

**KARRATHA MAGNESIUM RECOVERY PLANT  
DESKTOP VEGETATION, FLORA AND  
FAUNA REVIEW AND  
CLEARING IMPACT ASSESSMENT TO SUPPORT  
NVCP APPLICATION**

PREPARED FOR:

**ECOMAG LIMITED**



DECEMBER 2018

PREPARED BY:

Martinick Bosch Sell Pty Ltd  
4 Cook Street  
West Perth WA 6005  
Ph: (08) 9226 3166  
Fax: (08) 9226 3177  
Email: [info@mbsenvironmental.com.au](mailto:info@mbsenvironmental.com.au)  
Web: [www.mbsenvironmental.com.au](http://www.mbsenvironmental.com.au)

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## KARRATHA MAGNESIUM RECOVERY PLANT DESKTOP FLORA AND FAUNA REVIEW AND CLEARING IMPACT ASSESSMENT TO SUPPORT CLEARING APPLICATION

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# 1. BACKGROUND

EcoMag Limited (EcoMag) proposes to construct and operate a small scale Magnesium Recovery Plant (KMRP) producing a precipitated high purity hydrated magnesium carbonate (HMC) product using bitterns generated by Dampier Salt Limited (DSL). The project is located north of the Karratha townsite and east of the Karratha airport, partially on tidally inundated mudflats. Access to the plant site will be via existing roads located to the south and southeast of the Karratha Airport. No widening of existing roads is required. The location of the proposed KMRP is shown on Figure 1.

Project tenure comprises two types:

- Mining lease M 47/1572 has been granted for the KMRP (process plant) and pond site. The Mining Lease is held by Access Mining Dampier Pty Ltd ACN 622 728 741 which is a wholly owned subsidiary of EcoMag Limited.
- Bitterns intake and discharge pipelines will be located on Lot 267 which is crown land, currently leased by Rainstorm for the production of dust suppressants from waste bitterns discharged from the Dampier Salt project. An access agreement for EcoMag to access and utilise this tenure exists and is provided in Appendix 1.

Proposed clearing for the project is located on both mining and non-mining tenure described above. Tenure and proposed clearing are shown on Figure 2.

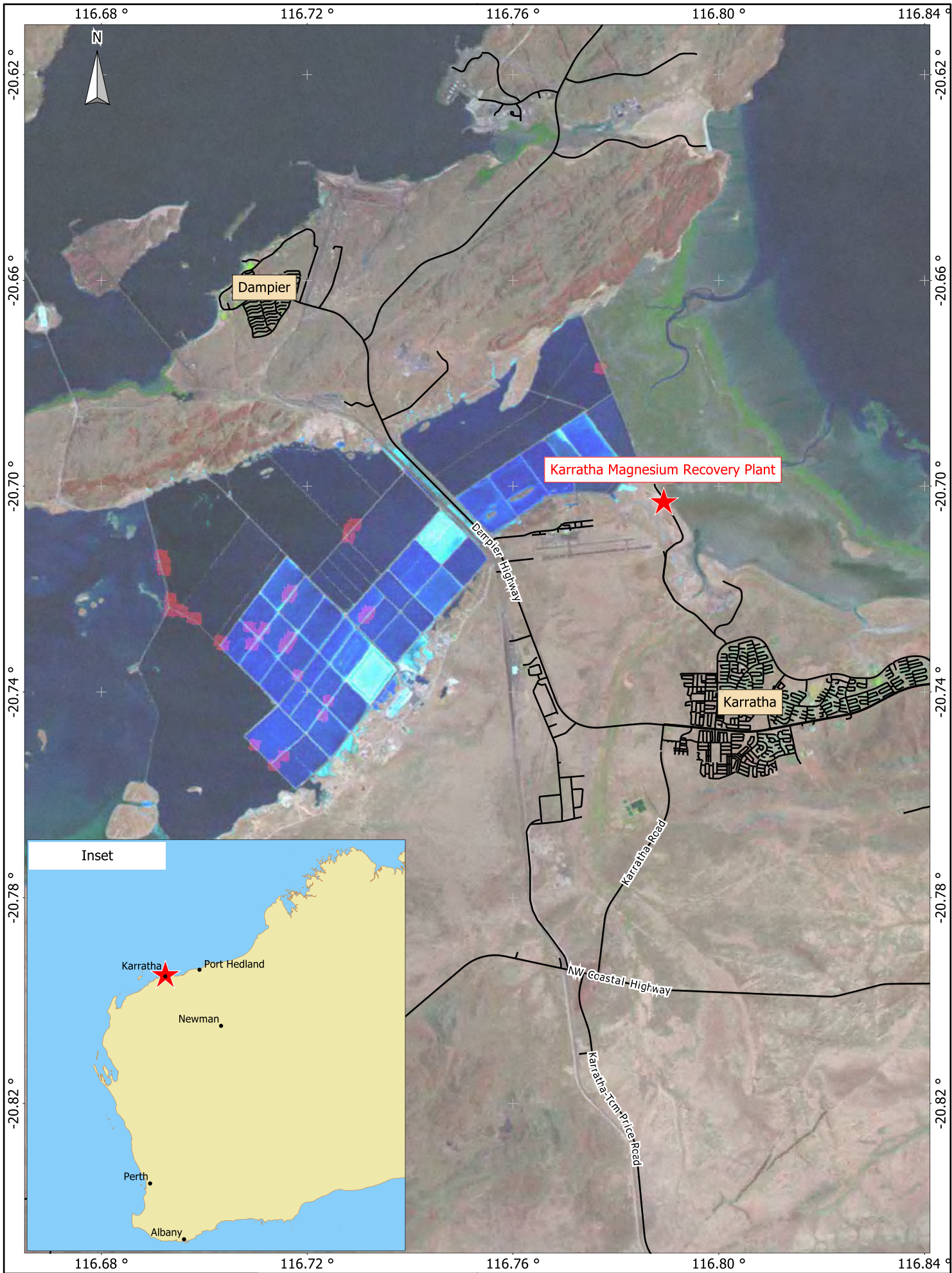
The plant site, ponds and pipelines are to be located on largely cleared areas and as such there is very little ecological value in these areas. Project tenure is further detailed in Section 5.

The purpose of this report is to detail the ecological values of the project area and surrounds and assess the impacts of proposed clearing to support environmental approvals for the project. Specifically this includes:

- Carry out a desktop flora and fauna study of a 5km area around the project based on publicly available online databases and Department of Biodiversity, Conservation and Attractions (DBCA) Threatened Species and Ecological Communities searches of the plant site as shown on Figure 2.
- Document the findings and describe the existing environment, identifying conservation significant ecological communities, and flora and fauna species with potential to occur.
- Detail the proposed clearing for the project by purpose and area in hectares.
- Assess impacts from proposed clearing against the Ten Principles of Clearing as detailed in Schedule 5 of the *Environmental Protection Act 1986 (EP Act)* to support a Native Vegetation Clearing Permit application for the project.

The scope of the assessment is limited to a desktop study to gather contextual information as per “*Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*” (DWER 2016). Based on findings of the desktop study, ground truthing of the plant and pond site, and the minimal clearing proposed, it is considered that the desktop study is sufficient to determine impacts associated with proposed clearing and no further survey is required.





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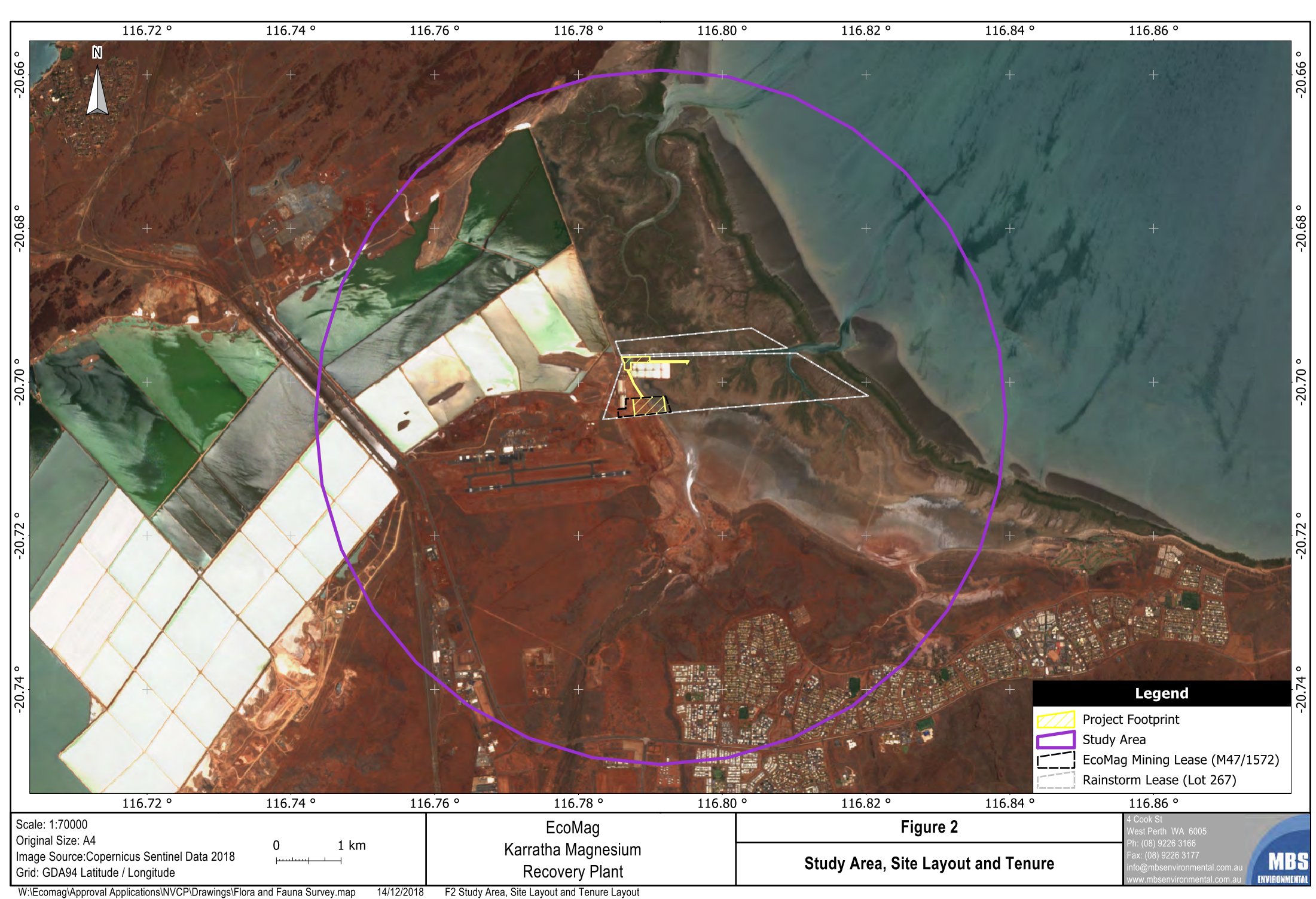
EcoMag  
Karratha Magnesium  
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**Figure 1**  
**Location Plan**

