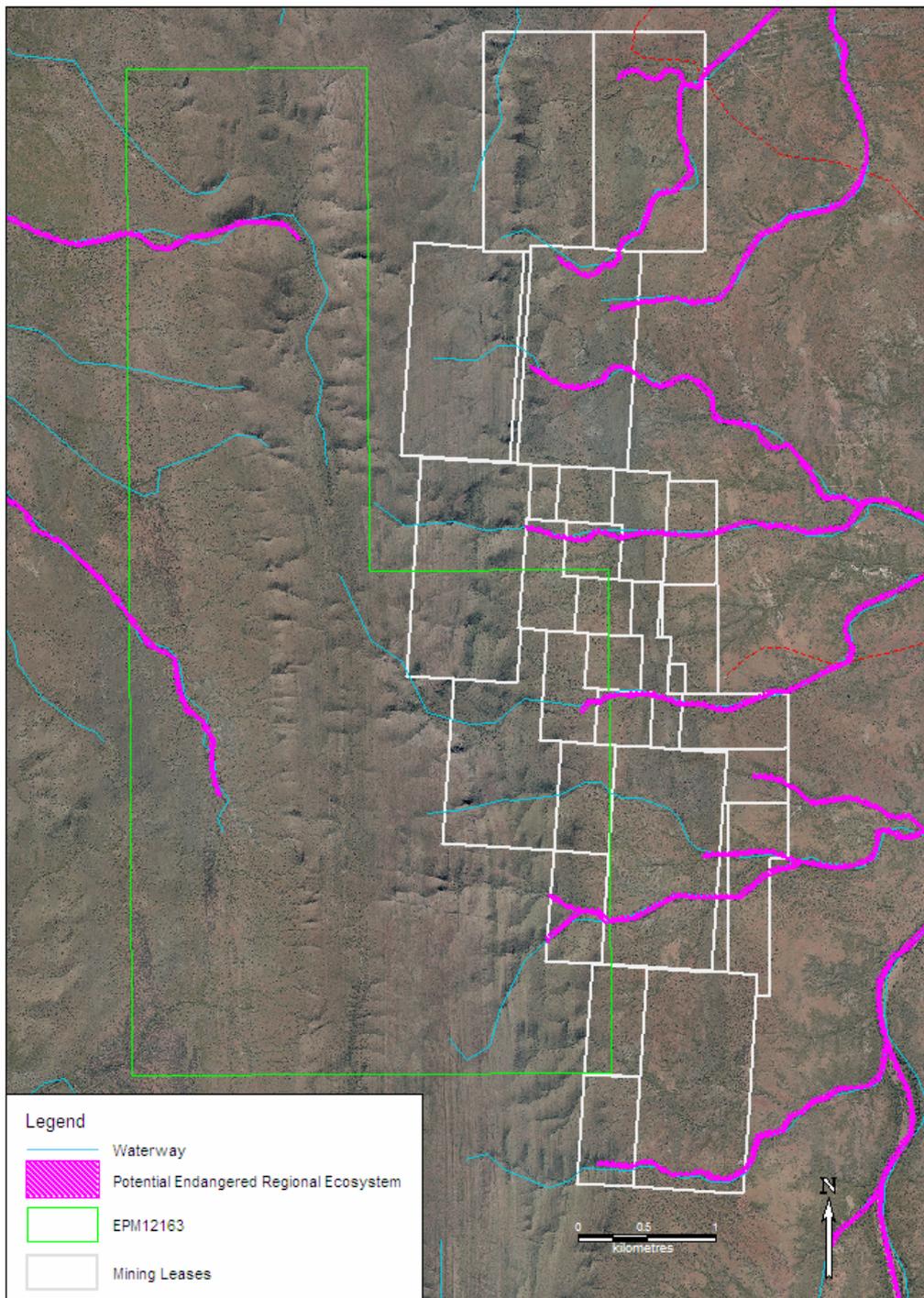


Figure 7: Potential Endangered Region Ecosystem Areas

2.6 SURFACE WATER AND DRAINAGE

There are no major watercourses on the Project site however there are several minor, ephemeral tributaries which run through the Project site. Ephemeral watercourses in the eastern section of the Project drain in an easterly direction emptying into the Dugald River. In the western section of the Project, ephemeral creeks drain into Cabbage Tree Creek, which is a tributary of the Leichhardt River.

The Dugald River runs adjacent to the Project site and is a tributary of the Flinders River which flows into the Gulf of Carpentaria 450km from the Project site. Water use downstream of the site consists of stock watering.

Woodward Clyde investigated the surface water quality of Dugald River and two tributary creeks that drain the Project area in 1993. These records found that the water quality of almost all samples was of at least stock water standard, with some elevated nitrogen and phosphorus during the 'first flush' events. This reflects the grazing use of land in the catchment.

Further water quality monitoring was undertaken on the Project site from 1999-2001 by Pasminco. Surface water quality results were obtained from Silvermine Creek and Dugald River. The results show high levels of some metals such as copper, zinc, chromium, iron and lead, but this is accepted to be a result of the naturally high levels of mineralisation found in the local region. Generally, the water quality is considered normal for the ephemeral nature of waterways in the region.

Surface water background data continues to be collected on the Project, with Zinifex installing seven Rising Stage Samplers on site in January 2008. Background data will also be sourced from Universal Resources from the Roseby Copper Project which is adjacent to the Project site.

2.7 GROUNDWATER

Groundwater resources on the Project site were preliminarily investigated by AustralAsian Groundwater and Environmental Consultants Pty Ltd (AGE) in 2007, to examine the groundwater quality and the possibility of using groundwater as a water resource for mining activities.

Based on the analysis of past literature and the 2007 field visit, the following conclusions were made:

1. The search for groundwater supplies to fully support possible future mining operations at Dugald River with process water was not able to locate a sustainable resource.
2. Groundwater that was located during various investigations was either too high in Total Dissolved Solids or too small in volume to be a realistic option for process water.
3. Supplies appear sufficient to provide water for daily drilling and camp operation, however the supplies from some bores were found to dwindle after prolonged pumping.

A groundwater assessment for the Project will be conducted by a hydrologist to determine any potential for groundwater impacts from the Project.



2.8 SOIL AND LAND SUITABILITY

The MLs are located in an area characterised by low outcrop domains with variable but generally thin, sandy soil development.

A topsoil assessment was undertaken by Woodward-Clyde in 1991 as part of the pre-feasibility baseline environmental studies for CRA Exploration. In this assessment three main soil units were identified on the Project site:

1. Knapdale Quartzite Unit – Thin stony skeletal soils.
2. Agrillaceous Limestone Unit – Yellow/brown skeletal residual soils.
3. Calc-Silicate Unit – Yellow/brown skeletal residual soils.

The soil samples reflect the parent soil chemistry. Base metal concentrations including copper, zinc, lead, and cobalt were elevated. This is generally accepted to occur in response to underlying mineralisation. Naturally high metal levels need to be accounted for when assessing possible levels of metal contamination.

Levels of cadmium, arsenic, silver, mercury, antimony and selenium were consistently below detection limits.

The pH of soils ranged from acidic at 3.8, in the quartzite outcrops on the Knapdale ridge line to slightly alkaline at 7.47, in the agrillaceous limestone soils and calc-silicate soils.

A land use suitability assessment was undertaken by SKM in 1997, based on the physical, chemical and nutritional characteristics of the soil (from the soil assessment done in 1991). The land use suitability assessment ranks the land according to a five-class system that was applied to arable farming, irrigated agriculture, forestry and conservation. The Project site was given an overall ranking of suitability class 4, which indicates the land is marginal with severe limitations for any of the abovementioned land uses.

Further soil and land suitability studies will need to be undertaken to verify this information and gauge any changes in land use over the last 10 years. The new soil and land suitability study will also cover the EPM and MDL areas of the Project site not previously surveyed.

2.9 NATURE CONSERVATION

A flora and fauna assessment was undertaken in 1991 by Woodward-Clyde as part of a suite of pre-feasibility environmental baseline studies. The results of this study are described below as well as current database search results for the Project site.

2.9.1 Fauna

Baseline environmental studies were undertaken that identified 150 vertebrate fauna species on the Project site. This consisted of:

- 105 bird species;
- 24 reptiles;



- 16 mammals; and
- 5 amphibians.

Birds

Of the 105 bird species recorded, 90 were regularly encountered during the survey. Some of the most numerous birds were Spinifex Pigeon, Weebill, Diamond Dove and Yellow-throated Miner. Aquatic birds were confined to Dugald River only and particularly at Longimundi Waterhole (which lie to the east of the Project site) and typically comprised Black Bittern, Common Koel, Dollarbird and two nesting pairs of Plumed Whistling Ducks. The Dusky Grasswren, Silver-crowned Friarbird and Grey-headed Honeyeater were recorded only in the Knapdale Range.

Reptiles

Lizards were the most numerous reptiles with frequent observations of Gilbert's and Ring-tailed Dragons, Bynoe's Gecko and the skink, *Ctenotus alacer*. Only one snake was recorded although a significant number have been previously recorded in nearby areas.

Mammals

The common Wallaroo was the most frequently encountered mammal, particularly at rocky sites. Colonies of approximately 20 common Sheath-tail Bats and approximately 30 Dusky Horseshoe Bats occupied abandoned mine workings on the southwest side of the range and in the dark interior of Petersen's Diggings respectively. Single recordings were made of the Short-beaked Echidna and Dingo.

Investigation prior to the 1991 site survey revealed the presence of the Kultarr, a marsupial of regional significance.

Amphibians

Despite the abundance of surface water during the survey, amphibians were only moderately abundant with the Desert Tree Frog being dominant. Three other native species were recorded as well as the introduced Cane Toad (*Bufo marinus*).

2.9.1.1 Conservation Significance

Field Survey - 1991

Only one species of listed conservation significance was observed during the 1991 field survey, the Square-tailed Kite (*Lophoictinia isura*). This species is listed as rare under the NCWR.

Database Information - 2008

Wildlife online and EPBC Protected Matters database searches were undertaken to provide information on species of conservation significance that may occur in the Project region.

The Wildlife online database describes the Queensland Conservation Status of each species identified in the Project region. The results of this database search (contained in Appendix A) found 186 animals thought to be occurring within a 10km buffer of the central coordinate of the Project site. Of these, four species were listed as rare or vulnerable:



- Purple Necked Rock-wallaby (*Petrogale purpureicollis*) – Vulnerable (NCWR)
- Black Necked Stork (*Ephippiorhynchus asiaticus*) – Rare (NCWR)
- Black Chinned Honey Eater (*Melithreptus gularis*) – Rare (NCWR)
- Pictorella Manikin – (*Heteromunia pectoralis*) – Rare (NCWR)

The occurrence of each of the above species on the Project site will be targeted during the upcoming flora and fauna assessments.

The EPBC Protected Matters search (Appendix B) gave the following species results for the Project area (Table 2). Habitat values and species notes in Table 2, denote the likelihood of these species being found on the Project site.

