

# Referral of proposed action

## Dampier Marine Services Facility (DMSF)

### 1 Summary of proposed action

#### 1.1 Short description

Dampier Marine Services Facility – Port of Dampier. Development of ~20 hectare laydown area via reclamation, dredging of berth pockets and swing basins and construction of 300 metre wharf.

#### 1.2 Latitude and longitude

The project is located in the Port of Dampier, Western Australia. The location of the project area is shown in **Figure 1**, with the reference points listed on this figure shown in the adjacent table.

**Table 1:** Location of project area

location point	Latitude			Longitude		
	degrees	minutes	seconds	degrees	minutes	seconds
A	20	36	28	116	44	22
B	20	36	12	116	45	01
C	20	37	09	116	44	55
D	20	36	35	116	45	19

#### 1.3 Locality

The Port of Dampier is located in Western Australia, approximately 1,300 km north of Perth. It is strategically located near the North West Shelf oil and gas fields and Pilbara Iron ore deposits. The Port limits lie adjacent to the Dampier Archipelago and include the waters of Mermaid Sound, Mermaid Strait and the outer anchorages. The area of seabed and waters inside port limits is currently around 650 km<sup>2</sup> with a perimeter of almost 300 kilometres.

The proposed Dampier Marine Services Facility (hereafter referred to as DMSF) is located approximately 100 metres east of the existing Dampier Cargo Wharf (DCW) (**Figure 2**).

The site is located in an existing industrial area. To the east are Woodside's Pluto Gas Plant development, and the North West Shelf Venture Karratha Gas Plant. To the West are the King Bay Industrial Estate and Rio Tinto's Parker Point iron ore export facility.

The nearest residential area is the township of Dampier, approximately six kilometres to the south west of the proposed DMSF.

#### 1.4 Size of the development footprint or work area (hectares)

The project can be divided into three main components:

1. **Dredging** – 45.14 hectares;
2. **Reclamation** – 21.95 hectares; and
3. **Supratidal disturbance** – 1.9 hectares.

The total area of the proposed DMSF is 68.19 hectares.

#### 1.5 Street address of the site

Dampier Port Authority, Mof Road, Dampier WA 6713

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**1.6 Lot description**

The project impacts part of two land lots and the Port Waters of the Port of Dampier. These are:

- *De Witt location 472;*
- *De Witt Location 565;* and
- Dampier Port Waters – all seabed in the Dampier Port Waters is vested with the Dampier Port Authority (see Deposited Plans, **Appendix 1**).

This is shown in **Figure 3**.

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**1.7 Local Government Area and Council contact (if known)**

The project area is within Lands of the Dampier Port Authority. The local Council is the Shire of Roebourne.

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**1.8 Timeframe**

The timeframe for the proposed DMSF is as follows:

**Stage 1: Seawall, Dredging and Reclamation**

- Seawall Construction: Q2 2010 to Q3 2011;
- Capital Dredging: Q3 2010 to Q3 2011;
- Reclamation: Q3 2010 to Q3 2011;
- Construction of Land Backed Wharf: Q2 2010 to Q3 2011;
- Construction of Laydown Area Civil and Drainage: Q2 2011 to Q1 2012;
- Construction of Access road – Civil and Drainage: Q2 2011 to Q1 2012;

**Stage 2: Jetty, Ro/Ro and Laydown Area**

- Construction of 300m Jetty: Q4 2011 to Q4 2013;
  - Construction of Buildings in Laydown Area: Q1 to Q4 2012
  - Construction of Roll-on / Roll-off Facility: Q4 2012 to Q3 2013.
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<b>1.9 Alternatives</b> Does the proposed action include alternative timeframes, locations or activities?	<input checked="" type="checkbox"/>	No
<b>1.10 State assessment</b> Is the action subject to a state or territory environmental impact assessment?	<input checked="" type="checkbox"/>	Yes, you must also complete Section 2.4
<b>1.11 Component of larger action</b> Is the proposed action a component of a larger action?	<input checked="" type="checkbox"/>	No
<b>1.12 Related actions/proposals</b> Is the proposed action related to other actions or proposals in the region (if known)?	<input checked="" type="checkbox"/>	No - The project is stand alone, however the demand for the project is developed by industrial activity in the region, including projects such as the Chevron Gorgon project, Woodside's Pluto project, Rio Tinto's upgrade projects and general industry activity.
<b>1.13 Australian Government funding</b> Has the person proposing to take the action received any Australian Government grant funding to undertake this project?	<input checked="" type="checkbox"/>	The DPA will apply for funding from the Western Australian State Government to undertake the proposed DMSF project. It will be at their discretion to refer the project to the Infrastructure Australia Fund.