Martinick Bosch Sell Pty Ltd  
4 Cook St  
West Perth WA 6005  
Ph: (08) 9226 3166  
Fax: (08) 9226 3177  
info@mbsenvironmental.com.au  
www.mbsenvironmental.com.au







## 2. ENVIRONMENTAL SETTING

### 2.1 REGIONAL ENVIRONMENT

The project lies within the Pilbara region and the Roebourne (PIL4) sub-region defined by the Biogeographic Regionalisation for Australia version 7 (IBRA; DoEE 2012). This sub-region is characterised by colluvial and alluvial coastal and sub-coastal plains (Kendrick and Stanley 2001). Dominant vegetation is grass savannah of mixed bunch and hummock grasses, and dwarf Acacia steppe. Ephemeral drainages support *Eucalyptus victrix* or *Corymbia hamersleyana* woodlands, and marine alluvial flats and river deltas are characterised by samphire. The dominant landuse within the subregion is native pasture grazing. Landuse within the local project area is industrial.

### 2.2 CLIMATE

The project is located within the North-West (Pilbara) Climate Zone of Western Australia. The climate is arid to subtropical with an average rainfall of approximately 300 mm per annum. The majority of rainfall typically occurs during the wet season between December and March, and the Pilbara experiences long hot summers and mild winters. During the summer months the Pilbara coast experiences a high frequency of cyclones with at least one severe cyclone every two years. The closest Bureau of Meteorology (BoM) weather station is Karratha Aero (2 km to the west, BoM station number 4083). Climate data for this weather station from 1972 to 2018 is shown in Figure 3.

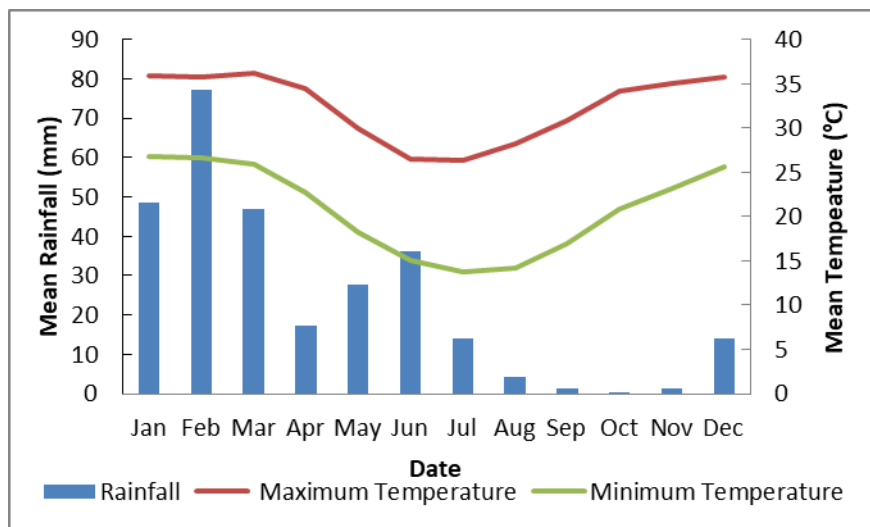


Figure 3: Climate data for Karratha Aero weather station (4083) from 1972 to 2018.

### 2.3 GEOLOGY AND SOILS

#### 2.3.1 Regional Soils

The project is located in the Fortescue Province and the Karratha Coast Zone, described by Tille (2006) as coastal mudflats (with sandy coastal plains and some hills) on marine deposits (and some sedimentary and volcanic rocks of the Pilbara Craton). Tidal soils are present with some calcareous loamy earths, salt lake soils and red/brown non-cracking clays. Bare mudflats are common with spinifex, tussock grasses, samphire and mangroves present in some areas.

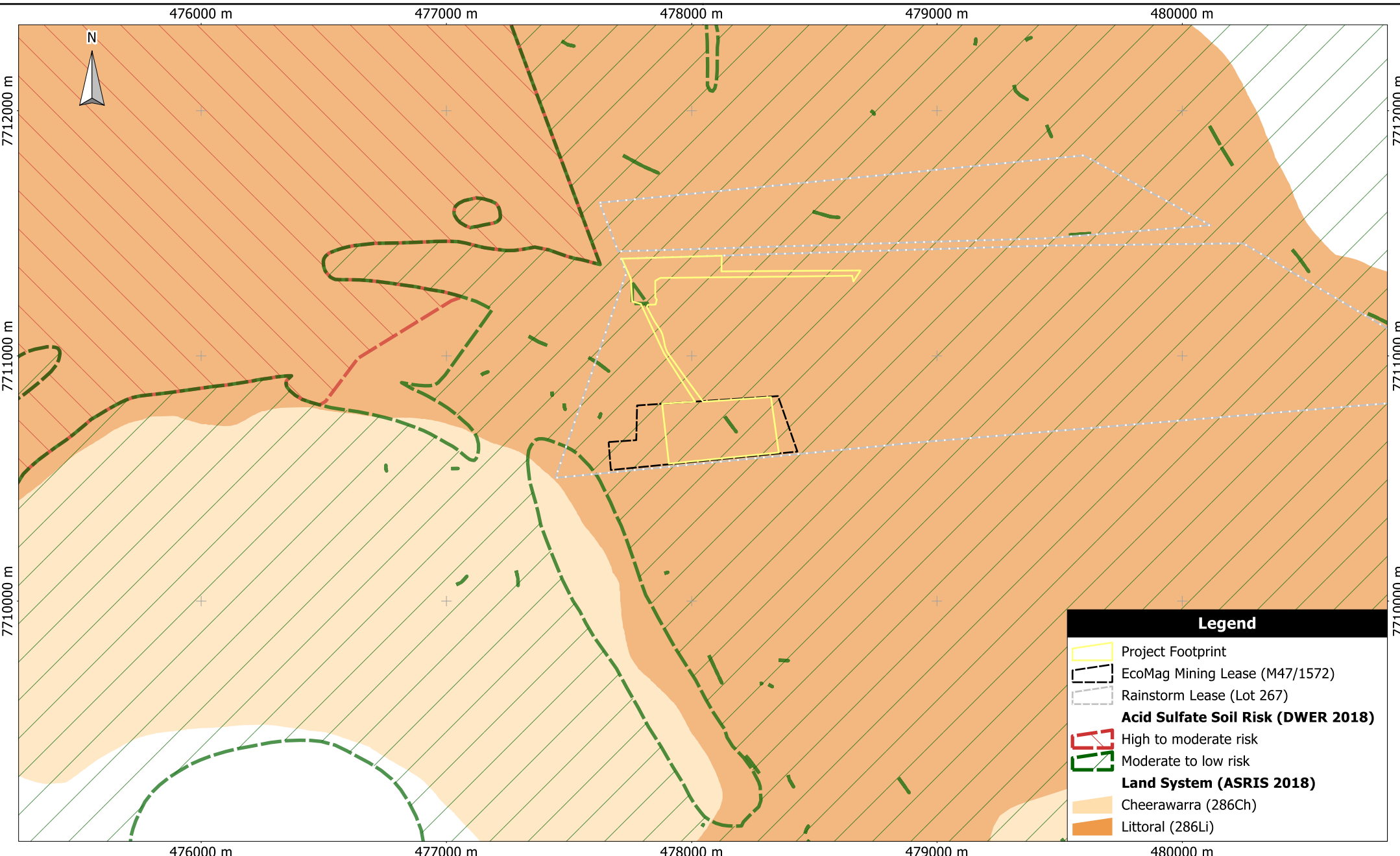


### 2.3.2 Project Soils

Two soil and landform units mapped by the Department of Primary Industries and Regional Development (DPIRD) occur within the project area. The project area is located in the Littoral System (286Li), which is characterised by bare coastal mudflats (unvegetated), samphire flats, sandy islands, coastal dunes and beaches, supporting samphire low shrublands, sparse acacia shrublands and mangrove forests.

Department of Water and Environmental Regulation (DWER) acid sulfate soils risk mapping indicates that the majority of soils within the Project Area have a moderate to low risk of acid sulfate soils occurrence within 3 m of the natural surface.

Soils of the project area and acid sulphate soil risk are shown on Figure 4.



Scale: 1:20000  
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 Grid: MGA94(50)

0 1 km

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**Figure 4**  
**Soil and ASS Risk Mapping**

4 Cook St  
 West Perth WA 6005  
 Ph: (08) 9226 3166  
 Fax: (08) 9226 3177  
 info@mbsenvironmental.com.au  
 www.mbsenvironmental.com.au

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## 2.4 BENTHIC HABITAT

In 2009, a study was undertaken to determine whether the benthic communities in the inner Dampier Port consisted of unique, endemic coral species or were comparable to those found in regional benthic communities (Worley Parsons 2009). Reefs identified at Dampier Port appeared to be healthy with many large and long-lived coral colonies. The study concluded that these colonies and those of the Cape Preston region are a single community dominated by bleach, sediment and wave-resistant coral groups. It is therefore likely that these colonies are regionally representative and that any potential benthic communities in Nickol Bay will have comparable species with similar characteristics to those described in this study (i.e. resistant to bleaching, able to withstand strong wave action and can cope with high levels of sedimentation).