Table 2: EPBC Protected Matters Search Results

Scientific Name	Common Name	Status	Habitat Values	Species Notes (added by AARC)
<i>Rostratula australis</i>	Australian Painted Snipe	Vulnerable (EPBC)	They feed in shallow water or at the waters' edge and on mudflats, inland wetlands.	Limited habitat occurs on the Project site. Furthermore, there are no records of this species within the local area. It is therefore considered unlikely to occur on the Project site.
<i>Sminthopsis douglasi</i>	Julia Creek Dunnart	Endangered (EPBC)	Mitchell Grass downs country between Julia Creek and Richmond.	Preferred habitat is rare throughout the broader region. Field surveys will confirm habitat value and indicate possibility of occurrence.
<i>Pristis microdon</i>	Freshwater Sawfish	Vulnerable (EPBC)	Coastal drainages in Northern Australia. Bottom dweller of estuaries.	Not likely to occur on the Project site due to impermanent waterways.
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Migratory/Marine (EPBC)	Coasts, islands, estuaries, inlets, large rivers, inland lakes, reservoirs.	Not likely to occur on the Project site due to impermanent waterways.
<i>Merops ornatus</i>	Rainbow Bee-eater	Migratory/Marine (EPBC)	Open woodlands with sandy, loamy soils, sand ridges, sand pits, riverbanks, road-cuttings, beaches, dunes, cliffs, mangroves, rainforests, woodlands, golf courses.	Known to occur within the broader region, particularly in association with creeks and waterways. Likely to occur on the Project site.
<i>Ardea alba</i>	Great Egret, White Egret	Migratory/Marine (EPBC)	Shallows of rivers, estuaries, pastures, croplands, tidal mudflats, floodplains.	Known from the broader region, may occur on the Project site. Field surveys will be conducted to assess habitat value and possible species habitation.
<i>Ardea ibis</i>	Cattle Egret	Migratory/Marine (EPBC)	Stock paddocks, pastures, croplands, garbage tips, wetlands, tidal mudflats, drains.	Known from the broader region, may occur on the Project site. Field surveys will be conducted to assess habitat value and possible species habitation.
<i>Charadrius veredus</i>	Oriental Plover, Oriental Dotterel	Migratory/Marine (EPBC)	Open plains, bare rolling country, often far from water, ploughed land, muddy or sandy wastes near inland swamps, tidal mudflats, bare claypans, margins of coastal marshes, grassy fields.	Unlikely to occur on the Project site, due to lack of preferred habitat.
<i>Glareola maldivarum</i>	Oriental Pratincole	Migratory/Marine (EPBC)	Plains, shallow wet/dry edges of open bare wetlands, tidal mudflats, beaches.	Unlikely to occur on the Project site, due to lack of preferred habitat.
<i>Numenius minutes</i>	Little Curlew, Little Whimbrel	Migratory/Marine (EPBC)	Dry grasslands, floodplains, margins of drying swamps, tidal mudflats, airfields, playing fields, crops, commercial salt fields and sewerage ponds.	Limited habitat occurs on the Project site. Furthermore, there are no records of this species within the local area. It is therefore considered unlikely to occur on the Project Site.
<i>Rostratula benghalensis s. lat</i>	Painted Snipe	Migratory/Marine (EPBC)	Well vegetated shallows and margins of wetlands, dams, sewerage ponds, wet pastures, marshy areas, irrigation systems.	Limited habitat occurs on the Project site. Furthermore, there are no records of this species within the local area. It is therefore considered unlikely to occur on the Project site.
<i>Apus pacificus</i>	Fork-tailed Swift	Migratory/Marine (EPBC)	Aerial over open country, from semi-deserts to coasts, islands, sometimes over forests and cities.	Known from the region, likely to occur on the Project site (Oct-April) in association with rocky escarpments.
<i>Crocodylus johnstoni</i>	Freshwater Crocodile	Listed (EPBC)	Freshwater rivers, creeks and billabongs	Not likely to occur on the Project site due to impermanent waterways.



The site is disturbed from grazing and past exploration works and due to the ephemeral nature of the streams, there are no permanent waterways. Therefore the site is not likely to contain suitable habitat for threatened freshwater species or marine/wetland migratory birds.

Detailed flora and fauna field research will be undertaken on the Project site as part of the EIS process. The species listed above will be investigated during this research.

2.9.2 Flora

Baseline Studies commissioned by Pasminco in July 1993 identified 143 vascular plant species including 119 in the lowlands, 57 in the Knapdale Ranges, and 32 along the Dugald River. These species comprised four dominant vegetation units on the Dugald Project site. These vegetation units are described below.

Community 1 - Low Woodlands

This vegetation unit was identified as the most extensive vegetation unit on the Project site. The Low Woodlands area on the Project site is characterised by the Snappy Gum (*Eucalyptus leucophloia*) and the Variable Bloodwood (*E.dichromophloia*). Other dominant species associated with this vegetation unit include *Triodia pungens*, *T.molesta*, and *Acacia chishoimii*. The Low Woodlands vegetation unit is associated on the Project site with the Knapdale Ranges and is illustrated in Photo Plate 1. Subsequently the low woodlands vegetation unit characterises the central portion of the Project site.



Photo Plate 1: Low woodland on the Project site

Community 2 - Open Woodlands

The Open Woodlands were characterised as a vegetation unit associated with the lowland proportions of the Project site. The dominant species in this vegetation unit include *E.leucophloia*, *E.argllacea*, *E.terminalis*, and *Sporobolus australasicus*. Ground cover in the open woodlands was dominated by *T.pungens*, *Cleome viscosa* and *A.chisholmii*.

Community 3 - Gidgee Open Woodland

The presence of isolated strands of *A.cambagei* (Gidgee) on lateritic sites in the southern portion of the Project site resulted in their classification as the third vegetation unit; *Gidgee Open Woodland*, present on the Project site.

Community 4 - Riparian

Along the banks of the tributaries present on the Project site there are corridors of woodland which have been considered as the fourth vegetation unit present on the Project site, Riparian. The dominant vegetation species within this vegetation unit include; *E.camaldulensis*, *Melaleuca leuvadendra*, *Lysiphyllum carronii*, *Lophostemon grandiflorus*, *Terminalia aridicola* and *E.papuara*.

Conservation Status

A regional ecosystem map was generated for the Project site, however as discussed in Section 2.5 of this report, the region has not been adequately mapped yet. The riverine vegetation unit described above is equivalent to regional ecosystem 1.3.7 and is listed as endangered under the QEPA Biodiversity Status classification system but 'Not of Concern' under the VMA.

The wildlife online database search identified 51 plant species that are likely to occur in the Project region. These are listed in Appendix A, and all species are classified as common species throughout Queensland.

Finally the site investigation undertaken in 1993 identified one species of conservation significance on the Project site:

- Bottle Tree – *Brachychiton collinus* – Rare (NCWR)

The following species of conservation significance were found in the Project region in 1993 and may occur on the Project site:

- Morning Glory Vine – *Ipomea antonschmidii* – Rare (NCWR)
- Mulla mulla – *Ptilotus macohochiei* – Rare (NCWR)

A flora and fauna site investigation is required to confirm the presence of these species and to update the previous flora and fauna studies. These studies will be undertaken as part of the EIS process.

2.10 AMBIENT AIR QUALITY

Four dust gauges were installed on the Project in 1991 as part of the pre-feasibility baseline studies for CRA Exploration. These dust gauges were used to provide data for Pasma's 1998 Environmental Management Overview Strategy and environmental monitoring program prepared in 2001. Universal Resources installed a fifth dust gauge at the Mount Roseby Homestead (DG5) in 2005 to obtain data for their Mount Roseby Copper Project.

Dust deposition data from 2003 – 2005 is presented in Figure 8. The QEPA's recommended guideline of 120 mg/m²/day is included in this plot and shows that the measured dust deposition rates are well this level. For most of the time the dust deposition rate is less than 30 mg/m²/day. DG 5 is likely to be the most representative of dust deposition rates at the nearest residence. The annual average dust deposition rate recorded at this site is 27.4 mg/m²/day.



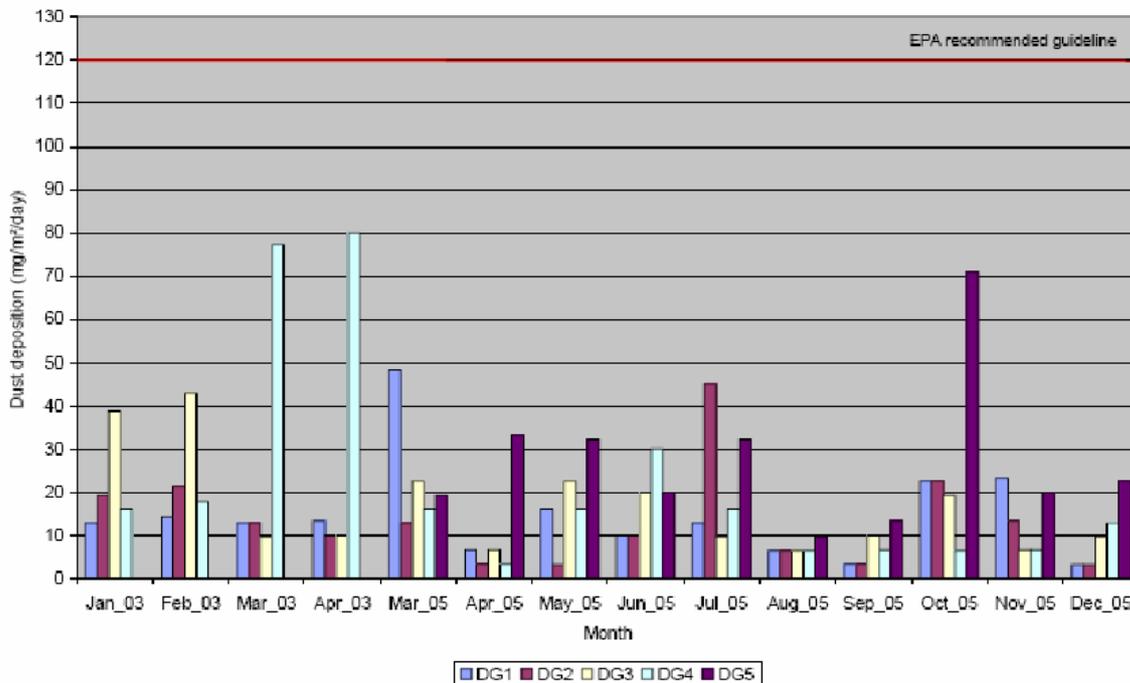


Figure 8: Monthly Dust Deposition Rates (mg/m²/day)

Further monitoring of dust deposition will occur as part of the EIS and ongoing environmental management on the Project site. Air quality modelling will be undertaken to predict the impact of dust levels on sensitive receivers during Project operations.

2.11 NOISE

The closest sensitive receivers to the Project site are the residents of Mount Roseby Homestead located 2.5km south of the southern ML boundary. The Project is located in a rural isolated area and noise from Project operations is not expected to impact on the local community.

As part of the EIS and ongoing environmental management on the Project site, noise studies will include the deployment of background noise loggers to obtain noise levels representative of the region under typical circumstances. Noise, vibration and airblast overpressure levels from the Project, and the potential impact on sensitive receivers, will be predicted based on the proposed mine plan.