## 2 Detailed description of proposed action

### 2.1 Description of proposed action

One of DPA's key responsibilities is to plan for future development and growth of the port. In line with this objective DPA have developed the Dampier Port Development Plan (DPDP) (2007) that details proposed development and growth opportunities within the port up to 2040. One of the key development outcomes of this Government endorsed document is to expand the current capacity of the Dampier Cargo Wharf (DCW) in response to a projected increase in cargo trade over the next 10-15 years. The use of the existing DCW is currently limited for the following reasons:

- The eastern face of the DCW has a declared draft of 6m. This is insufficient for current shipping;
- The current berths are 50 metres each in length. Current shipping requires more berth space;
- The layout of the DCW is unsuitable for handling the import or export of dry bulk solid cargoes;
- The laydown area in proximity to the DCW is limited and of poor design for safe work flow;
- The existing layout of facility hinders efficient general cargo handling and transfers; and
- The existing DCW facility reaches the end of its design life in 2021, and Heavy Load Out (HLO) facility in 2013, and will require substantial works to extend this period.

In determining the most efficient use of available resources for the State, the DPA has undertaken numerous iterations of the design concept. The DPA has now resolved the current concept plan to offer the most beneficial layout for the development. The proposed DMSF includes:

- Construction of a new wharf adjacent to the existing Dampier Cargo Wharf;
- Dredging of berth and swing basin areas for the new wharf;
- Construction of a Roll On-Roll Off facility;
- Construction of Land Backed Wharf; and
- Construction of approximately 20 hectares of laydown area.

The layout of the proposed DMSF facility, berth and swing basins is shown in **Figure 4** and **Appendix 2**.

The important design features are:

- **Construction of a new wharf facility** – this allows the construction to be undertaken while the existing facility is operational, making it safer and ensuring minimal disruption to Port operations;
- **Balanced cut and fill operation** – the amount of required dredging is balanced with the land development area to promote the disposal of all material without requiring sea disposal. As laydown area is in such short supply in Dampier, this provides for the beneficial reuse of a potentially damaging waste.
- **North facing wharf** – material offloading facilities are sensitive to movement of the vessel. Rise and fall of the vessel due to swell makes loading and unloading via ship's crane dangerous. The current DCW works well in ambient swell and sea conditions with minimal shut-down periods; this design has been duplicated with the proposed DMSF;
- **Location amongst existing Port area** – the proposed DMSF is located between existing developments (DCW, DBLB) and current developments (Woodside's Pluto Project). The project footprint and anticipated impact area is within those areas already disturbed by current projects. This consolidation of projects reduces footprint of impacts by the port operations.

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

The proposed DMSF has been subject to numerous extensive design iterations in order to develop the optimum solution. The location is relatively fixed by the required proximity to existing infrastructure and limited space availability.

There are no alternative locations or time frames for this project.

### 2.3 Context, planning framework and state/local government requirements

The land use proposed is consistent with the Burrup Peninsula Land Use Plan and Management Strategy (September 1996). This plan identified the project area as Policy Area C, and identified the future use Industrial and Port uses, as shown below (extract from p 13 of Strategy).

### BURRUP WEST (Policy Area C- 520ha)

#### Area Values

This Area, situated between the existing Woodside Supply Depot and the Woodside LNG Plant, has high value for major strategic industrial and port development sites. The proximity to the deep waters of Mermaid Sound ensures port potential. Holden Beach presently has recreation value. The Area also has environmental and heritage values.

#### Management Objectives

- To use the land for industries requiring adjacent port facilities.
- To preserve, as far as possible, the environmental values and significant Aboriginal sites.

#### Policy Statements

- Recreation at Holden Beach is inconsistent with the industrial use proposed for the Area.
- Construction and operation of land and port facilities should aim to minimise impacts on the marine environment.