## 2.5 TOPOGRAPHY AND HYDROLOGY

Surface topography in the project area has been highly modified by historical land use. Topography is generally flat, but occupies two distinct elevations. In the western portion of the project area near the existing development, the land is elevated. The eastern portion of the project area lies within the coastal mudflats, in the intertidal zone. A channel which is used to discharge bitterns from the Dampier Salt operation to the ocean is located north east of the project area, and Nickol Bay is located directly to the east.

## 2.6 HYDROGEOLOGY

The project is located within the Pilbara fractured rock aquifer (DoW 2013). There is limited local information on groundwater water level and quality beneath the project area, however bores near the project have water level between 3.9 and 11.3 m below ground level (mBGL) but are generally around 4 – 5 mBGL (BoM 2018a). The proposed clearing has little potential to impact groundwater.

Groundwater flows to the east toward Nickol Bay; however, is tidally influenced. The coastal location and flat topography of the project area indicate that the water table is likely to be shallow and influenced by the tide. The water table is expected to be deeper on the western side of the project area where ground elevation is slightly higher (ERM 2018).

A search of the DWER Water Information Reporting database on 13 February 2018 indicated there is one registered private bore within 3 km of the Rainstorm Leasehold. The bore is located approximately 2.5 km southwest of the Mining lease, was drilled in 1931 for the purpose of agricultural irrigation and is likely decommissioned. There are no Public Drinking Water Source Areas within 3 km of the proposed Project area (DWER, 2018).

## 2.7 SURFACE HYDROLOGY

The project is located within the proclaimed Pilbara surface water catchment. Cyclones and flooding are common in the Karratha area in the summer months. The proposed clearing is partially located within tidally inundated mudflats, with the proposed plant site and access roads located on more elevated areas. The project area is located within mapped gilgai areas which are likely to occur within the study area. However given the previous disturbance, it is unlikely that temporary water holes occur within the project area.

The study area is situated within a coastal draining catchment, which is decoupled from 7 Mile Creek Catchments and the Karratha Town Catchments (JDA, 2012). There are no creeks or tributaries within the proposed Mining Lease area. The closest drainage features are the bitterns channel (formerly Yandicoogina Creek) and localised tidal creeks extending from the bitterns channel (ERM 2018; Figure 2).

### 3. METHODS

The following database searches were conducted on 12 September 2018, to identify vegetation, flora and fauna likely to occur within the project area:

- A search of the Department of Biodiversity, Conservation and Attractions (DBCA) and Western Australian Museum's NatureMap database using a centre point of 116° 47' 24" E, 20° 42' 15" S and a 5 km buffer.
- A search of the Commonwealth Department of Environment and Energy's (DoEE) Protected Matters Search Tool (PMST) using centre point 116° 47' 24" E, 20° 42' 16" S and a 5 km buffer.

To determine potential for conservation significant species to occur within the project area, the habitat requirements of species identified were reviewed in context with habitats known to occur at the project.

A review of Pre-European vegetation mapping completed by Beard (2013) and aerial photographs of the project area from 2000 to 2018 were reviewed to provide an indication of the current and historical extent of vegetation and fauna habitat within the project area.

A site inspection and ground truth inspection of the plant and pond area desktop study was carried out on 15 March 2018 by ERM (ERM 2018).



## 4. RESULTS

### 4.1 VEGETATION

Broad scale (1:1,000,000) mapping of pre-European vegetation by Beard (2013) shows the project area consists of one vegetation association: 127 Abydos Plains – Roebourne, which was described as ‘tidal mud flat’ (Figure 5). Aerial photography confirms the Project Area is generally devoid of vegetation. Scattered vegetation occurs along the outer margin of the intertidal zone. This vegetation is likely to be limited to small shrubs and grasses that are tolerant of saline habitats that are frequently inundated.

The study area is located within the Fortescue Botanical District of the Pilbara region which comprises predominately tree and shrub- steppe communities with Eucalyptus trees, Acacia shrubs, *Triodia pungens* and *Triodia wiseana* with some Mulga occurring in valleys (Beard, 1990). The study area lies within the proposed Dampier Archipelago National Park (FNA 332; DMIRS 2018), which has been proposed since the early 1990's, but as yet has not been ratified. The study area however has been partially degraded and contains cleared areas in parts. Other parts of the study area are located on tidal flats and support only a few specialist species such as mangroves and halophytes in fringing areas. The project area is shown in Plate 1 to Plate 5.



**Plate 1: Appearance of Cracking Clays at Plant Site**

Source: ERM 2018.



**Plate 2: Plant Site Largely Previously Cleared**

Source: ERM 2018.



**Plate 3: Tidal Mudflats**

Source: ERM 2018.



**Plate 4: Vegetation Adjacent to Millars Road Within Plant Site**

Source: ERM 2018.



**Plate 5: Vegetation Adjacent to Millars Road Within Plant Site (2)**

Source: ERM 2018.

## 4.2 FLORA AND FAUNA

A search of the DBCA NatureMap and Protected Matters (Commonwealth) databases was carried for a 5km radius of the project (Appendix 1). Results of the NatureMap Search identified 483 records from 187 taxa (Appendix 1). Results of the Protected Matters database search identified 30 listed Threatened species and 56 listed Migratory species within the 5 km radius search area.

Of the 187 taxa identified by the NatureMap survey, the majority (152 species) were non-conservation significant taxon. No conservation significant species have been recorded within the project area; however, 35 conservation significant taxa have been recorded in within 5 km of the Project, including:

- Four Threatened avifauna species listed under the *Wildlife Conservation Act 1950* (WC Act) and EPBC Act.
- One Threatened Marsupial; *Dasyurus hallucatus* (Northern quoll) was identified within 5km of the project.
- Twenty four migratory fauna species protected under international agreements.
- Four Priority 3 flora species listed by DBCA.
- One Priority 4 fauna species listed by DBCA.
- One Priority 4 fauna species listed by DBCA.

The majority of species identified in the Protected Matters database search were avian or marine mammals and reptiles. Terrestrial mammals identified by the Protected Matters database search included the Northern Quoll (*Dasyurus hallucatus*), Greater Bilby (*Macrotis lagotis*), Ghost Bat (*Macroderma gigas*) and Pilbara Leaf-nosed Bat (*Rhinonictis aurantia*), however only the Northern Quoll was identified in the NatureMap search results. Although these species were identified in the Protected Matters search, this database indicates the potential species which may occur in the area, whereas NatureMap provides records of species recorded. As the project area is degraded and surrounded by industrial development, it is unlikely that these species inhabit this area, however may inhabit the wider study area.

Opportunistic fauna observations were carried out during a site inspection on 15 March 2018 by ERM and are reported in the project Mining Proposal submitted to the Department of Mines, Industry Regulation and Safety (DMIRS) in May 2018 (Reg Id: 74322; ERM 2018). A summary of the observations is provided below:

- Vegetation adjacent to Millars road within the Rainstorm lease is dominated by varieties of grass and low lying scrub including samphires with patches of bare ground where vehicles have previously access the tidal flats (Plate 3).
- No conservation significant fauna species identified in the desktop literature review, or their preferred habitat, were observed.
- A single white egret (*Ardea sp.*; not threatened) was observed flying north-west over the existing aquaculture ponds towards Dampier Salt at high tide.
- A single raptor species (likely osprey or sea eagle) was also observed perched on a dead branch in the upper intertidal area to the north of the project area at high tide. The raptor was later observed flying to and from the direction of the sea.
- A single brown/olive-coloured finch or manikin species was observed in a shrub, as well as another small black and white bird that was observed on the ground. Both were seen in and around grasses and shrubs.
- Occasional bird footprints were noted on the upper intertidal mudflats and areas of clear ground in upper parts of the project area.

- The only intertidal invertebrates observed during the site inspection were small crabs along the banks of the tributaries extending from the bitterns channel, outside the proposed clearing area.

The majority of the conservation significant species identified as having the potential to occur within the project area are avifauna and are highly mobile. Mammals and reptiles identified as potentially occurring in the area are considered to have a low likelihood of occurrence due to the highly disturbed nature of the project and a lack of preferred habitat.

### 4.3 BENTHIC HABITAT

No benthic communities were identified on upper areas during the site inspection. A suspected algal mat covered the majority of the lower tidal flat area. In some areas the mat consisted of distinct black colouration on the surface and in other areas a distinct black layer 10-20 mm thick was observed beneath the superficial salt layer. This black substance had a fine sediment/clay texture, felt smooth to the touch, was not slimy and did not have a detectable odour and therefore may be a dried algal mat formed on a soft substrate (ERM 2018). There was evidence of vehicle traffic on the lower tidal flats within the study area (Plate 4 and Plate 5).