2.12 WASTE ROCK AND TAILINGS CHARACTERISATION

Preliminary waste rock and tailings characterisation test work was undertaken by CRA in 1991. Twenty three samples of drill core, 4 representing ore (lode samples) and 19 representing waste rock and tailings, were collected from various intervals and lithologies. Samples were crushed and analysed for total sulphur, a range of metals, pH, Electrical Conductivity, Net Acid Producing Potential (NAPP) and Acid Neutralising Capacity (ANC).

The results of the fresh samples indicated neutral to significantly alkaline pH conditions and moderate salinities.

Sulphur content was high, ranging from 0.36% to 20.10%. Higher levels were shown in lode samples and the lower results were shown in the remaining waste samples. The Maximum Potential Acidity (MPA) is relative to % sulphur and therefore, as expected, the results for the lode samples were high and the remaining waste samples were lower. All samples reacted to hydrochloric acid and therefore demonstrated the presence of various neutralising agents such as carbonates and calc-silicates.

Half the samples indicated positive NAPP results particularly the lode samples and massive siltstone samples, indicating that there is a potential for these samples to produce acid. The remaining waste samples, typically carbonates, indicated negative NAPP results and as yet unquantified potential ANC.

Lode samples indicated high levels of cadmium, arsenic, silver, zinc, lead, copper and mercury with two sample showing high levels of antimony. The remaining waste samples showed high levels of arsenic, zinc, lead and to a lesser extent cadmium, copper, cobalt and mercury. This is expected in areas of naturally high levels of mineralisation.

The samples tested representing 'typical' tailings slurry showed high concentrations of sulphur, zinc, iron and lead.

Further waste rock and tailings characterisation studies are to be conducted for the Project EIS.

2.13 INDIGENOUS CULTURAL HERITAGE

At present no matters of Indigenous cultural heritage have been identified on the Project site. A comprehensive cultural heritage survey is to be undertaken on the Project site by Zinifex to identify any Aboriginal cultural and/or archaeological sites. A regional ethnographic study will also be undertaken to identify kinship ties and genealogical lines with traditional attachments to the region surrounding the Project site.

There are currently two native title applications that are relevant to the Project. The region in which the Project MLs, EPM and MDL is situated forms part of the Kalkadoon tribal territory area, and the claim is registered to Kalkadoon #4 QC05/12. The corridor options for the grid connection line are mostly on land encompassed by the Kalkadoon #4 claim area; however a small section of the corridor, near Chumvale sub-station, traverses the Mitakoodi QC96/101 claim area.

The Native Title Representative Body that administers these claim areas is the Carpentarian Land Council Aboriginal Corporation, Queensland West.

2.14 NON-INDIGENOUS CULTURAL HERITAGE

The Project is situated in an historical mining area and there is the possibility of some non-Indigenous cultural heritage occurring within the site. Non-Indigenous cultural heritage sites and significant historical mining infrastructure will be identified in the cultural heritage survey, and their significance and management discussed in the EIS.



3.0 PROPOSED PROJECT ACTIVITIES

3.1 EXPLORATION

The Project site has been extensively drilled, mapped and evaluated by previous owners of the MLs. Zinifex will drill a further 125 holes during the current exploration program which has a 100 - 1000m drill depth range. This exploration program will also focus on determining the copper resource.

Exploration and resource mapping will continue to occur throughout the life of the Project to explore future expansion of mining activities.

3.2 RESOURCE

A JORC compliant resource of 47.9Mt of 12.1% zinc, 2.1% lead and 44g/t silver is hosted in a north south trending black slate of the Corrella formation. The Corrella formation, typically a sequence of biotite-scapolite schists and variably altered and brecciated calc-silicates, is part of the Mary Kathleen Group in the eastern succession of the Mount Isa Inlier. The stratabound massive zinc/lead/silver deposit outcrops at surface over a distance of 1.6 kilometres and is open at depth.

3.3 CONSTRUCTION

Construction material such as plant equipment and other infrastructure may be sourced from Queensland, other areas in Australia or internationally. Materials will either be shipped via the Zinifex port facilities at Karumba, in the Gulf of Carpentaria or to the Port of Townsville to be transported by rail and road to the Project site.

If the option to ship materials through Karumba is selected, Zinifex will need to build a groyne at their loading facility, with equipment then trucked to the Project site. Approvals for this facility, if required, will be obtained outside of this EIS process.

3.4 MINING METHODS

Mining methods may include both open pit and underground methods. A focus on underground mining will be employed for zinc/lead/silver ore extraction, and open pit methods will be mostly employed in the early stages of zinc/lead/silver mining, and for the extraction of copper ore.

3.4.1 Open Pit Method

Ore may be mined from a main open pit to extract the upper part of the zinc/lead/silver lode in conjunction with mining an associated copper resource (Figure 9). The main pit will potentially be 1800m long, 400m wide and 200m deep. Mining operations will employ conventional drill, blast, load and haul using diesel operated equipment. Should this option be pursued, the underground decline for mining the deeper lead, zinc and silver resource will extend from the open cut pit workings.

There is also a possibility that two or more, satellite pits may be mined to extract copper ore on the Project (Figure 9). These pits would be mined conventionally, employing conventional drill, blast, load and haul using diesel operated equipment.



3.4.2 Underground Method

The deep zinc/lead/silver ore will be mined from underground by conventional mechanised methods (longhole open stoping). The mine will be approximately 1.6km along strike and 1000m deep. It will be accessed by twin declines that will also be used to haul ore and waste from the mine in diesel trucks. The option of using a hoist shaft is also being investigated. All ore and waste will be drilled and blasted. The mine will be ventilated via 5 vertical shafts.

Where possible, waste rock from mine development will be used to backfill underground voids, although this may not be possible during the early stages of development. Other underground voids may be filled with paste backfill from plant tailings.

3.4.3 Waste Rock Disposal

Waste rock will be deposited in surface waste rock dumps adjacent to the open pits, or placed back underground. Waste rock may also be used for the construction of a Tailings Storage Facility (TSF).

Waste rock and tailings characterisation will be conducted to determine any Potentially Acid Forming (PAF) waste material. Strategies to encapsulate any PAF waste material will be developed as part of the EIS.

3.5 INFRASTRUCTURE

The Project will require the following infrastructure located on, and adjacent to, the Project site:

- Access Road;
- Water pipeline;
- Grid connection line;
- Processing Plant;
- Haul roads;
- Waste rock dumps;
- Tailings Storage Facility (TSF);
- Underground workings with twin declines;
- Run of Mine (ROM) Pad;
- Accommodation camp;
- Process water dam;
- Stormwater dams;
- On-site Sewage Treatment Facility; and



- Power Station.

At this stage the final locations of the TSF, accommodation camp, processing plant and water dams are subject to sterilisation testing, engineering studies, economic viability, geotechnical assessment and site suitability.

The conceptual mining and infrastructure layout is shown in Figure 9. This includes various location options for the TSF, accommodation camp and proposed open pits.

Figure 10 is a map of water and access route options. Currently there are two proposed access route options, and three proposed water pipeline options coming from the Green Hills valve station off the Ernest Henry/Lake Julius Pipeline.

Figures 11 and 12 show the three proposed grid connection lines running from the eastern ML boundary to the Chumvale Sub-station approximately 60km away.