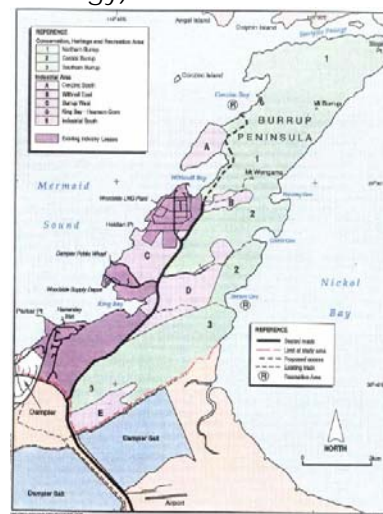


Figure 1: BURRUP PENINSULA LAND USE PLAN

This plan was endorsed by the West Australian State Government, and is the current Land Use Plan for the region.

The need to expand the Dampier Port facilities to meet continued strong growth in the region was identified by the Dampier Port Authority in the Port Development Plan 2004, which is a West Australian Government approved document.

### 2.4 Environmental impact assessments under Commonwealth, state or territory legislation

In June 2009 the proposed DMSF project was referred to the West Australian Environmental Protection Agency (EPA) under Part IV of the *Environmental Protection Act 1986*. Written advice received from the EPA on Tuesday 11<sup>th</sup> August 2009 (**Appendix 3**) directed the DPA to prepare an "Assessment on Referral Information" document, which will require approval by the Minister for the Environment.

Subsequent to this approval, subsidiary approvals are likely to be required for various components of the works. These will include:

- Approval under the *Environmental Protection Act 1986* for the disturbance/removal of native vegetation, in accordance with the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*; and
- Approval under Section 18 of the *Aboriginal Heritage Act 1972* for the disturbance/removal of aboriginal heritage items.

The proposed DMSF is located within an active Port area. It is adjacent the existing Dampier Port Authority facilities, being approximately 140 metres from the current Dampier Cargo Wharf, and within the existing disturbance footprint. Immediately to the east of the proposed footprint is the Pluto development.

Approximately 60 percent of the DMSF is located within Zone A of the Pluto development, identified as having potentially 100% coral loss during the site development. The entire remainder of the DMSF footprint, including indirect impact footprint, is within Zone B of the Pluto development. This zone has been identified as potentially having some 10% of coral impacted during the Pluto site development.

The proposed DMSF does not contain unique marine habitats and is not known or expected to contain any rare or endangered marine fauna, or habitats likely to be significant to these species.

Three environmental impacts have been identified for the proposed DMSF development:

1. Direct loss of marine habitats due to construction of rock seawall, reclamation (i.e. onshore dredge material placement) and dredging (including berthing areas and swing basins);
2. Disturbance of supratidal (terrestrial) habitats; and
3. Water quality impacts during construction (i.e. generation of turbid plumes of water).

Preliminary studies have indicated that the potential water quality impacts of the DMSF development are significantly less than those caused by the adjacent Pluto Project. Hydrodynamic modelling works are underway to further refine the nature of these potential impacts. It should be noted that this process has been assisted by Industry stakeholders allowing access to the existing, calibrated and field verified hydraulic models for the site.

The DPA is currently undertaking consultation with stakeholders across the Port area. These consultations are ongoing. Discussions involve the provision of the concept layout, design considerations and proposal explored, existing environmental information and the impact assessment process.

The Department of Environment and Conservation contacts are:

- Regional – Mr Richard Sutherland (08) 6467-5446
- Local – Ms Shandell Smith and Ms Alana Kidd (08) 9182 2000

Should the disturbance of Aboriginal heritage items be required, consultation with Indigenous groups will be undertaken consistent with State *Aboriginal Heritage Act 1972* Section 18 Approval.

## **2.5 Consultation with Indigenous Stakeholders**

Native title has been deemed not to exist in the project area<sup>1</sup>. This decision was unsuccessfully appealed in 2006<sup>2</sup>.

The DPA has undertaken consultations with local indigenous groups as part of previous development proposals across Port lands, which included the proposed site of the DMSF. This included ethnographical and archaeological surveys of the land portions of the proposed site. This data was collated and used to prepare an application for Section 18 Approval, although the DPA did not submit the document at the time, due to a change in development focus.