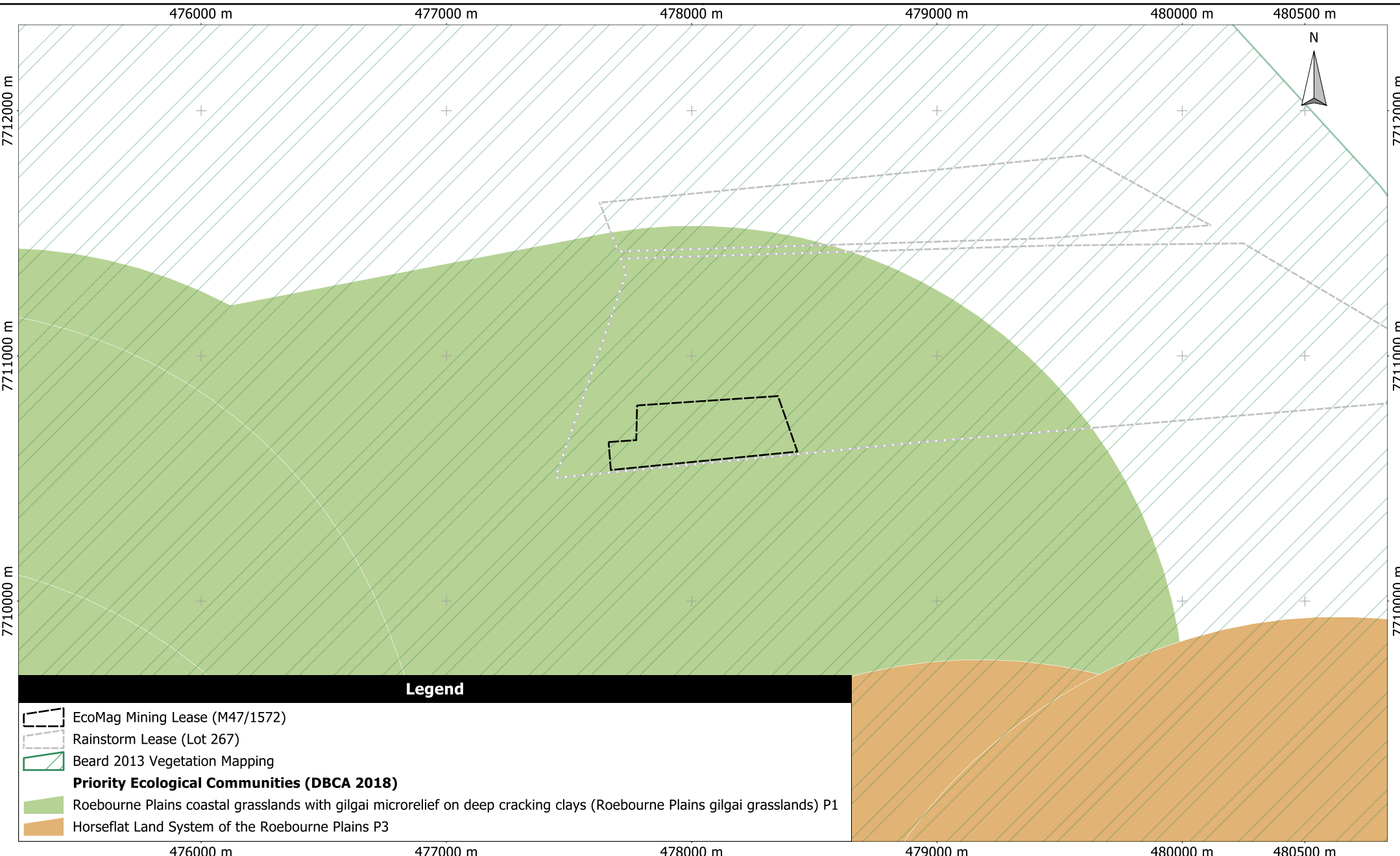
### 4.4 CONSERVATION SIGNIFICANCE

#### 4.4.1 Conservation Significant Vegetation

A database search was carried out by DBCA Communities Branch to identify State listed Threatened Ecological Communities (TEC) and Priority Ecological Communities (PEC) within a 5 km radius of the project and found no TEC protected by the *Environmental Protection Act 1986* (EP Act) or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were identified. One Priority Ecological Community (PEC), 'Roebourne Plains coastal grasslands with gilgai micro-relief on deep cracking clays' (Priority 1), is mapped as occurring over the project area (Figure 5). It occurs on micro-relief deep cracking clays, surrounded by clay plains and sandy coastal and alluvial plains. The gilgai depressions support ephemeral and perennial tussock grasslands dominated by *Sorghum* sp. and *Eragrostis xerophila* (Roebourne Plains grass), along with other native species including *Astrelba pectinata* (barley mitchell grass), *Eriachne benthamii* (swamp wanderrie grass), *Chrysopogon fallax* (golden beard grass) and *Panicum decompositum* (native millet) (DBCA 2017).

Given the limited extent of vegetation and high disturbance within the project footprint, the potential for conservation significant vegetation types is considered to be limited (ERM 2018; Plate 1 to Plate 5).





Scale: 1:20000  
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**Figure 5**  
**Beard (2013) Vegetation Mapping and PEC**

4 Cook St  
West Perth WA 6005  
Ph: (08) 9226 3166  
Fax: (08) 9226 3177  
info@mbsenvironmental.com.au  
www.mbsenvironmental.com.au

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#### 4.4.2 Conservation Significant Flora

No conservation significant flora species have been recorded in the project area. Three conservation significant flora species have been recorded within 5 km of the project; however the project area and surrounds are degraded from past use. Due to this, and a lack of suitable habitat it is considered that none of these species are likely to be present:

- ***Oldenlandia* sp. Hamersley Station (Priority 3)** - Spreading annual, herb, that grows between 0.05 and 0.1 m high with blue flowers. This species is found on cracking clays and basalt or gently undulating plains with large surface rocks, or flat crab-holed plain. The soils of the project area are characterised as sandy mud (pond area) and compacted muds sands and gravels for the remainder of the mining lease. Cracking clays may be present at the plant site, however the area is largely cleared so it is unlikely that this species is present (Plate 1 and Plate 2).
- ***Stackhousia clementii* (Priority 3)** - Dense broom-like perennial, herb that grows to 0.45 m with green/yellow/brown flowers. This plant occurs on skeletal soils and sandstone hills and as the project area occupies the tidal flats, it is unlikely that this species is present within the project area.
- ***Terminalia supranitifolia* (Priority 3)** – A spreading, tangled shrub or tree that grows 1.5 to 3 m tall, with green-yellow flowers in May, July or December. Preferred habitat is characterised by sand, among basalt rocks and is unlikely to be present at the project area.
- ***Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (Priority 3)** - Tussocky perennial, grass-like or herb that grows 0.9 to 1.8 m tall with flower in August. Habitat includes red clay, clay pans and grass plains, none of which are present within the project area.
- ***Rhynchosia bungarensis* (Priority 4)** – This is a compact, prostrate shrub, which grows to about 0.5 m high with yellow flowers. It is found on pebbly, shingly coarse sand amongst boulders. It has been found on banks in the mouth of a gully in a valley wall. As there is no suitable habitat it is unlikely this species occurs within the project area.

#### 4.4.3 Conservation Significant Fauna

There are no current or historical records of conservation significant fauna within the project area. Thirty conservation significant fauna species have been recorded within 5 km of the project area, consisting of five Threatened species, one Priority 4 species and 24 internationally protected species (NatureMap 2018). The internationally protected species are migratory species protected under international agreements and are only likely to visit the area seasonally, or are shorebirds that may visit the area for foraging, but are unlikely to be reliant on habitat in the project area.

All conservation significant species, apart from one, are highly mobile avifauna species that are unlikely to be reliant on habitat within the project area. The non-avifauna conservation significant fauna species is the Northern Quoll (*Dasyurus hallucatus*) which is unlikely to occur within the project area due to the extensive clearing of the project area and exposed nature of the area.

Conservation significant fauna which have been recorded in the study area (not including internationally protected species) are listed below. A full list of species is included in Appendix 2.

- *Calidris ferruginea* (Curlew Sandpiper) (T).
- *Calidris tenuirostris* (Great Knot) (T).
- *Charadrius mongolus* (Lesser Sand Plover) (T).
- *Dasyurus hallucatus* (Northern Quoll) (T)
- *Numenius madagascariensis* (Eastern Curlew) (T).
- *Tringa brevipes* (Grey-tailed Tattler) (P4).

Results of a protected matters search under the *Environment Protection and Biodiversity Act 1999* (EPBC Act), identified thirty listed threatened species and fifty six listed migratory species with potential to occur within a 5 km radius of the project area (Appendix 2 and Appendix 3). Twelve of the listed threatened species are birds, 6 are mammals, 8 are reptiles and 4 are sharks.

## 5. PROPOSED CLEARING

The purpose permit application area (project footprint) is 17.1 ha (Figure 6). The majority of the application area has been previously cleared, is highly disturbed or consists of regrowth from previous clearing. It is estimated from aerial imagery that there is approximately 6.7 ha of native vegetation within the project area of which a maximum of 4 ha is proposed to be cleared. The estimation of required clearing is considered conservative, as much of the areas determined to be native vegetation are degraded or are regrowth on pond walls from previous clearing.

Of the 4 ha of native vegetation proposed to be cleared, 0.6 ha is located within Lot 267 (Rainstorm lease). Clearing within this lease consists of vegetation on existing road verges on dryland areas, regrowth on embankments and minor amounts in tidal areas. Clearing of vegetation on tidal flats will be limited to the minimum required for the installation of pipeline and discharge points and previously cleared areas will be prioritised for pipeline corridors. The proposed clearing within M 47/1572 (3.4 ha for the plant site) comprises degraded vegetation within dryland areas. The purpose permit application area is shown on Figure 6.

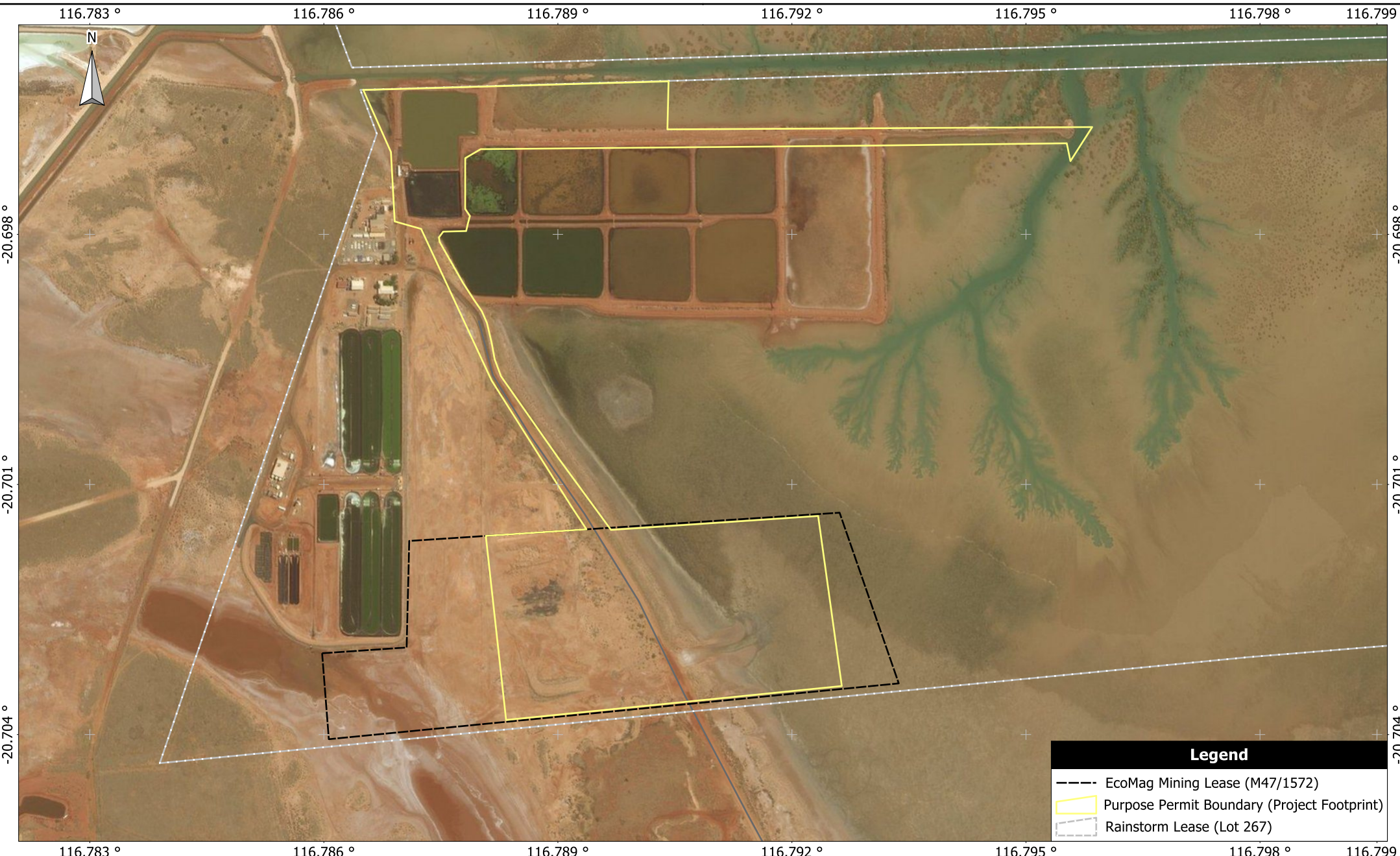
Clearing proposed for the project is summarised in Table 1 and the proposed clearing permit application area is attached as a shape file to this application.