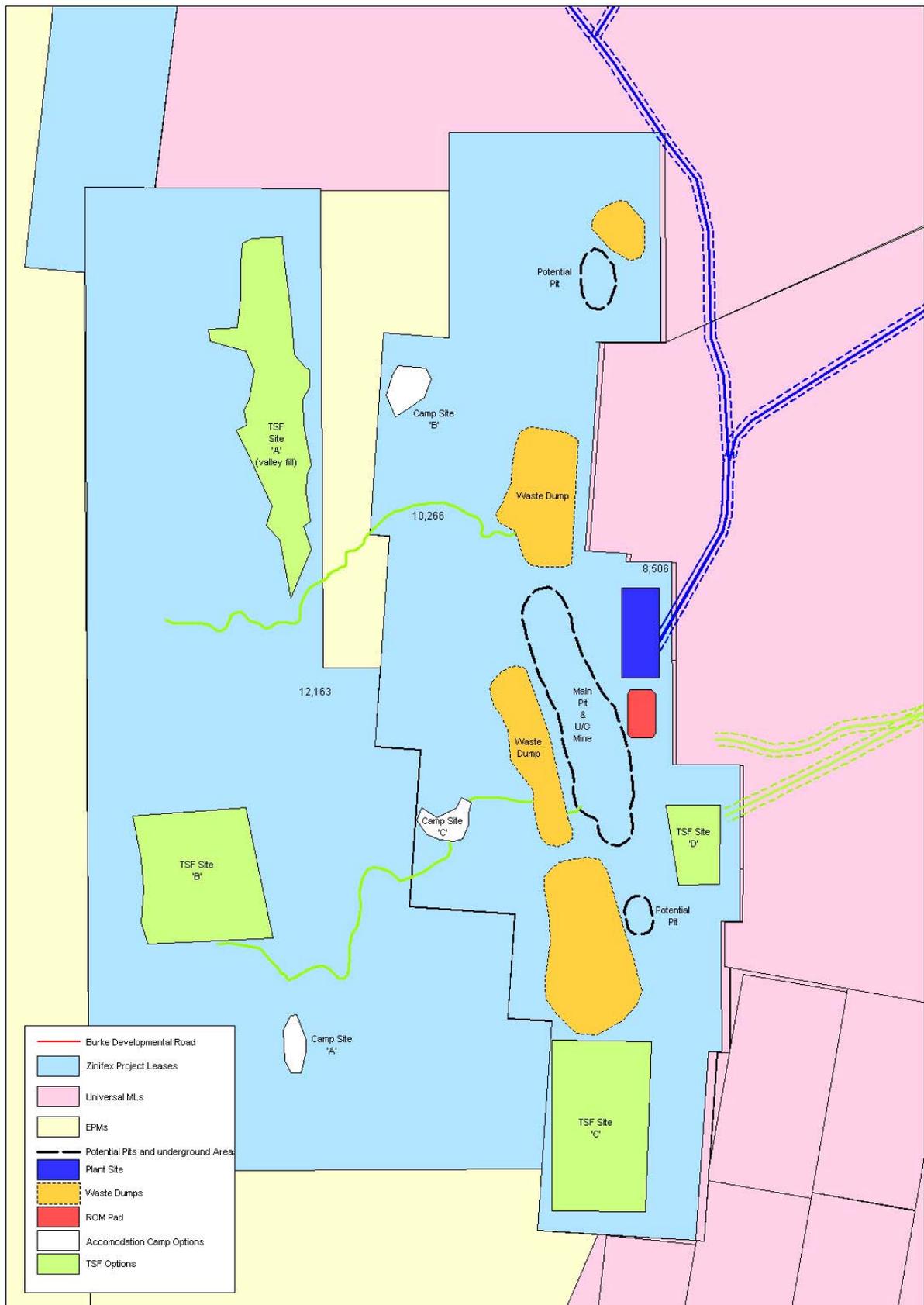


Figure 9: Conceptual Layout of Mining Operation

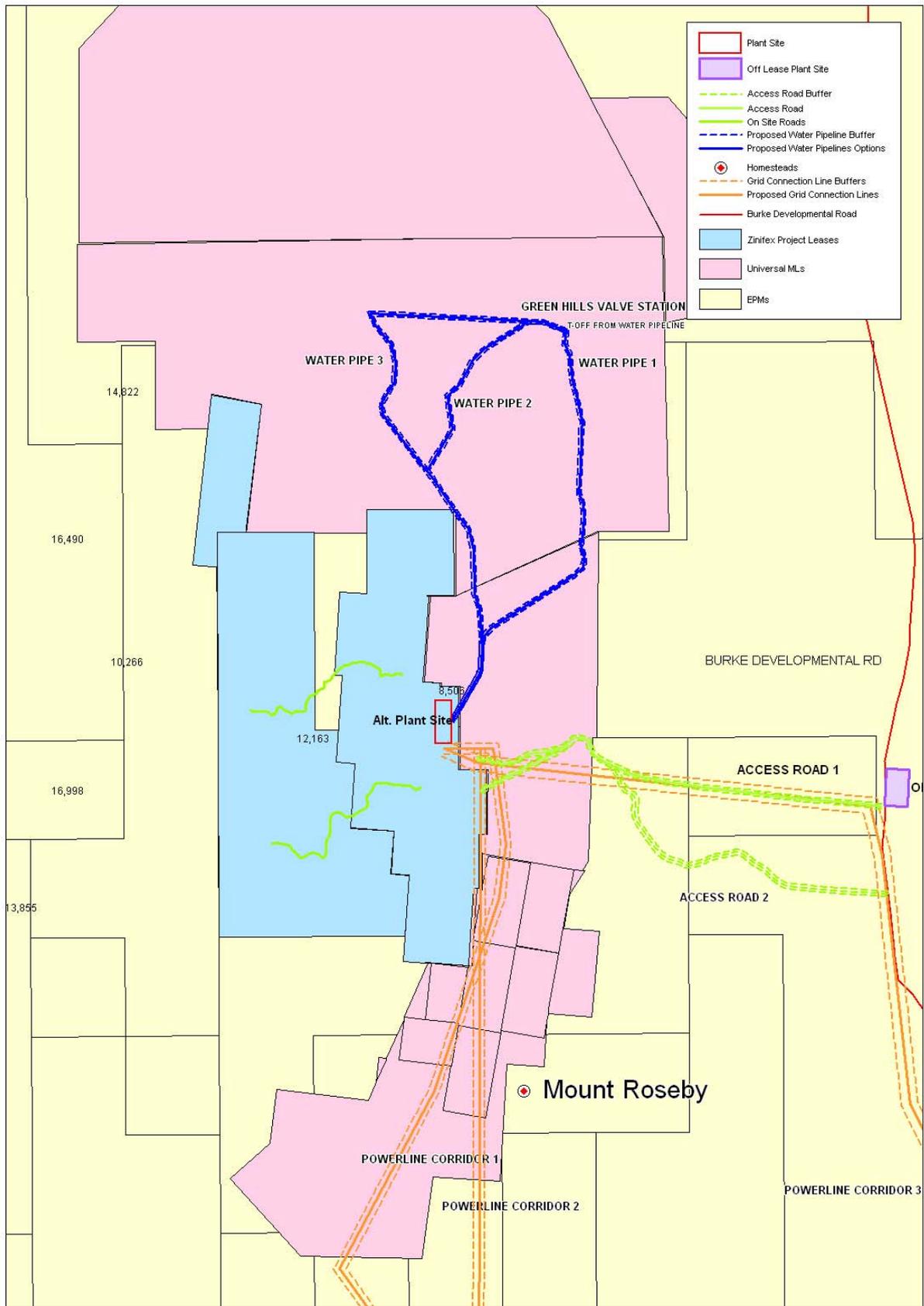


Figure 10: Water and Access Route Options



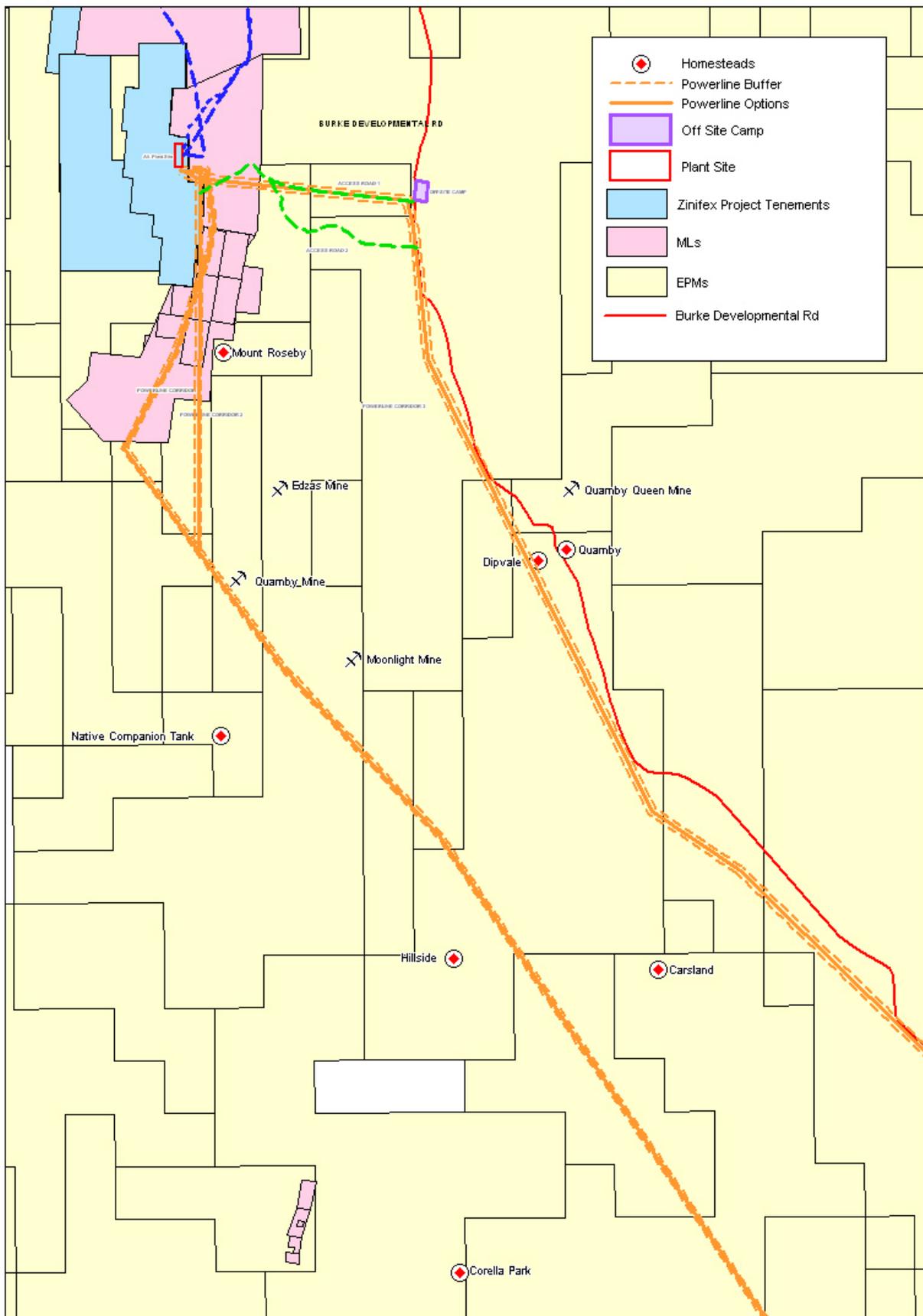


Figure 11: Top Half of Proposed Grid Connection Line

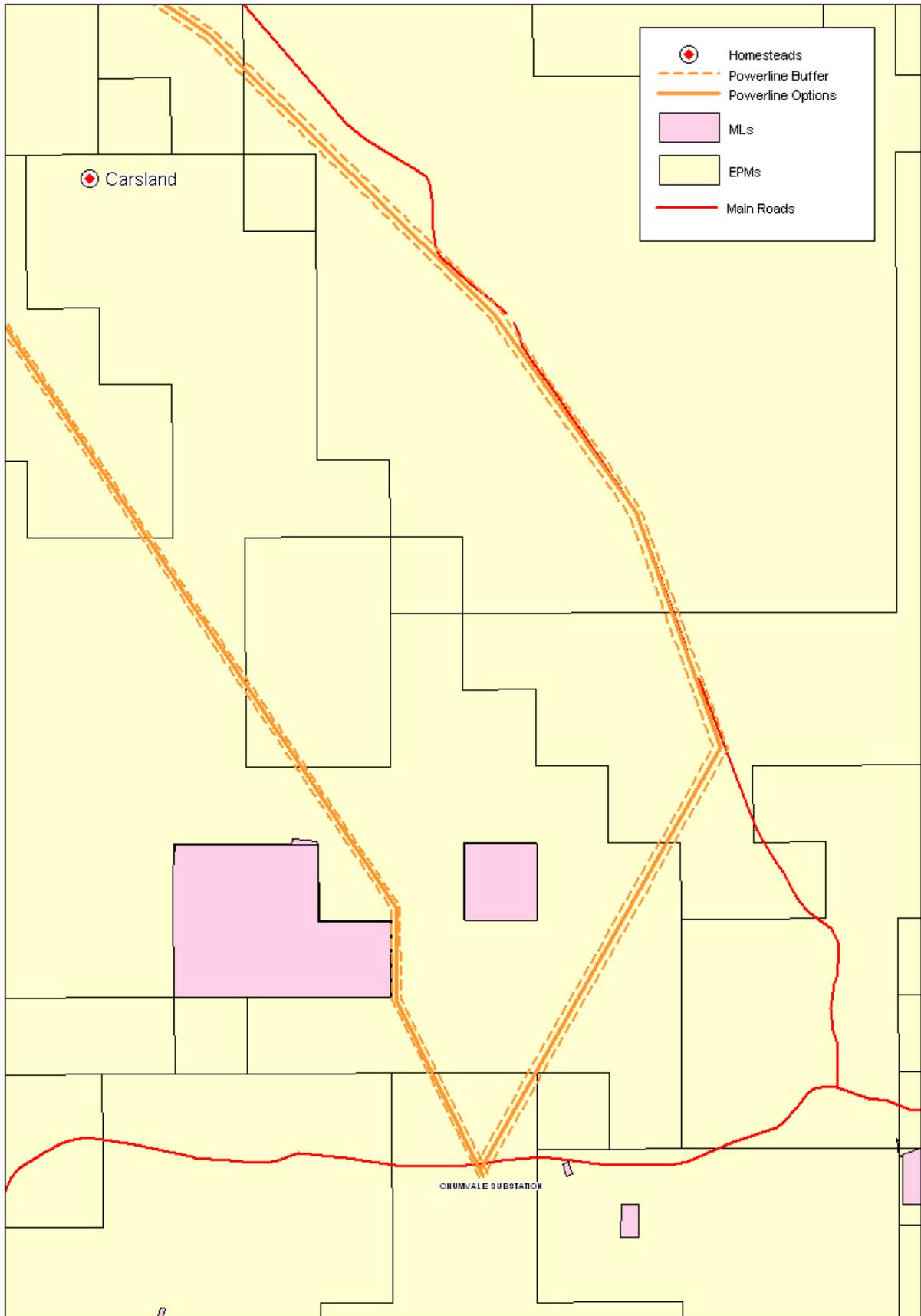


Figure 12: Bottom Half of Proposed Grid Connection Line

3.6 PROCESSING

The zinc/lead/silver ore will be processed through a 2Mtpa processing plant, which will consist of crushing, grinding, pre-flotation, re-grinding, flotation and filtration to produce metal concentrates. The processing circuit is conventional for Carpentaria ores and is similar to those in place at Cannington Mine and Century Mine.

Concentrate may be hauled by road-train to Cloncurry then loaded on to trains, which will take the concentrates to Townsville for export or smelting. Alternatively or additionally, concentrates may be trucked to Karumba and exported via Zinifex's port facility, or trucked to Mount Isa for smelting.

If the potential copper resource is found to be economic, the processing plant may be expanded to treat this ore.

Bulk chemicals to be stored on site will include:

- Diesel fuel;
- Explosives (type to be determined but likely to consist of Ammonium Nitrate/Fuel Oil (ANFO), bulk emulsions and packaged products);
- Portland cement;
- Lime;
- Copper sulfate;
- Sodium isobutyl xanthate (SIBX);
- Methyl isobutyl carbinol (MIBC);
- Sodium Cyanide; and
- Dextrin.

3.7 ACCESS ROAD

The existing access road may be re-routed to connect with the Burke and Wills Development Road in a more direct route. The access road route is yet to be finalised although there are potentially two location options as shown in Figure 10. For these routes, exploration tenure is controlled by Universal Resources (Roseby Copper Project) and China Yunnan Copper Australia Limited (Cloncurry Copper Project). Pastoral tenure is controlled by the McMillan Pastoral Company (Mount Roseby Station).

3.8 POWER SUPPLY

During construction a temporary diesel power station will service the Project. During operation the following options are being investigated:

- A grid connection to be constructed from the Chumvale substation 10km west of Cloncurry. Power will likely be generated near Mount Isa.
- Power generation on site; and



- Renewable power generation on site.

The estimated electricity supply for the Project is 20MW (subject to Feasibility Study outcomes).

If the grid connection line is chosen, there are two options for the construction and operation of the line:

- Option 1 - the line being built and operated by Ergon Energy or a third party. Zinifex would pay a fee to purchase power from Ergon Energy or the third party for the transmission of power to site. This option would mean the environmental impacts of the grid connection line would be assessed outside of the Dugald River EIS by Ergon Energy or the third party; or
- Option 2 – Zinifex to construct, operate and maintain the grid connection line for the Project. This option will include an application for a ML to cover the grid connection line with all construction and operation impacts considered in the Dugald River EIS.

The grid connection route is yet to be finalised, however the preliminary routes are shown in Figures 11 and 12. The grid connection line is expected to be approximately 60km in length. The route covers a number of leases (both mining and pastoral) which are controlled by a various entities.

Should power from Mica Creek Power Station be required for the Project the additional capacity may be constructed and operated by Zinifex, CS Energy or a third party.

3.9 WATER SUPPLY

The estimated water supply for the Project is 1500ML/yr (subject to Feasibility Study outcomes). The following options are being investigated for water supply to the Project:

- A new water supply pipeline constructed from the Green Hills valve station on the existing Lake Julius to Ernest Henry pipeline. The pipeline route is yet to be finalised, but three options for the route, are shown in Figure 10. There are three options for construction and operation of the water supply pipeline:
 - Option 1 is Zinifex build/own/operate. This option may require an application for a ML over the pipeline corridor or it may only require agreements between Zinifex, Universal and the McMillan Pastoral Company;
 - Option 2 is a joint own/operate agreement between Universal and Zinifex. This option would require an agreement with Universal and the McMillan Pastoral Company;
 - Option 3 is build/own/operate by third party (eg Sunwater), with Zinifex purchasing water as required.
- Groundwater Borefield – groundwater used for processing and possibly the camp; and
- Recycled water from thickener, TSF, stormwater ponds and sediment dams.

For the water supply pipeline route, exploration tenure is controlled by Universal Resources (Roseby Copper Project). Pastoral tenure is controlled by the McMillan Pastoral Company (Mount Roseby Station).

The water supply pipeline routes have been designed so that they are no closer than 100 m from the base of Mount Rose Bee at any point. This is to prevent any unnecessary impacts on the



Purple Necked Rock-wallaby (*Petrogale purpureicollis*) which inhabits the rock outcrops at Mount Rose Bee.

3.10 WORKFORCE AND ACCOMMODATION

A purpose built accommodation camp will be established on site to accommodate 300 persons during the operational phase of the Project. Currently there are three location options for the accommodation camp as shown in Figure 9, however further locations may be assessed. The majority of staff will be employed on a Fly-In-Fly-Out (FIFO) basis from major centres like Townsville, Mackay, Cairns or Brisbane. Staff will fly into Cloncurry where they will travel to site. During the operations phase up to 400 staff will be employed. Staff will all be accommodated on site and accommodation will be on a rotational basis.

During the construction phase a construction camp will be built to accommodate 500 people. Up to 750 people will be employed during the construction phase and will FIFO from major centres to Cloncurry and travel to site. Accommodation in the construction camp will also be on a rotational basis.

3.11 POST MINING LAND USE

Land disturbance on the Project will be a temporary impact only, during the construction and operational phases of the Project. All land disturbances on the Project will be rehabilitated either progressively, where possible, or on decommissioning to reduce and eliminate any potential environmental impacts. Land disturbance estimations for the Project are shown in Table 3 below. Likely final land uses of rehabilitated land include native ecosystems, water storages for grazing and low intensity grazing.

Table 3: Predicted Land Disturbance on the Project site

Disturbance Type	Area (ha)
Water pipeline route (assume corridor width of 20 m)	21.1
Waste dump 1	12.88
Waste dump 2	50.14
Waste dump 3	51.66
Waste dump 4	38.84
Waste dump 5	75.51
Main Pit & U/G Mine	77.5
ROM Pad	7.7
Plant Site	20.47
Grid connection route (assume corridor disturbance width of 20 m)	113.4
Access Road (assume corridor disturbance width of 20 m)	16
Camp Site Option A	5.94
Camp Site Option B	8.83
Camp Site Option C	7.97
Potential open cut pit	9.7
Potential open cut pit	4.9
TSF Site Option A	97.29
TSF Site Option B	90.71
TSF Site Option C	96.97
TSF Site Option D	101
Total	581.85 – 609.63 ha*

* Smaller estimate includes the smallest of the options and larger estimate includes the largest of the options and also the potential pits.

3.12 ENVIRONMENTALLY RELEVANT ACTIVITIES

Table 4 describes the potential Environmentally Relevant Activities (ERAs) proposed to be conducted on the Project, which would otherwise be ERAs as per Schedule 1 of the Environmental Protection Regulation 1998, if the Project was not a mining project.

The process of mining mineral ore (Mining Activities) is not covered by an ERA in Schedule 1 of the Regulation; it is covered separately by Schedule 6, Part 2 of the Environmental Protection Regulation 1998.

Table 4: ERAs Associated with the Project

ITEM (ERA Schedule No.)	Estimated Level/Usage	Trigger Criteria	Level	License Fee
ERA 7(b) Chemical Storage	Storage of process reagents	>1,000 m ³	1	\$1,740
ERA 11(b) Crude Oil or Petroleum Product Storing	Storage of diesel for earthmoving equipment	≥500,000 litres	1	\$1,740
ERA 15(a) Sewage Treatment Operation	Up to 500 persons	>100 persons <1500 persons	1	\$1,500
ERA 17 Electricity and fuel burning	Earthmoving equipment	>500 kg/hour	1	\$3,000
ERA 42 (a) Mineral Processing	>450,000tpa	>100,000 t	1	\$16,340
ERA 75(a)(i) Waste Disposal	<2,000 t domestic waste disposal	>50 t < 2,000 t per year	1	\$500
ERA 75(b)(iv) Regulated Waste Disposal Facility	Waste rock and tailings disposal	≥200,000 t per year	1	\$10,000
ERA 84(b) Regulated Waste Storage	Waste oil and tyre storage	-	1	\$2,000

4.0 COMMUNITY CONSULTATION

4.1 INTERESTED PERSONS

The following definition of interested persons has been taken from the *QEPA Guideline 12 – The EIS Process for Non-standard Mining Projects*.

“Interested persons are defined as persons nominated by the proponent that have an interest in the Project. Interested persons may include a local community progress association, a local/state/national environmental action group, and affected land users other than land holders, any person who might have a substantial interest in the project or its impact.”

4.2 AFFECTED PERSONS

A definition of an affected person is provided in QEPA Guideline 12 – The EIS Process for Non-standard Mining Projects and is shown below:

A person is an “affected person” for a project (s38) if the person is:

(1) any of the following under the Native Title Act 1993 (Commonwealth) for the operational land or for an area that includes any of the land:

- a) a registered native title body corporate;*
- b) a registered native title claimant;*
- c) a representative Aboriginal/Torres Strait Islander body; or*

(2) a relevant local government for the operational land; or

(3) a person mentioned below for the operational land or any land joining it:

- a) a registered proprietor - for freehold land;*
- b) a person recorded in the register as the registered holder of the interest - for land that is held from the State for an estate or interest less than fee simple and for which the interest is recorded in a register mentioned in the Land Act 1994 (Land Act), section 276;*
- c) a holder of, or an applicant for, the tenement - for land subject to a mining claim, mineral development licence or mining lease;*



- d) *a holder of the authority; or a lessee under the lease; or a licensee under the licence - for land subject to an authority to prospect or a lease or licence under the Petroleum Act 1923;*
- e) *a trustee of the land - for land under the Land Act or the Nature Conservation Act 1992 (NCA) for which there are trustees;*
- f) *a grantee of the land - for Aboriginal land under the Aboriginal Land Act 1991 (ALA) that is taken to be a reserve because of section 87(2) or 87(4)(b) of that Act;*
- g) *a trustee for the land - for DOGIT land under the ALA or the Torres Strait Islander Land Act 1991;*
- h) *a relevant local government - for land held under a lease under the Local Government (Aboriginal Lands) Act 1978, section 6;*
- i) *a grantee of the land - for Torres Strait Islander land under the Torres Strait Islander Land Act 1991 that is taken to be a reserve because of section 84(2) or 84(4)(b) of that Act;*
- j) *a trustee of the land - for land under a lease from the State under the Aborigines and Torres Strait Islanders (Land Holding) Act 1985 that has been excised from land granted in trust for Aboriginal or Torres Strait Islander purposes under the Land Act;*
- k) *the State - for land that is any of the following:*
- *unallocated State land;*
 - *a reserve under the Land Act for which there is no trustee;*
 - *a national park, national park (Aboriginal land), national park (scientific), national park (Torres Strait Islander land), national park (recovery) or forest reserve under the NCA;*
 - *a conservation park under the NCA for which there are no trustees;*
 - *a State forest or timber reserve under the Forestry Act 1959;*
 - *a State-controlled road under the Transport Infrastructure Act 1994;*
 - *a fish habitat area under the Fisheries Act 1994.*
 - *another person prescribed under a regulation to the EP Act.*

4.3 CONSULTATION PROCESS

Affected and interested persons will be included in the community consultation program for the Project and will be provided with a copy of the Terms of Reference (TOR) Notice and EIS for public comment. The community consultation program will include meetings with affected and interested persons as required. All correspondence with interested and affected persons will be recorded in the Consultation Report as a part of the EIS.