**Table 1: Proposed Clearing for KMRP**

Tenure	Purpose of Clearing	Project Footprint (ha)	Vegetation within Footprint (ha)	Vegetation Clearing Area (ha)	Vegetation Remaining (ha)	Existing Environment
Lot 267	Pipelines	6.6*	3.3	0.6	2.7	Highly disturbed area with shrub and grass, partially regrowth.
Mining Lease M 47/1572	Plant & pond site	10.5	3.4	3.4	0.0	Plant area is highly disturbed with shrub and grass. Pond area is located on tidal mudflats with evidence of previous disturbance.
<b>Total</b>	<b>NA</b>	<b>17.1</b>	<b>6.7</b>	<b>4.0</b>	<b>2.7</b>	<b>NA</b>

\* Pipeline corridor shown on figures and used for project footprint to provide flexibility in alignment. A narrower pipeline corridor will be constructed within the footprint area shown.



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 Original Size: A4  
 Image Source: Bing Satellite Image  
 Grid: GDA94 Latitude / Longitude

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 Karratha Magnesium  
 Recovery Plant

**Figure 6**  
**Purpose Permit Boundary**  
**(Project Footprint) & Tenure**

4 Cook St  
 West Perth WA 6005  
 Ph: (08) 9226 3166  
 Fax: (08) 9226 3177  
 info@mbsenvironmental.com.au  
 www.mbsenvironmental.com.au

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## 6. IMPACT ASSESSMENT

The proposed clearing activities have been assessed against the '10 Clearing Principles' defined in Schedule 5 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Table 2) and outlined in DWER's 'Guide to Assessment: Clearing of Native Vegetation under the Environmental Protection Act 1986'. The proposed clearing is unlikely to be at variance with any of the '10 Principles of Clearing'.

The proposed clearing will remove up to 4 ha of vegetation, some of which has the potential to represent the "Roebourne Plains coastal grasslands with gilgai microrelief on deep cracking clays" Priority 1 PEC. However due to the degraded nature of vegetation at the plant site and the wide occurrence of this community in the local area, it is considered unlikely that the impact on the survival of the PEC would be significant. Overall the clearing is not expected to impact on local or regional biodiversity, conservation significant vegetation, flora or fauna, water quality or incidence of flooding.

The nearest DBCA conservation area is Murujuga National Park, located approximately 5 km north of the Project. Given the separation distance, proposed clearing is unlikely to result in impacts to conservation areas.

**Table 2: Assessment against the Ten Clearing Principles.**

Principle Number	Principle	Assessment	Outcome
a	Native vegetation should not be cleared if it comprises a high level of biological diversity.	The project area is located within an industrial area and appears to have been subjected to previous disturbance. Vegetation in the project area is highly degraded and constitutes very low biodiversity.	Proposal unlikely to be at variance with this principle.
b	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a significant habitat for fauna indigenous to Western Australia.	The project area and surrounds are located within an industrial area and have been subjected to previous clearing. The remaining native vegetation is unlikely to support significant habitat for fauna. The majority of fauna in the project and surrounds are avifauna which are unlikely to utilise the degraded vegetation of the project area.	Proposal unlikely to be at variance with this principle.
c	Native vegetation should not be cleared if it includes, or is necessary for the continued existence of rare flora.	Rare flora are highly unlikely to be present within the project area.	Proposal unlikely to be at variance with this principle.
d	Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a Threatened Ecological Community (TEC).	No TECs are present within the project area.	Proposal unlikely to be at variance with this principle.
e	Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.	The Pilbara IBRA region has 94.6 % pre-European vegetation remaining and is not considered to be extensively cleared.	Proposal unlikely to be at variance with this principle.
f	Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.	Vegetation is not growing in association with a watercourse or wetland.	Proposal unlikely to be at variance with this principle.
g	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.	The project area is located within a highly disturbed landscape and clearing is unlikely to cause further land disturbance.	Proposal unlikely to be at variance with this principle.



Principle Number	Principle	Assessment	Outcome
h	Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation areas.	The nearest conservation area is the Murujuga National Park which is located approximately 5 km to the north of the project area and will not be impacted by the proposed clearing.	Proposal unlikely to be at variance with this principle.
i	Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.	The proposed clearing of small patches of vegetation in a largely cleared landscape with no watercourses is not likely to cause any deterioration of surface water quality. Sea water tidally inundates parts of the proposed clearing area. Groundwater at the project area is saline and likely modified by surrounding salt ponds. The project will not impact on groundwater.	Proposal unlikely to be at variance with this principle.
j	Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence of flooding.	The proposed clearing of degraded and fragmented vegetation will not cause or exacerbate the incidence of flooding.	Proposal unlikely to be at variance with this principle.

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## APPENDICES

## **APPENDIX 1: LOT 267 ACCESS AGREEMENT (CONFIDENTIAL – SEE ATTACHMENT 1)**

## **APPENDIX 2: NATUREMAP REPORTS**



# NatureMap Species Report

Created By Guest user on 08/11/2018

Current Names Only Yes

Core Datasets Only Yes

Method 'By Circle'

Centre 116° 45' 14" E, 20° 43' 24" S

Buffer 5km

	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
1.	44580	<i>Acacia ampliceps x bivenosa</i>			
2.	3241	<i>Acacia bivenosa</i>			
3.	3356	<i>Acacia gregorii</i> (Gregory's Wattle)			
4.	3377	<i>Acacia inaequilatera</i> (Baderi)			
5.	29015	<i>Acacia pyrifolia</i> var. <i>pyrifolia</i>			
6.	13078	<i>Acacia sclerosperma</i> subsp. <i>sclerosperma</i>			
7.	3579	<i>Acacia trachycarpa</i> (Minni Ritchi, Balgali)			
8.	41323	<i>Actitis hypoleucos</i> (Common Sandpiper)		IA	
9.	2646	<i>Aerva javanica</i> (Kapak Bush)	Y		
10.	2651	<i>Alternanthera nana</i> (Hairy Joyweed)			
11.	17147	<i>Alysicarpus muelleri</i>			
12.	20018	<i>Amaranthus undulatus</i>			
13.	24312	<i>Anas gracilis</i> (Grey Teal)			
14.	24316	<i>Anas superciliosa</i> (Pacific Black Duck)			
15.	47414	<i>Anhinga novaehollandiae</i> (Australasian Darter)			
16.	24285	<i>Aquila audax</i> (Wedge-tailed Eagle)			
17.	41324	<i>Ardea modesta</i> (great egret, white egret)			
18.	24341	<i>Ardea pacifica</i> (White-necked Heron)			
19.	25736	<i>Arenaria interpres</i> (Ruddy Turnstone)		IA	
20.	215	<i>Aristida latifolia</i> (Feathertop Wiregrass)			
21.	25566	<i>Artamus cinereus</i> (Black-faced Woodswallow)			
22.	24318	<i>Aythya australis</i> (Hardhead)			
23.	2773	<i>Boerhavia paludosa</i>			
24.	47897	<i>Butorides striata</i> (Striated Heron, Mangrove Heron)			
25.	25716	<i>Cacatua sanguinea</i> (Little Corella)			
26.	42307	<i>Cacomantis pallidus</i> (Pallid Cuckoo)			
27.	11055	<i>Cajanus cinereus</i>			
28.	24779	<i>Calidris acuminata</i> (Sharp-tailed Sandpiper)		IA	
29.	24780	<i>Calidris alba</i> (Sanderling)		IA	
30.	25738	<i>Calidris canutus</i> (Red Knot, knot)		IA	
31.	24784	<i>Calidris ferruginea</i> (Curlew Sandpiper)		T	
32.	24788	<i>Calidris ruficollis</i> (Red-necked Stint)		IA	
33.	24789	<i>Calidris subminuta</i> (Long-toed Stint)		IA	
34.	24790	<i>Calidris tenuirostris</i> (Great Knot)		T	
35.	25600	<i>Centropus phasianinus</i> (Pheasant Coucal)			
36.	24181	<i>Chaerephon jobensis</i> (Greater Northern Freetail-bat, Northern Mastiff Bat)			
37.	25575	<i>Charadrius leschenaultii</i> (Greater Sand Plover)		IA	
38.	25576	<i>Charadrius mongolus</i> (Lesser Sand Plover)		T	
39.	24377	<i>Charadrius ruficapillus</i> (Red-capped Plover)			
40.	24378	<i>Charadrius veredus</i> (Oriental Plover)		IA	
41.	41332	<i>Chlidonias leucopterus</i> (White-winged Black Tern, white-winged tern)		IA	
42.		<i>Chroicocephalus novaehollandiae</i>			
43.	33516	<i>Chrysocephalum gilesii</i>			
44.	24289	<i>Circus assimilis</i> (Spotted Harrier)			
45.	24774	<i>Cladorhynchus leucocephalus</i> (Banded Stilt)			
46.	2988	<i>Cleome viscosa</i> (Tickweed, Tjinduwadhu)			
47.	6732	<i>Clerodendrum tomentosum</i>			
48.	25568	<i>Coracina novaehollandiae</i> (Black-faced Cuckoo-shrike)			
49.	25847	<i>Corchorus incanus</i> subsp. <i>incanus</i>			
50.	25593	<i>Corvus orru</i> (Torresian Crow)			
51.	17093	<i>Corymbia hamersleyana</i>			
52.	25701	<i>Coturnix ypsilophora</i> (Brown Quail)			
53.	24420	<i>Cracticus nigrogularis</i> (Pied Butcherbird)			

	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
54.	25595	<i>Cracticus tibicen</i> (Australian Magpie)			
55.	20179	<i>Crotalaria medicaginea</i> var. <i>neglecta</i>			
56.	11231	<i>Crotalaria novae-hollandiae</i> subsp. <i>novae-hollandiae</i>			
57.	25077	<i>Ctenotus serventyi</i>			
58.	25466	<i>Cyclodomorphus melanops</i> (Slender Blue-tongue)			
59.	24322	<i>Cygnus atratus</i> (Black Swan)			
60.	24091	<i>Dasykaluta rosamondae</i> (Little Red Kaluta)			
61.	24093	<i>Dasyurus hallucatus</i> (Northern Quoll)		T	
62.	25002	<i>Delma pax</i>			
63.	25297	<i>Demansia rufescens</i> (Rufous Whipsnake)			
64.	24926	<i>Diplodactylus conspicillatus</i> (Fat-tailed Gecko)			
65.	2504	<i>Dysphania plantaginella</i>			
66.		<i>Egretta novaehollandiae</i>			
67.	47937	<i>Elseya melanops</i> (Black-fronted Dotterel)			
68.	24631	<i>Emblema pictum</i> (Painted Finch)			
69.		<i>Eolophus roseicapillus</i>			
70.	25578	<i>Ephippiorhynchus asiaticus</i> (Black-necked Stork)			
71.	24568	<i>Epthianura aurifrons</i> (Orange Chat)			
72.	414	<i>Eriachne obtusa</i> (Northern Wandarrie Grass)			
73.	24379	<i>Erythronys cinctus</i> (Red-kneed Dotterel)			
74.	14548	<i>Eucalyptus vitrix</i>			
75.	25621	<i>Falco berigora</i> (Brown Falcon)			
76.	25622	<i>Falco cenchroides</i> (Australian Kestrel, Nankeen Kestrel)			
77.	25623	<i>Falco longipennis</i> (Australian Hobby)			
78.	24476	<i>Falco subniger</i> (Black Falcon)			
79.	35558	<i>Flaveria trinervia</i> (Speedy Weed)	Y		
80.	25727	<i>Fulica atra</i> (Eurasian Coot)			
81.	24402	<i>Geopelia humeralis</i> (Bar-shouldered Dove)			
82.	25585	<i>Geopelia striata</i> (Zebra Dove)			
83.	24404	<i>Geophaps plumifera</i> (Spinifex Pigeon)			
84.	24481	<i>Glaeola maldivarum</i> (Oriental Pratincole)		IA	
85.	24443	<i>Grallina cyanoleuca</i> (Magpie-lark)			
86.	24487	<i>Haematopus longirostris</i> (Pied Oystercatcher)			
87.	24293	<i>Haliaeetus leucogaster</i> (White-bellied Sea-Eagle)			
88.	25541	<i>Haliastur indus</i> (Brahminy Kite)			
89.	24295	<i>Haliastur sphenurus</i> (Whistling Kite)			
90.	6704	<i>Heliotropium conocarpum</i>			
91.	6707	<i>Heliotropium curassavicum</i> (Smooth Heliotrope)			
92.	6718	<i>Heliotropium tenuifolium</i> (Mamukata)			
93.	24961	<i>Heteronotia binoei</i> (Bynoe's Gecko)			
94.	47965	<i>Hieraaetus morphnoides</i> (Little Eagle)			
95.	25734	<i>Himantopus himantopus</i> (Black-winged Stilt)			
96.	24491	<i>Hirundo neoxena</i> (Welcome Swallow)			
97.	48587	<i>Hydroprogne caspia</i> (Caspian Tern)		IA	
98.	3038	<i>Lepidium pholidogynum</i>			
99.	25125	<i>Lerista bipes</i>			
100.	30928	<i>Lerista clara</i>			
101.	25155	<i>Lerista muelleri</i>			
102.	25661	<i>Lichmera indistincta</i> (Brown Honeyeater)			
103.	25739	<i>Limicola falcinellus</i> (Broad-billed Sandpiper)		IA	
104.	30932	<i>Limosa lapponica</i> (Bar-tailed Godwit)		IA	
105.	4060	<i>Lotus australis</i> (Austral Trefoil)			
106.	30933	<i>Lucasium stenodactylum</i>			
107.	24135	<i>Macropus robustus</i> subsp. <i>erubescens</i> (Euro, Biggada)			
108.	24326	<i>Malacorhynchus membranaceus</i> (Pink-eared Duck)			
109.	25652	<i>Malurus leucopterus</i> (White-winged Fairy-wren)			
110.	24583	<i>Manorina flavigula</i> (Yellow-throated Miner)			
111.	24736	<i>Melopsittacus undulatus</i> (Budgerigar)			
112.	25184	<i>Menetia greyii</i>			
113.	24598	<i>Merops ornatus</i> (Rainbow Bee-eater)			
114.	25542	<i>Milvus migrans</i> (Black Kite)			
115.	25545	<i>Mirafra javanica</i> (Horsfield's Bushlark, Singing Bushlark)			
116.	17158	<i>Myoporum montanum</i> (Native Myrtle)			
117.	2573	<i>Neobassia astrocarpa</i>			
118.	25197	<i>Notoscincus ornatus</i> subsp. <i>ornatus</i>			
119.	24798	<i>Numenius madagascariensis</i> (Eastern Curlew)		T	
120.	24799	<i>Numenius minutus</i> (Little Curlew, Little Whimbrel)		IA	
121.	25742	<i>Numenius phaeopus</i> (Whimbrel)		IA	
122.	24407	<i>Ocyphaps lophotes</i> (Crested Pigeon)			
123.	19640	<i>Oldenlandia</i> sp. Hamersley Station (A.A. Mitchell PRP 1479)		P3	

	Name ID	Species Name	Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
124.	48591	<i>Pandion cristatus</i> (Osprey, Eastern Osprey)		IA	
125.	503	<i>Panicum decompositum</i> (Native Millet, Kaltu-kaltu)			
126.	25682	<i>Pardalotus striatus</i> (Striated Pardalote)			
127.	24648	<i>Pelecanus conspicillatus</i> (Australian Pelican)			
128.	3675	<i>Petalostylis labicheoides</i> (Slender Petalostylis)			
129.	48060	<i>Petrochelidon ariel</i> (Fairy Martin)			
130.	48061	<i>Petrochelidon nigricans</i> (Tree Martin)			
131.	24667	<i>Phalacrocorax sulcirostris</i> (Little Black Cormorant)			
132.	25699	<i>Phalacrocorax varius</i> (Pied Cormorant)			
133.	24843	<i>Plegadis falcinellus</i> (Glossy Ibis)		IA	
134.	43944	<i>Pluchea longiseta</i>			
135.	24383	<i>Pluvialis squatarola</i> (Grey Plover)		IA	
136.	25703	<i>Podargus strigoides</i> (Tawny Frogmouth)			
137.	2878	<i>Portulaca conspicua</i>			
138.	8189	<i>Pseudognaphalium luteoalbum</i> (Jersey Cudweed)			
139.	24234	<i>Pseudomys delicatulus</i> (Delicate Mouse)			
140.	24237	<i>Pseudomys hermannsburgensis</i> (Sandy Inland Mouse)			
141.	8193	<i>Pterocaulon sphaeranthoides</i>			
142.	2690	<i>Ptilotus aervoides</i>			
143.	2696	<i>Ptilotus astrolasius</i>			
144.	2706	<i>Ptilotus carinatus</i>			
145.	2728	<i>Ptilotus gomphrenoides</i>			
146.	2747	<i>Ptilotus obovatus</i> (Cotton Bush)			
147.	24776	<i>Recurvirostra novaehollandiae</i> (Red-necked Avocet)			
148.	25614	<i>Rhipidura leucophrys</i> (Willie Wagtail)			
149.	13246	<i>Rhodanthe humboldtiana</i>			
150.	13310	<i>Rhodanthe margarethae</i>			
151.	20862	<i>Rhynchosia bungarensis</i>		P4	
152.	4191	<i>Rhynchosia minima</i> (Rhynchosia)			
153.	2443	<i>Rumex vesicarius</i> (Ruby Dock)	Y		
154.	12578	<i>Scaevola acacioides</i>			
155.	2633	<i>Sclerolaena uniflora</i> (Two-spined Saltbush)			
156.	12280	<i>Senna artemisioides</i> subsp. <i>oligophylla</i>			
157.	12312	<i>Senna notabilis</i>			
158.	4196	<i>Sesbania cannabina</i> (Sesbania Pea)			
159.	7014	<i>Solanum horridum</i>			
160.	4729	<i>Stackhousia clementii</i>		P3	
161.	48593	<i>Sternula albifrons</i> (Little Tern)		IA	
162.	48594	<i>Sternula nereis</i> (Fairy Tern)			
163.	24482	<i>Stiltia isabella</i> (Australian Pratincole)			
164.	4231	<i>Swainsona kingii</i>			
165.	4233	<i>Swainsona leeana</i>			
166.	30870	<i>Taeniopygia guttata</i> (Zebra Finch)			
167.	4263	<i>Tephrosia clementii</i>			
168.	41811	<i>Tephrosia</i> sp. <i>Fortescue</i> (A.A. Mitchell 606)			
169.	42442	<i>Tephrosia</i> sp. <i>NW Eremaean</i> (S. van Leeuwen et al. PBS 0356)			
170.	4285	<i>Tephrosia supina</i>			
171.	5313	<i>Terminalia supranitifolia</i>		P3	
172.	48597	<i>Thalasseus bergii</i> (Crested Tern)		IA	
173.	17820	<i>Themeda</i> sp. <i>Hammersley Station</i> (M.E. Trudgen 11431)		P3	
174.	17819	<i>Themeda</i> sp. <i>Mt Barricade</i> (M.E. Trudgen 2471)			
175.	673	<i>Themeda triandra</i>			
176.	24845	<i>Threskiornis spinicollis</i> (Straw-necked Ibis)			
177.	25548	<i>Todiramphus chloris</i> (Collared Kingfisher)			
178.	42351	<i>Todiramphus pyrrhopygius</i> (Red-backed Kingfisher)			
179.	25549	<i>Todiramphus sanctus</i> (Sacred Kingfisher)			
180.	24803	<i>Tringa brevipes</i> (Grey-tailed Tattler)		P4	
181.	24806	<i>Tringa glareola</i> (Wood Sandpiper)		IA	
182.	24808	<i>Tringa nebularia</i> (Common Greenshank, greenshank)		IA	
183.	24809	<i>Tringa stagnatilis</i> (Marsh Sandpiper, little greenshank)		IA	
184.	679	<i>Triodia angusta</i>			
185.	24851	<i>Turnix velox</i> (Little Button-quail)			
186.	24386	<i>Vanellus tricolor</i> (Banded Lapwing)			
187.	28194	<i>Xanthoria parietina</i>			