The draft TOR will be released for public comment, and to interested and affected persons, and advisory bodies for at least 30 business days. Anyone can make comments on the draft TOR to the QEPA. At the end of the comment period, copies of all comments received by the QEPA will be given to the proponent. Zinifex will then prepare the following:

- A written summary of the comments;
- A response to the comments; and
- Proposed amendments to the TOR as a result of the comments received.

The above information must be provided by Zinifex to the QEPA within 20 business days of receiving copies of the documents. However, a longer period of time can be agreed between Zinifex and the QEPA. The QEPA will then prepare and publish the final TOR based on the responses from Zinifex within 20 business days.

Zinifex will then undertake the necessary assessments, research and consultations to prepare the EIS, in accordance with the TOR. The EIS will support an application for Project approvals, in particular an Environmental Authority (EA).

Zinifex will submit the completed EIS to the QEPA. The QEPA will then assess the EIS and decide whether or not it adequately addresses the published TOR. If it does, Zinifex must then publish an EIS Notice and give a copy of the EIS Notice to each affected and interested person. The submission period for public comment will be set by the QEPA and must be at least 20 business days. Copies of the EIS will be made available to all interested and affected persons and Advisory Bodies. The QEPA will accept all properly-made submissions received during the submission period. The QEPA will provide Zinifex with a copy of all the submissions received on the EIS. Zinifex must then prepare a response to the submissions and make any necessary amendments to the submitted EIS.

The QEPA will prepare and give an EIS Assessment Report to Zinifex. This Assessment Report will consider the final TOR, the submitted EIS, all properly made submissions, Zinifex responses to submissions and the standard criteria in preparing the EIS Assessment Report. The Assessment Report will, among other things, recommend any relevant conditions that will be necessary for the Project to proceed.



4.4 ASSESSMENT OF EIS TRIGGER CRITERIA

Table 9 below contains an assessment of the Project against the QEPA's EIS Trigger Criteria as set out in *Guideline 4 – Deciding the Level of Impact Assessment for the Mining Industry*.

Table 9: EIS Trigger Criteria

EIS TRIGGER CRITERIA	TRIGGERED	COMMENTS
1. Significant Impact on Category A or B environmentally sensitive areas	No	There are areas of River Red Gum Community (ERE) on the Project but major clearing of this community should not be required.
2. Involve any mining in a marine area	No	
3. Involve any mining less than 500m landward from the highest astronomical tide	No	
4. Require the construction of more than 150 new dwelling units	Yes	Construction Camp 500 persons. Permanent camp 300 persons.
5. Include any activity that would otherwise be a Level 1 ERA with an annual fee greater than \$4000	Yes	ERA 42b – Mineral processing to produce more than 100,000 tpa of concentrate.
6. Involve the mining of more than 2 million tonnes of mineral or run of mine ore per annum	Yes	Mining rate of 2 million tonnes of ROM ore per year for zinc/lead/silver resource. Additional mining rate for copper resource if mined.
7. Involve the abstraction of more than 2 million m ³ of water per annum from natural surfaces and/or groundwater sources	No	Estimate annual water requirements 1.5 million m ³
8. Result in more than 25ha remaining post mining in a non-beneficial land capability where an acceptable alternative may be feasible	Possible	Final voids if present may be used as water storages pending water quality data. Rehabilitation of other disturbances to native habitat or low intensity grazing.
9. Involve any non-standard mining activity less than 2 km from a town	No	
10. Contain a dam that requires a dam failure assessment under the <i>Water Act 2000</i>	No	Hazardous dams only
11. Include mining for uranium or asbestos	No	

Appendix A: Wildlife Online Database Results





Queensland Government

Environmental Protection Agency Queensland Parks and Wildlife Service

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: 20.2493
Longitude: 140.1508
Distance: 10
Email: mcullen@aacrc.net.au
Date submitted: Monday 21 Jan 2008 17:01:18
Date extracted: Monday 21 Jan 2008 17:16:02

The number of records retrieved = 237

Disclaimer

As the EPA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufo	<i>Bufo marinus</i>	cane toad	Y			2
animals	amphibians	Hylidae	<i>Litoria rothii</i>	northern laughing treefrog		C		2
animals	amphibians	Hylidae	<i>Litoria inermis</i>	bumpy rocketfrog		C		3
animals	amphibians	Hylidae	<i>Litoria rubella</i>	ruddy treefrog		C		6
animals	amphibians	Hylidae	<i>Litoria pallida</i>	pallid rocketfrog		C		3
animals	amphibians	Hylidae	<i>Litoria caerulea</i>	common green treefrog		C		6
animals	amphibians	Hylidae	<i>Cyclorana australis</i>	northern snapping frog		C		7
animals	amphibians	Myobatrachidae	<i>Limnodynastes ornatus</i>	ornate burrowing frog		C		3
animals	birds	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle		C		3
animals	birds	Accipitridae	<i>Circus assimilis</i>	spotted harrier		C		2
animals	birds	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk		C		6
animals	birds	Accipitridae	<i>Haliastur sphenurus</i>	whistling kite		C		5
animals	birds	Accipitridae	<i>Hamirostra melanosternon</i>	black-breasted buzzard		C		2
animals	birds	Accipitridae	<i>Accipiter cirrhocephalus</i>	collared sparrowhawk		C		2
animals	birds	Accipitridae	<i>Milvus migrans</i>	black kite		C		9
animals	birds	Aegothelidae	<i>Aegotheles cristatus</i>	Australian owl-nightjar		C		2
animals	birds	Anatidae	<i>Dendrocygna eytoni</i>	plumed whistling-duck		C		3
animals	birds	Anhingidae	<i>Anhinga melanogaster</i>	darther		C		2
animals	birds	Ardeidae	<i>Ardea alba</i>	great egret		C		1
animals	birds	Ardeidae	<i>Nycticorax caledonicus</i>	nankeen night heron		C		3
animals	birds	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron		C		6
animals	birds	Ardeidae	<i>Ardea pacifica</i>	white-necked heron		C		7
animals	birds	Ardeidae	<i>Ixobrychus flavicollis</i>	black bittern		C		5
animals	birds	Artamidae	<i>Cracticus nigrogularis</i>	piebald butcherbird		C		7
animals	birds	Artamidae	<i>Gymnorhina tibicen</i>	Australian magpie		C		3
animals	birds	Artamidae	<i>Artamus personatus</i>	masked woodswallow		C		2
animals	birds	Artamidae	<i>Artamus cinereus</i>	black-faced woodswallow		C		4
animals	birds	Artamidae	<i>Artamus minor</i>	little woodswallow		C		7
animals	birds	Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew		C		3
animals	birds	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo		C		10
animals	birds	Cacatuidae	<i>Cacatua roseicapilla</i>	galah		C		10
animals	birds	Cacatuidae	<i>Cacatua sanguinea</i>	little corella		C		1
animals	birds	Cacatuidae	<i>Nymphicus hollandicus</i>	cockatiel		C		12
animals	birds	Campephagidae	<i>Lalage sueurii</i>	white-winged triller		C		4
animals	birds	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike		C		8
animals	birds	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike		C		1
animals	birds	Caprimulgidae	<i>Eurostopodus argus</i>	spotted nightjar		C		5
animals	birds	Casuariidae	<i>Dromaius novaehollandiae</i>	emu		C		1
animals	birds	Charadriidae	<i>Euseyonis melanops</i>	black-fronted dotterel		C		6
animals	birds	Charadriidae	<i>Vanellus miles miles</i>	masked lapwing (northern subspecies)		C		5
animals	birds	Ciconiidae	<i>Ephippiorhynchus asiaticus</i>	black-necked stork		R		3
animals	birds	Climacteridae	<i>Climacteris melanura</i>	black-tailed treecreeper		C		6
animals	birds	Columbidae	<i>Geopelia cuneata</i>	diamond dove		C		9
animals	birds	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon		C		5
animals	birds	Columbidae	<i>Geopelia striata</i>	peaceful dove		C		15
animals	birds	Columbidae	<i>Phaps chalcoptera</i>	common bronzewing		C		7