**Conservation Codes**

T - Rare or likely to become extinct  
X - Presumed extinct  
IA - Protected under international agreement  
S - Other specially protected fauna  
1 - Priority 1  
2 - Priority 2  
3 - Priority 3

Name ID Species Name		Naturalised	Conservation Code	<sup>1</sup> Endemic To Query Area
4 - Priority 4				
5 - Priority 5				

<sup>1</sup> For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

## **APPENDIX 3: PROTECTED MATTERS SEARCH TOOL REPORT**





# 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.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 12/09/18 17:10:32

[Summary](#)

[Details](#)

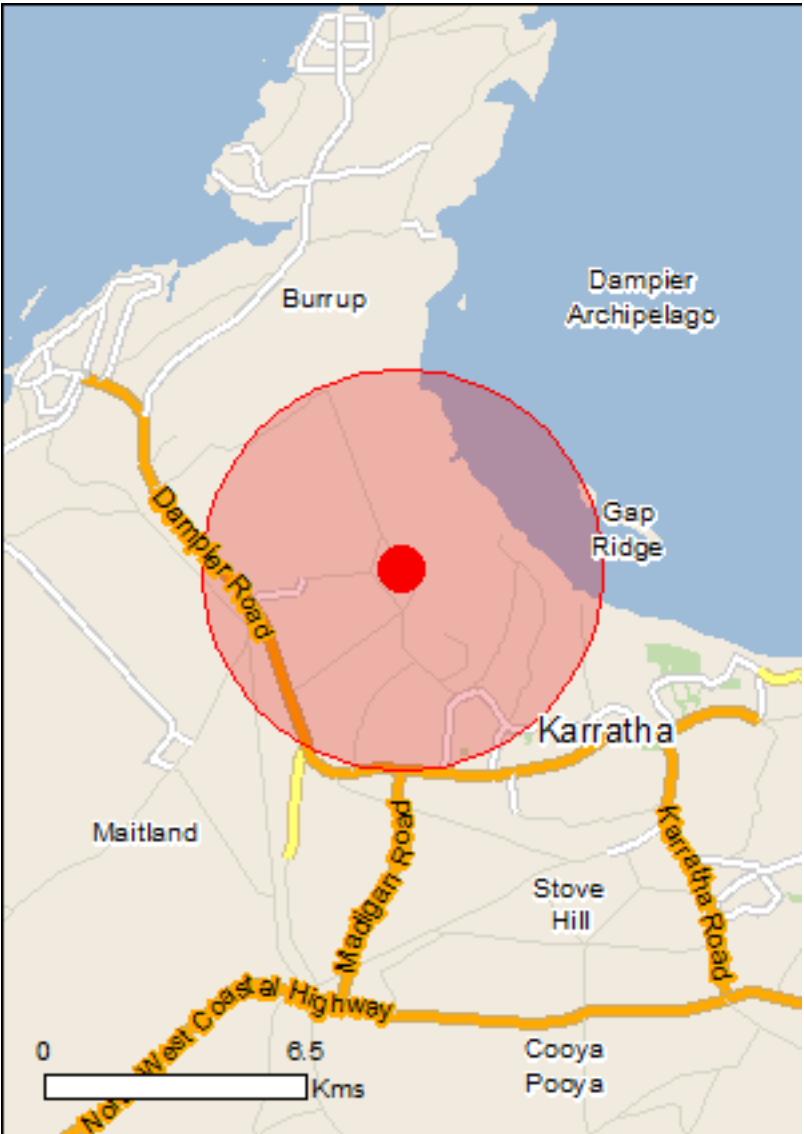
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

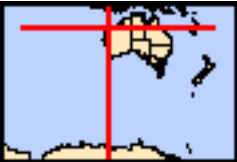
[Acknowledgements](#)



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[Coordinates](#)

Buffer: 5.0Km



# 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](#).

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	1
<a href="#">Wetlands of International Importance:</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Area:</a>	None
<a href="#">Listed Threatened Ecological Communities:</a>	None
<a href="#">Listed Threatened Species:</a>	30
<a href="#">Listed Migratory Species:</a>	56

## 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. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

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.

<a href="#">Commonwealth Land:</a>	1
<a href="#">Commonwealth Heritage Places:</a>	None
<a href="#">Listed Marine Species:</a>	96
<a href="#">Whales and Other Cetaceans:</a>	12
<a href="#">Critical Habitats:</a>	None
<a href="#">Commonwealth Reserves Terrestrial:</a>	None
<a href="#">Australian Marine Parks:</a>	None

## Extra Information

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

<a href="#">State and Territory Reserves:</a>	1
<a href="#">Regional Forest Agreements:</a>	None
<a href="#">Invasive Species:</a>	16
<a href="#">Nationally Important Wetlands:</a>	None
<a href="#">Key Ecological Features (Marine)</a>	None

# Details

## Matters of National Environmental Significance

National Heritage Properties		[ Resource Information ]
Name	State	Status
Indigenous		
<a href="#">Dampier Archipelago (including Burrup Peninsula)</a>	WA	Listed place

Listed Threatened Species		[ Resource Information ]
Name	Status	Type of Presence
Birds		
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
<a href="#">Limosa lapponica baueri</a> Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Limosa lapponica menzbieri</a> Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Pezoporus occidentalis</a> Night Parrot [59350]	Endangered	Species or species habitat may occur within area
<a href="#">Rostratula australis</a> Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
<a href="#">Sternula nereis nereis</a> Australian Fairy Tern [82950]	Vulnerable	Breeding known to occur within area

Name	Status	Type of Presence
Mammals		
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
<a href="#">Dasyurus hallucatus</a> Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
<a href="#">Macroderma gigas</a> Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Macrotis lagotis</a> Greater Bilby [282]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Rhinonictoris aurantia (Pilbara form)</a> Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat may occur within area
Reptiles		
<a href="#">Aipysurus apraefrontalis</a> Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Ctenotus angusticeps</a> Northwestern Coastal Ctenotus, Airlie Island Ctenotus [25937]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Liasis olivaceus barroni</a> Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sharks		
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
<a href="#">Pristis clavata</a> Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pristis zijsron</a> Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding likely to occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence area
Listed Migratory Species		[ <u>Resource Information</u> ]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Migratory Marine Birds		
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Sterna dougallii</a> Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
Migratory Marine Species		
<a href="#">Anoxypristis cuspidata</a> Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
<a href="#">Carcharodon carcharias</a> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Dugong dugon</a> Dugong [28]		Species or species habitat known to occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Manta alfredi</a> Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat known to occur within area



Name	Threatened	Type of Presence
<a href="#">Manta birostris</a> Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat likely to occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area
<a href="#">Pristis clavata</a> Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Pristis zijsron</a> Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding likely to occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
<a href="#">Sousa chinensis</a> Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
<a href="#">Tursiops aduncus (Arafura/Timor Sea populations)</a> Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
<a href="#">Hirundo rustica</a> Barn Swallow [662]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]		Species or species habitat known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris alba</a> Sanderling [875]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area

Name	Threatened	Type of Presence
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Species or species habitat known to occur within area
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Species or species habitat known to occur within area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to occur within area
<a href="#">Glareola maldivarum</a> Oriental Pratincole [840]		Species or species habitat known to occur within area
<a href="#">Limicola falcinellus</a> Broad-billed Sandpiper [842]		Species or species habitat known to occur within area
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]		Species or species habitat known to occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Species or species habitat known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat known to occur within area
<a href="#">Phalaropus lobatus</a> Red-necked Phalarope [838]		Species or species habitat known to occur within area
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Species or species habitat known to occur within area
<a href="#">Pluvialis squatarola</a> Grey Plover [865]		Species or species habitat known to occur within area
<a href="#">Tringa brevipes</a> Grey-tailed Tattler [851]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
<a href="#">Tringa totanus</a> Common Redshank, Redshank [835]		Species or species habitat known to occur within area
<a href="#">Xenus cinereus</a> Terek Sandpiper [59300]		Species or species habitat known to occur within area

## Other Matters Protected by the EPBC Act

Commonwealth Land	<a href="#">[ Resource Information ]</a>
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The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land -

Listed Marine Species	<a href="#">[ Resource Information ]</a>
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\* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
<a href="#">Actitis hypoleucos</a> Common Sandpiper [59309]		Species or species habitat known to occur within area
<a href="#">Anous stolidus</a> Common Noddy [825]		Species or species habitat may occur within area
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Arenaria interpres</a> Ruddy Turnstone [872]		Species or species habitat known to occur within area
<a href="#">Calidris acuminata</a> Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<a href="#">Calidris alba</a> Sanderling [875]		Species or species habitat known to occur within area
<a href="#">Calidris canutus</a> Red Knot, Knot [855]	Endangered	Species or species habitat known to occur

Name	Threatened	Type of Presence
		within area
<a href="#">Calidris ferruginea</a> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calidris melanotos</a> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<a href="#">Calidris ruficollis</a> Red-necked Stint [860]		Species or species habitat known to occur within area
<a href="#">Calidris subminuta</a> Long-toed Stint [861]		Species or species habitat known to occur within area
<a href="#">Calidris tenuirostris</a> Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Calonectris leucomelas</a> Streaked Shearwater [1077]		Species or species habitat may occur within area
<a href="#">Charadrius leschenaultii</a> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Charadrius mongolus</a> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
<a href="#">Charadrius ruficapillus</a> Red-capped Plover [881]		Species or species habitat known to occur within area
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel [882]		Species or species habitat known to occur within area
<a href="#">Chrysococcyx osculans</a> Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
<a href="#">Fregata ariel</a> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
<a href="#">Glareola maldivarum</a> Oriental Pratincole [840]		Species or species habitat known to occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
<a href="#">Heteroscelus brevipes</a> Grey-tailed Tattler [59311]		Species or species habitat known to occur within area
<a href="#">Himantopus himantopus</a> Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
<a href="#">Hirundo rustica</a> Barn Swallow [662]		Species or species habitat may occur within area
<a href="#">Limicola falcinellus</a> Broad-billed Sandpiper [842]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
<a href="#">Limosa lapponica</a> Bar-tailed Godwit [844]		Species or species habitat known to occur within area
<a href="#">Limosa limosa</a> Black-tailed Godwit [845]		Species or species habitat known to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Motacilla cinerea</a> Grey Wagtail [642]		Species or species habitat may occur within area
<a href="#">Motacilla flava</a> Yellow Wagtail [644]		Species or species habitat may occur within area
<a href="#">Numenius madagascariensis</a> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
<a href="#">Numenius phaeopus</a> Whimbrel [849]		Species or species habitat known to occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Species or species habitat known to occur within area
<a href="#">Phalaropus lobatus</a> Red-necked Phalarope [838]		Species or species habitat known to occur within area
<a href="#">Pluvialis fulva</a> Pacific Golden Plover [25545]		Species or species habitat known to occur within area
<a href="#">Pluvialis squatarola</a> Grey Plover [865]		Species or species habitat known to occur within area
<a href="#">Recurvirostra novaehollandiae</a> Red-necked Avocet [871]		Species or species habitat known to occur within area
<a href="#">Rostratula benghalensis (sensu lato)</a> Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
<a href="#">Sterna dougallii</a> Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Stiltia isabella</a> Australian Pratincole [818]		Species or species habitat known to occur within area
<a href="#">Tringa nebularia</a> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
<a href="#">Tringa stagnatilis</a> Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area



Name	Threatened	Type of Presence
<a href="#">Tringa totanus</a> Common Redshank, Redshank [835]		Species or species habitat known to occur within area
<a href="#">Xenus cinereus</a> Terek Sandpiper [59300]		Species or species habitat known to occur within area
Fish		
<a href="#">Bulbonaricus brauni</a> Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
<a href="#">Campichthys tricarinatus</a> Three-keel Pipefish [66192]		Species or species habitat may occur within area
<a href="#">Choeroichthys brachysoma</a> Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
<a href="#">Choeroichthys suillus</a> Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
<a href="#">Doryrhamphus janssi</a> Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
<a href="#">Doryrhamphus negrosensis</a> Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
<a href="#">Festucalex scalaris</a> Ladder Pipefish [66216]		Species or species habitat may occur within area
<a href="#">Filicampus tigris</a> Tiger Pipefish [66217]		Species or species habitat may occur within area
<a href="#">Halicampus brocki</a> Brock's Pipefish [66219]		Species or species habitat may occur within area
<a href="#">Halicampus grayi</a> Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
<a href="#">Halicampus nitidus</a> Glittering Pipefish [66224]		Species or species habitat may occur within area
<a href="#">Halicampus spinirostris</a> Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
<a href="#">Haliichthys taeniophorus</a> Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
<a href="#">Hippichthys penicillus</a> Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
<a href="#">Hippocampus angustus</a> Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
<a href="#">Hippocampus histrix</a> Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area



Name	Threatened	Type of Presence	
<a href="#">Hippocampus kuda</a> Spotted Seahorse, Yellow Seahorse [66237]	Threatened	Species or species habitat may occur within area	
<a href="#">Hippocampus planifrons</a> Flat-face Seahorse [66238]		Species or species habitat may occur within area	
<a href="#">Hippocampus trimaculatus</a> Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area	
<a href="#">Micrognathus micronotopterus</a> Tidepool Pipefish [66255]		Species or species habitat may occur within area	
<a href="#">Solegnathus hardwickii</a> Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area	
<a href="#">Solegnathus lettiensis</a> Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area	
<a href="#">Solenostomus cyanopterus</a> Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area	
<a href="#">Syngnathoides biaculeatus</a> Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	
<a href="#">Trachyrhamphus bicoarctatus</a> Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]	Critically Endangered	Species or species habitat may occur within area	
<a href="#">Trachyrhamphus longirostris</a> Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area	
Mammals			
<a href="#">Dugong dugon</a> Dugong [28]		Species or species habitat known to occur within area	
Reptiles			
<a href="#">Acalyptophis peronii</a> Horned Seasnake [1114]		Species or species habitat may occur within area	
<a href="#">Aipysurus apraefrontalis</a> Short-nosed Seasnake [1115]		Species or species habitat likely to occur within area	
<a href="#">Aipysurus duboisii</a> Dubois' Seasnake [1116]		Species or species habitat may occur within area	
<a href="#">Aipysurus eydouxii</a> Spine-tailed Seasnake [1117]	Threatened	Species or species habitat may occur within area	
<a href="#">Aipysurus laevis</a> Olive Seasnake [1120]		Species or species habitat may occur within area	
<a href="#">Aipysurus tenuis</a> Brown-lined Seasnake [1121]		Species or species habitat may occur within area	
<a href="#">Astrotia stokesii</a> Stokes' Seasnake [1122]		Species or species habitat may occur within	

Name	Threatened	Type of Presence
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	area  Foraging, feeding or related behaviour known to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour likely to occur within area
<a href="#">Disteira kingii</a> Spectacled Seasnake [1123]		Species or species habitat may occur within area
<a href="#">Disteira major</a> Olive-headed Seasnake [1124]		Species or species habitat may occur within area
<a href="#">Emydocephalus annulatus</a> Turtle-headed Seasnake [1125]		Species or species habitat may occur within area
<a href="#">Ephalophis greyi</a> North-western Mangrove Seasnake [1127]		Species or species habitat may occur within area
<a href="#">Eretmochelys imbricata</a> Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Hydrelaps darwiniensis</a> Black-ringed Seasnake [1100]		Species or species habitat may occur within area
<a href="#">Hydrophis czeblukovi</a> Fine-spined Seasnake [59233]		Species or species habitat may occur within area
<a href="#">Hydrophis elegans</a> Elegant Seasnake [1104]		Species or species habitat may occur within area
<a href="#">Hydrophis mcdowellii</a> null [25926]		Species or species habitat may occur within area
<a href="#">Hydrophis ornatus</a> Spotted Seasnake, Ornate Reef Seasnake [1111]		Species or species habitat may occur within area
<a href="#">Natator depressus</a> Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
<a href="#">Pelamis platurus</a> Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area
Whales and other Cetaceans		[ <a href="#">Resource Information</a> ]
Name	Status	Type of Presence
Mammals		
<a href="#">Balaenoptera acutorostrata</a> Minke Whale [33]		Species or species habitat may occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area

Name	Status	Type of Presence
<a href="#">Balaenoptera musculus</a> Blue Whale [36]	Endangered	Species or species habitat likely to occur within area
<a href="#">Delphinus delphis</a> Common Dophin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
<a href="#">Grampus griseus</a> Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area
<a href="#">Sousa chinensis</a> Indo-Pacific Humpback Dolphin [50]		Species or species habitat likely to occur within area
<a href="#">Stenella attenuata</a> Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
<a href="#">Tursiops aduncus</a> Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
<a href="#">Tursiops aduncus (Arafura/Timor Sea populations)</a> Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
<a href="#">Tursiops truncatus s. str.</a> Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves	[ Resource Information ]
Name	State
Murujuga	WA

Invasive Species	[ Resource Information ]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.	

Name	Status	Type of Presence
Birds		
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Cenchrus ciliaris Buffel-grass, Black Buffel-grass [20213]		Species or species habitat likely to occur within area
Jatropha gossypifolia Cotton-leaved Physic-Nut, Bellyache Bush, Cotton-leaf Physic Nut, Cotton-leaf Jatropha, Black Physic Nut [7507]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Prosopis spp. Mesquite, Algaroba [68407]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to 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 and National Heritage properties, Wetlands of International and National 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.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

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.

# Coordinates

-20.70449 116.7899



# Acknowledgements

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

- [Office of Environment and Heritage, New South Wales](#)
- [Department of Environment and Primary Industries, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment, Water and Natural Resources, South Australia](#)
- [Department of Land and Resource Management, Northern Territory](#)
- [Department of Environmental and Heritage Protection, Queensland](#)
- [Department of Parks and Wildlife, Western Australia](#)
- [Environment and Planning Directorate, ACT](#)
- [Birdlife Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Museum Victoria](#)
- [Australian Museum](#)
- [South Australian Museum](#)
- [Queensland Museum](#)
- [Online Zoological Collections of Australian Museums](#)
- [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, Canberra](#)
- [University of New England](#)
- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [Geoscience Australia](#)
- [CSIRO](#)
- [Australian Tropical Herbarium, Cairns](#)
- [eBird Australia](#)
- [Australian Government – Australian Antarctic Data Centre](#)
- [Museum and Art Gallery of the Northern Territory](#)
- [Australian Government National Environmental Science Program](#)
- [Australian Institute of Marine Science](#)
- [Reef Life Survey Australia](#)
- [American Museum of Natural History](#)
- [Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- Other groups and individuals

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Please feel free to provide feedback via the [Contact Us](#) page.