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Columbidae	<i>Geophaps plumifera</i>	spinifex pigeon		C		7
animals	birds	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove		C		5
animals	birds	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird		C		4
animals	birds	Corcoracidae	<i>Struthidea cinerea</i>	apostlebird		C		12
animals	birds	Corvidae	<i>Corvus orru</i>	Torresian crow		C		2
animals	birds	Corvidae	<i>Corvus coronoides</i>	Australian raven		C		9
animals	birds	Cuculidae	<i>Eudynamys scolopacea</i>	common koel		C		2
animals	birds	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo		C		1
animals	birds	Cuculidae	<i>Cacomantis variolosus</i>	brush cuckoo		C		2
animals	birds	Cuculidae	<i>Chrysococcyx osculans</i>	black-eared cuckoo		C		1
animals	birds	Dicaeidae	<i>Dicaeum hirundinaceum</i>	mistletoebird		C		6
animals	birds	Dicruridae	<i>Myiagra inquieta</i>	restless flycatcher		C		3
animals	birds	Dicruridae	<i>Rhipidura fuliginosa</i>	grey fantail		C		1
animals	birds	Dicruridae	<i>Rhipidura leucophrys</i>	willie wagtail		C		11
animals	birds	Dicruridae	<i>Grallina cyanoleuca</i>	magpie-lark		C		12
animals	birds	Falconidae	<i>Falco berigora</i>	brown falcon		C		5
animals	birds	Falconidae	<i>Falco longipennis</i>	Australian hobby		C		4
animals	birds	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel		C		3
animals	birds	Gruidae	<i>Grus rubicunda</i>	brolga		C		4
animals	birds	Halcyonidae	<i>Dacelo leachii</i>	blue-winged kookaburra		C		13
animals	birds	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher		C		5
animals	birds	Halcyonidae	<i>Todiramphus pyrrhopygia</i>	red-backed kingfisher		C		3
animals	birds	Hirundinidae	<i>Hirundo ariel</i>	fairy martin		C		4
animals	birds	Maluridae	<i>Malurus lamberti</i>	variegated fairy-wren		C		5
animals	birds	Maluridae	<i>Amytornis ballarae</i>	Kalkadoon grasswren		C		1
animals	birds	Meliphagidae	<i>Certhionyx niger</i>	black honeyeater		C		1
animals	birds	Meliphagidae	<i>Phylidonyris nigra</i>	white-cheeked honeyeater		C		1
animals	birds	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater		C		9
animals	birds	Meliphagidae	<i>Philemon argenticeps</i>	silver-crowned friarbird		C		1
animals	birds	Meliphagidae	<i>Lichenostomus plumulus</i>	grey-fronted honeyeater		C		5
animals	birds	Meliphagidae	<i>Conopophila rufogularis</i>	rufous-throated honeyeater		C		10
animals	birds	Meliphagidae	<i>Lichenostomus penicillatus</i>	white-plumed honeyeater		C		17
animals	birds	Meliphagidae	<i>Melithreptus brevirostris</i>	brown-headed honeyeater		C		1
animals	birds	Meliphagidae	<i>Lichenostomus keartlandi</i>	grey-headed honeyeater		C		4
animals	birds	Meliphagidae	<i>Lichenostomus flavescens</i>	yellow-tinted honeyeater		C		2
animals	birds	Meliphagidae	<i>Lichenostomus virescens</i>	singing honeyeater		C		2
animals	birds	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird		C		9
animals	birds	Meliphagidae	<i>Certhionyx pectoralis</i>	banded honeyeater		C		1
animals	birds	Meliphagidae	<i>Melithreptus gularis</i>	black-chinned honeyeater		R		1
animals	birds	Meliphagidae	<i>Epthianura tricolor</i>	crimson chat		C		2
animals	birds	Meliphagidae	<i>Manorina flavigula</i>	yellow-throated miner		C		8
animals	birds	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater		C		9
animals	birds	Neosittidae	<i>Daphoenositta chrysoptera</i>	varied sittella		C		1
animals	birds	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole		C		7
animals	birds	Otididae	<i>Ardeotis australis</i>	Australian bustard		C		3
animals	birds	Pachycephalidae	<i>Oreoica gutturalis</i>	crested bellbird		C		3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush		C		12
animals	birds	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler		C		10
animals	birds	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote		C		8
animals	birds	Pardalotidae	<i>Smicrornis brevirostris</i>	weebill		C		10
animals	birds	Pardalotidae	<i>Acanthiza chrysorrhoa</i>	yellow-rumped thornbill		C		1
animals	birds	Pardalotidae	<i>Pardalotus rubricatus</i>	red-browed pardalote		C		2
animals	birds	Passeridae	<i>Emblema pictum</i>	painted finch		C		2
animals	birds	Passeridae	<i>Taeniopygia bichenovii</i>	double-barred finch		C		7
animals	birds	Passeridae	<i>Heteromunia pectoralis</i>	pictorella mannikin			R	1
animals	birds	Passeridae	<i>Passer domesticus</i>	house sparrow	Y			1
animals	birds	Passeridae	<i>Taeniopygia guttata</i>	zebra finch		C		11
animals	birds	Passeridae	<i>Poephila acuticauda</i>	long-tailed finch		C		6
animals	birds	Petroicidae	<i>Microeca fascinans</i>	jacky winter		C		2
animals	birds	Petroicidae	<i>Melanodryas cucullata</i>	hooded robin		C		1
animals	birds	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail		C		2
animals	birds	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth		C		3
animals	birds	Pomatostomidae	<i>Pomatostomus temporalis</i>	grey-crowned babbler		C		13
animals	birds	Psittacidae	<i>Barnardius zonarius</i>	Australian ringneck		C		4
animals	birds	Psittacidae	<i>Psitteuteles versicolor</i>	varied lorikeet		C		9
animals	birds	Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot		C		8
animals	birds	Psittacidae	<i>Melopsittacus undulatus</i>	budgerigar		C		13
animals	birds	Psittacidae	<i>Barnardius zonarius macgillivrayi</i>	Cloncurry parrot		C		5
animals	birds	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet		C		1
animals	birds	Ptilonorhynchidae	<i>Chlamydera maculata</i>	spotted bowerbird		C		1
animals	birds	Ptilonorhynchidae	<i>Chlamydera nuchalis</i>	great bowerbird		C		4
animals	birds	Strigidae	<i>Ninox novaeseelandiae</i>	southern boobook		C		4
animals	birds	Sylviidae	<i>Cincloramphus mathewsi</i>	rufous songlark		C		4
animals	birds	Threskiornithidae	<i>Platalea regia</i>	royal spoonbill		C		1
animals	birds	Turnicidae	<i>Turnix velox</i>	little button-quail		C		1
animals	birds	Tytonidae	<i>Tyto alba</i>	barn owl		C		1
animals	bony fish	Ambassidae	<i>Ambassis species</i>	northwest glassfish				1
animals	bony fish	Clupeidae	<i>Nematalosa erebi</i>	bony bream				2
animals	bony fish	Terapontidae	<i>Leiopotherapon unicolor</i>	spangled perch				2
animals	insects	Nymphalidae	<i>Euploea core corinna</i>	common crow				2
animals	insects	Nymphalidae	<i>Hypolimnias bolina nerina</i>	varied eggfly				5
animals	insects	Nymphalidae	<i>Danaus chrysippus petilia</i>	lesser wanderer				2
animals	insects	Nymphalidae	<i>Junonia villida calybe</i>	meadow argus				1
animals	insects	Papilionidae	<i>Papilio demoleus sthenelus</i>	chequered swallowtail				2
animals	insects	Pieridae	<i>Eurema smilax</i>	small grass-yellow				1
animals	insects	Pieridae	<i>Belenois java teutonia</i>	caper white				1
animals	insects	Pieridae	<i>Catopsilia pomona pomona</i>	lemon migrant				1
animals	insects	Pieridae	<i>Catopsilia pyranthe crokera</i>	white migrant				1
animals	mammals	Emballonuridae	<i>Taphozous sp.</i>					1
animals	mammals	Macropodidae	<i>Macropus rufus</i>	red kangaroo		C		4
animals	mammals	Macropodidae	<i>Macropus robustus</i>	common wallaroo		C		3
animals	mammals	Macropodidae	<i>Macropus agilis</i>	agile wallaby		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Macropodidae	<i>Onychogalea unguifera</i>	northern nailtail wallaby		C		2
animals	mammals	Macropodidae	<i>Petrogale purpureicollis</i>	purple-necked rock-wallaby		V		4
animals	mammals	Molossidae	<i>Chaerephon jobensis</i>	northern freetail bat		C		1
animals	mammals	Molossidae	<i>Mormopterus beccarii</i>	Beccari's freetail bat		C		1
animals	mammals	Muridae	<i>Pseudomys desertor</i>	desert mouse		C		1
animals	mammals	Muridae	<i>Hydromys chrysogaster</i>	water rat		C		1
animals	mammals	Pteropodidae	<i>Pteropus scapulatus</i>	little red flying-fox		C		1
animals	mammals	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna		C		1
animals	mammals	Vespertilionidae	<i>Scotorepens greyii</i>	little broad-nosed bat		C		14/2
animals	mammals	Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat		C		3
animals	mammals	Vespertilionidae	<i>Scotorepens balstoni</i>	inland broad-nosed bat		C		3/3
animals	mammals	Vespertilionidae	<i>Vespadelus finlaysoni</i>	Finlayson's cave bat		C		1
animals	mammals	Vespertilionidae	<i>Chalinolobus nigrogriseus</i>	hoary wattled bat		C		1
animals	reptiles	Agamidae	<i>Pogona vitticeps</i>			C		2
animals	reptiles	Agamidae	<i>Chlamydosaurus kingii</i>	frilled lizard		C		1
animals	reptiles	Agamidae	<i>Amphibolurus temporalis</i>			C		2
animals	reptiles	Agamidae	<i>Ctenophorus caudicinctus</i>	ring-tailed dragon		C		1
animals	reptiles	Agamidae	<i>Diporiphora bilineata</i>	two-lined dragon		C		1
animals	reptiles	Agamidae	<i>Amphibolurus gilberti</i>	Gilbert's dragon		C		7
animals	reptiles	Agamidae	<i>Diporiphora magna</i>			C		3
animals	reptiles	Boidae	<i>Aspidites melanocephalus</i>	black-headed python		C		1
animals	reptiles	Elapidae	<i>Pseudonaja textilis</i>	eastern brown snake		C		1
animals	reptiles	Elapidae	<i>Vermicella annulata</i>	bandy-bandy		C		1
animals	reptiles	Gekkonidae	<i>Gehyra nana</i>			C		1
animals	reptiles	Gekkonidae	<i>Gehyra australis</i>	northern dtella		C		1
animals	reptiles	Gekkonidae	<i>Heteronotia binoei</i>	Bynoe's gecko		C		3
animals	reptiles	Gekkonidae	<i>Lucasium stenodactylum</i>	crowned gecko		C		4
animals	reptiles	Gekkonidae	<i>Diplodactylus conspicillatus</i>	fat-tailed diplodactylus		C		3
animals	reptiles	Gekkonidae	<i>Lucasium immaculatum</i>			C		2
animals	reptiles	Gekkonidae	<i>Gehyra variegata</i>	tree dtella		C		2
animals	reptiles	Gekkonidae	<i>Gehyra robusta</i>			C		2
animals	reptiles	Gekkonidae	<i>Gehyra dubia</i>			C		2
animals	reptiles	Scincidae	<i>Carlia amax</i>			C		2
animals	reptiles	Scincidae	<i>Menetia maini</i>			C		1
animals	reptiles	Scincidae	<i>Egernia hosmeri</i>	Hosmer's skink		C		1
animals	reptiles	Scincidae	<i>Ctenotus hebetior</i>			C		1
animals	reptiles	Scincidae	<i>Ctenotus lateralis</i>			C		8
animals	reptiles	Scincidae	<i>Ctenotus decaneurus</i>			C		1
animals	reptiles	Scincidae	<i>Ctenotus pantherinus</i>			C		6
animals	reptiles	Scincidae	<i>Ctenotus striaticeps</i>			C		2
animals	reptiles	Scincidae	<i>Tiliqua multifasciata</i>	Centralian blue-tongued lizard		C		1
animals	reptiles	Scincidae	<i>Cryptoblepharus carnabyi</i>			C		1
animals	reptiles	Scincidae	<i>Cryptoblepharus megastictus</i>			C		1
animals	reptiles	Scincidae	<i>Cryptoblepharus plagiocephalus</i>			C		1
animals	reptiles	Typhlopidae	<i>Ramphotyphlops diversus</i>			C		2
animals	reptiles	Varanidae	<i>Varanus mertensi</i>	Mertens' water monitor		C		5

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Varanidae	<i>Varanus panoptes</i>	yellow-spotted monitor		C		2
animals	reptiles	Varanidae	<i>Varanus acanthurus</i>	ridge-tailed monitor		C		2
plants	higher dicots	Amaranthaceae	<i>Alternanthera denticulata</i>	lesser joyweed		C		1/1
plants	higher dicots	Boraginaceae	<i>Trichodesma zeylanicum</i>			C		1/1
plants	higher dicots	Boraginaceae	<i>Heliotropium tenuifolium</i>			C		2/2
plants	higher dicots	Caesalpiniaceae	<i>Senna notabilis</i>			C		1/1
plants	higher dicots	Caryophyllaceae	<i>Polycarpaea breviflora</i>			C		1/1
plants	higher dicots	Caryophyllaceae	<i>Polycarpaea spirostylis subsp. glabra</i>			C		1/1
plants	higher dicots	Caryophyllaceae	<i>Polycarpaea spirostylis subsp. spirostylis</i>			C		1/1
plants	higher dicots	Chenopodiaceae	<i>Maireana georgei</i>			C		1/1
plants	higher dicots	Cleomaceae	<i>Cleome viscosa</i>	tick-weed		C		1/1
plants	higher dicots	Convolvulaceae	<i>Bonamia pannosa</i>			C		1/1
plants	higher dicots	Euphorbiaceae	<i>Chamaesyce hirta</i>	asthma plant	Y			1/1
plants	higher dicots	Fabaceae	<i>Tephrosia virens</i>			C		3/3
plants	higher dicots	Fabaceae	<i>Sesbania javanica</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Indigofera colutea</i>	sticky indigo		C		1/1
plants	higher dicots	Fabaceae	<i>Indigofera linifolia</i>			C		2/2
plants	higher dicots	Fabaceae	<i>Crotalaria novae-hollandiae subsp. novae-hollandiae</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Tephrosia sp. (Magazine Hill P.Jones 365)</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Crotalaria medicaginea var. neglecta</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Tephrosia lasiochlaena</i>			C		1/1
plants	higher dicots	Fabaceae	<i>Indigofera linnaei</i>	Birdsville indigo		C		1/1
plants	higher dicots	Goodeniaceae	<i>Scaevola</i>			C		2/2
plants	higher dicots	Lamiaceae	<i>Vitex benthamiana</i>			C		1/1
plants	higher dicots	Lamiaceae	<i>Ocimum tenuiflorum</i>			C		1/1
plants	higher dicots	Malvaceae	<i>Abutilon hannii</i>			C		1/1
plants	higher dicots	Malvaceae	<i>Sida rohlenae subsp. rohlenae</i>			C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia cambagei</i>	gidgee		C		1/1
plants	higher dicots	Mimosaceae	<i>Acacia farnesiana</i>	mimosa bush	Y			2/2
plants	higher dicots	Mimosaceae	<i>Acacia retivenea subsp. retivenea</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Melaleuca fluviatilis</i>			C		1/1
plants	higher dicots	Myrtaceae	<i>Eucalyptus leucophylla</i>			C		1/1
plants	higher dicots	Proteaceae	<i>Grevillea dryandri subsp. dryandri</i>			C		1/1
plants	higher dicots	Solanaceae	<i>Datura inoxia</i>		Y			1/1
plants	higher dicots	Solanaceae	<i>Solanum quadriloculatum</i>			C		2/2
plants	higher dicots	Solanaceae	<i>Solanum echinatum</i>			C		1/1
plants	higher dicots	Violaceae	<i>Hybanthus enneaspermus</i>			C		1/1
plants	monocots	Cyperaceae	<i>Bulbostylis barbata</i>			C		2/2
plants	monocots	Cyperaceae	<i>Fimbristylis sp. (Thargomindah D.E.Boyland 3094)</i>			C		1/1
plants	monocots	Cyperaceae	<i>Cyperus cunninghamii subsp. cheradicus</i>			C		1/1
plants	monocots	Poaceae	<i>Sehima nervosum</i>			C		1/1
plants	monocots	Poaceae	<i>Urochloa piligera</i>			C		1/1
plants	monocots	Poaceae	<i>Enneapogon polyphyllus</i>	leafy nineawn		C		1/1
plants	monocots	Poaceae	<i>Eriachne pulchella subsp. dominii</i>			C		1/1
plants	monocots	Poaceae	<i>Eriachne mucronata forma (Alpha C.E.Hubbard 7882)</i>			C		1/1
plants	monocots	Poaceae	<i>Eriachne sp. (Dugald River B.K.Simon+ 3007)</i>			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	<i>Aristida holathera</i> var. <i>holathera</i>			C		2/2
plants	monocots	Poaceae	<i>Echinochloa colona</i>	awnless barnyard grass	Y			1/1
plants	monocots	Poaceae	<i>Mnesithea formosa</i>			C		1/1
plants	monocots	Poaceae	<i>Themeda triandra</i>	kangaroo grass		C		1/1
plants	monocots	Poaceae	<i>Aristida contorta</i>	bunched kerosene grass		C		1/1
plants	monocots	Poaceae	<i>Chloris pectinata</i>	comb chloris		C		1/1
plants		Byttneriaceae	<i>Waltheria indica</i>			C		1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*. The codes are Presumed Extinct (PE), Endangered (E), Vulnerable (V), Rare (R), Common (C) or Not Protected ().

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*. The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).

This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.

Appendix B: EPBC Protected Matters Search Results



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Protected Matters Search Tool

You are here: [Environment Home](#) > [EPBC Act](#) > [Search](#)

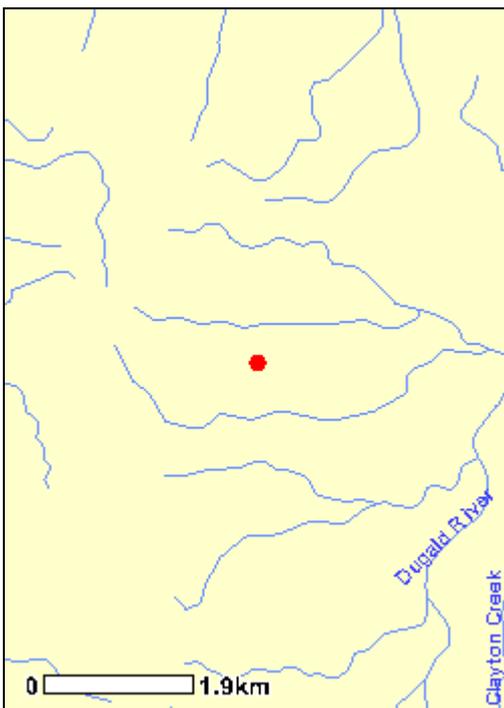
21 January 2008 17:56

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Information on the coverage of this report and qualifications on data supporting this report are contained in the [caveat](#) at the end of the report.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at <http://www.environment.gov.au/atlas> may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at <http://www.environment.gov.au/epbc/assessmentsapprovals/index.html>



This map may contain data which are
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 (Geoscience Australia)
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Search Type: Point
Buffer: 3 km
Coordinates: -20.2493,140.1508



Report Contents: [Summary](#)
[Details](#)

- [Matters of NES](#)
- [Other matters protected by the EPBC Act](#)

• [Extra Information](#)
[Caveat](#)
[Acknowledgments](#)

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see <http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html>.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance: (Ramsar Sites)	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	None
Threatened Species:	3
Migratory Species:	11

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area

you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage/index.html>.

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at <http://www.environment.gov.au/epbc/permits/index.html>.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Places on the RNE:	None
<u>Listed Marine Species:</u>	10
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Other Commonwealth Reserves:	None
Regional Forest Agreements:	None

Details

Matters of National Environmental Significance

Threatened Species [[Dataset Information](#)] Status Type of Presence

Birds

<i>Rostratula australis</i> * Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
---------------------------------------------------------------------------	------------	--------------------------------------------------

Mammals

<i>Sminthopsis douglasi</i> * Julia Creek Dunnart	Endangered	Species or species habitat may occur within area
----------------------------------------------------------------------	------------	--------------------------------------------------

Sharks

<i>Pristis microdon</i> * Freshwater Sawfish	Vulnerable	Species or species habitat likely to occur within area
-----------------------------------------------------------------	------------	--------------------------------------------------------

Migratory Species [Dataset Information]	Status	Type of Presence
-----------------------------------------------------------	--------	------------------

Migratory Terrestrial Species**Birds**

<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
--------------------------------------------------------------------------	-----------	--------------------------------------------------------

<i>Merops ornatus</i> * Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
--------------------------------------------------------------	-----------	--------------------------------------------------

Migratory Wetland Species**Birds**

<i>Ardea alba</i> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
---------------------------------------------------------------	-----------	--------------------------------------------------

<i>Ardea ibis</i> Cattle Egret	Migratory	Species or species habitat may occur within area
---------------------------------------------------	-----------	--------------------------------------------------

<i>Charadrius veredus</i> Oriental Plover, Oriental Dotterel	Migratory	Species or species habitat may occur within area
---------------------------------------------------------------------------------	-----------	--------------------------------------------------

<i>Glareola maldivarum</i> Oriental Pratincole	Migratory	Species or species habitat may occur within area
-------------------------------------------------------------------	-----------	--------------------------------------------------

<i>Numenius minutus</i> Little Curlew, Little Whimbrel	Migratory	Species or species habitat may occur within area
---------------------------------------------------------------------------	-----------	--------------------------------------------------

<i>Rostratula benghalensis s. lat.</i> Painted Snipe	Migratory	Species or species habitat may occur within area
-------------------------------------------------------------------------	-----------	--------------------------------------------------

Migratory Marine Birds

<i>Apus pacificus</i> Fork-tailed Swift	Migratory	Species or species habitat may occur within area
------------------------------------------------------------	-----------	--------------------------------------------------

<i>Ardea alba</i> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
---------------------------------------------------------------	-----------	--------------------------------------------------

<i>Ardea ibis</i> Cattle Egret	Migratory	Species or species habitat may occur within area
---------------------------------------------------	-----------	--------------------------------------------------

Other Matters Protected by the EPBC Act

Listed Marine Species [Dataset Information]	Status	Type of Presence
---------------------------------------------------------------	--------	------------------

Birds

<i>Apus pacificus</i> Fork-tailed Swift	Listed - overfly	Species or species habitat may occur within area
------------------------------------------------------------	------------------	--------------------------------------------------

	marine area	
<i>Ardea alba</i> Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
<i>Ardea ibis</i> Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
<i>Charadrius veredus</i> Oriental Plover, Oriental Dotterel	Listed - overfly marine area	Species or species habitat may occur within area
<i>Glareola maldivarum</i> Oriental Pratincole	Listed - overfly marine area	Species or species habitat may occur within area
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
<i>Merops ornatus</i> * Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
<i>Numenius minutus</i> Little Curlew, Little Whimbrel	Listed - overfly marine area	Species or species habitat may occur within area
<i>Rostratula benghalensis s. lat.</i> Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Reptiles		
<i>Crocodylus johnstoni</i> Freshwater Crocodile	Listed	Species or species habitat may occur within area

Caveat

The information presented in this report has been provided by a range of data sources as [acknowledged](#) at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the *Environment Protection and Biodiversity Conservation Act 1999*. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under "type of presence". For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the [migratory](#) and [marine](#) provisions of the Act have been mapped.

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as [extinct or considered as vagrants](#)
- some species and ecological communities that have only recently been listed
- [some terrestrial species](#) that overfly the Commonwealth marine area
- migratory species that are very [widespread, vagrant, or only occur in small numbers](#).

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgments

This database has been compiled from a range of data sources. The Department acknowledges the following custodians who have contributed valuable data and advice:

- [New South Wales National Parks and Wildlife Service](#)
- [Department of Sustainability and Environment, Victoria](#)
- [Department of Primary Industries, Water and Environment, Tasmania](#)
- [Department of Environment and Heritage, South Australia Planning SA](#)
- [Parks and Wildlife Commission of the Northern Territory](#)
- [Environmental Protection Agency, Queensland](#)
- [Birds Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Queensland Herbarium](#)

- [National Herbarium of NSW](#)
- [Royal Botanic Gardens and National Herbarium of Victoria](#)
- [Tasmanian Herbarium](#)
- [State Herbarium of South Australia](#)
- [Northern Territory Herbarium](#)
- [Western Australian Herbarium](#)
- [Australian National Herbarium, Atherton and Canberra](#)
- [University of New England](#)
- Other groups and individuals

[ANUcliM Version 1.8, Centre for Resource and Environmental Studies, Australian National University](#) was used extensively for the production of draft maps of species distribution.

Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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