However, this data will be used as a platform for the consultation to be undertaken during the current project. At this stage, a number of sites are known to exist either within, or immediately adjacent to the proposed development footprint (**Figure 5**). Where these cannot be avoided or protected, the DPA will submit a Section 18 application under the Western Australian Aboriginal Heritage Act 1972. As part of this application, formal consultations will be undertaken with Indigenous groups beyond that outlined in Section 2.4 above.

## **2.6 A staged development or component of a larger project**

The Dampier Marine Services facility is a stand-alone project. The intention of the project is twofold:

- To replace infrastructure which is nearing the end of its design life; and
- Expand the facility to cater for increasing vessel size and demand.

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<sup>1</sup> Daniel v Western Australia (2005) FCA 536 (2 May 2005)

<sup>2</sup> Daniel v Western Australia (2006) FCA 271 (21 March 2006)

## 3 Description of environment & likely impacts

The proposed DMSF project will result in the direct loss of approximately 21.95 hectares of inter- and sub-tidal lands through the establishment of the rock seawall and reclamation area. A further 45.14 hectares of sub-tidal lands will be directly disturbed as a result of capital dredging, which will deepen the area to between -8 metres and -14 metres relative to Lowest Astronomical Tide (see **Figure 4**). Approximately 1.9 hectares of supratidal lands will also be disturbed and/or extensively modified by the proposed DMSF.

It is noted that this land area was included in a separate proposed action that was referred to DEWHA under the *EPBC Act 1999* (DEWHA ref: 2003/1293). It is noted that the project was deemed to be 'Not a Controlled Action' on 22<sup>nd</sup> December 2003.

It is expected that capital dredging, dredged material placement and construction of the seawall will generate turbid plumes of water. As a result of these activities, some disturbance to benthic marine communities in sub-tidal areas surrounding the proposed DMSF construction footprint may be expected. Although the predicted scale of these impacts has not yet been determined through hydrodynamic modelling. It is expected that any impacts will occur at highly localised spatial scales.

### 3.1 Matters of national environmental significance

It is expected that the proposed DMSF will not result in a "significant" impact to:

- World Heritage Properties;
- National Heritage Places;
- Wetlands of International Significance;
- Commonwealth Marine Areas;
- Threatened Ecological Communities;
- Threatened Species; or
- Migratory Species.

These matters are discussed in more detail in Sections 3.1.1 to 3.1.6. Note that the EPBC interactive map tool was used to help determine the relevant matters protected by the *EPBC Act 1999*. A report generated through this tool is included in **Appendix 4**.

#### 3.1.1 World Heritage Properties

##### (a) Description

Shark Bay, located approximately 650 kilometres to the south of Dampier, represents the nearest World Heritage Listed Property to the proposed DMSF.

##### (b) Nature and extent of likely impact

The DMSF will not have any significant impact to the values of the Shark Bay World Heritage Property.

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### 3.1.2 National Heritage Places

#### (a) Description

The proposed DMSF is situated within Dampier Port Authority controlled lands approximately 400 metres from the Dampier Archipelago (including Burrup Peninsula) National Heritage Place. The Dampier Archipelago and Burrup Peninsula were added to the National Heritage List on the 3rd July 2007. These locations were recognised for their diversity and density of Aboriginal petroglyphs, middens, stone structures and tool workshops, and evidence of aboriginal occupation of the area over a very significant time period.

#### (b) Nature and extent of likely impact

Given the location of the proposed DMSF, no direct impacts to the values of the Dampier Archipelago (including Burrup Peninsula) National Heritage Place are expected. Further to this, the construction phase of the DMSF does not include any blasting works, or additional activities which could indirectly impact the adjacent National Heritage Place.

It is noted that a large portion of Mof Road, the principal access road to the Dampier Port Facility and industrial precinct, is included in the Dampier Archipelago (including Burrup Peninsula) National Heritage Place. It is expected that the construction and operation of the proposed DMSF will result in additional vehicle movements along this access road. However, no direct or indirect impacts to the values of this National Heritage Place are expected.

Previous developments in the region raised concerns that industrial emissions may have an impact on the longevity of the rock art in the Burrup Peninsula region. However, the Report and Recommendations to the Minister for State Development prepared by the Burrup Rock Art Monitoring Management Committee (2009) indicated that no detectable impacts were occurring that were attributable to existing industrial developments. It is notable that the proposed DMSF will not have atmospheric emission sources of the same nature, scale or intensity as the adjacent gas plants.

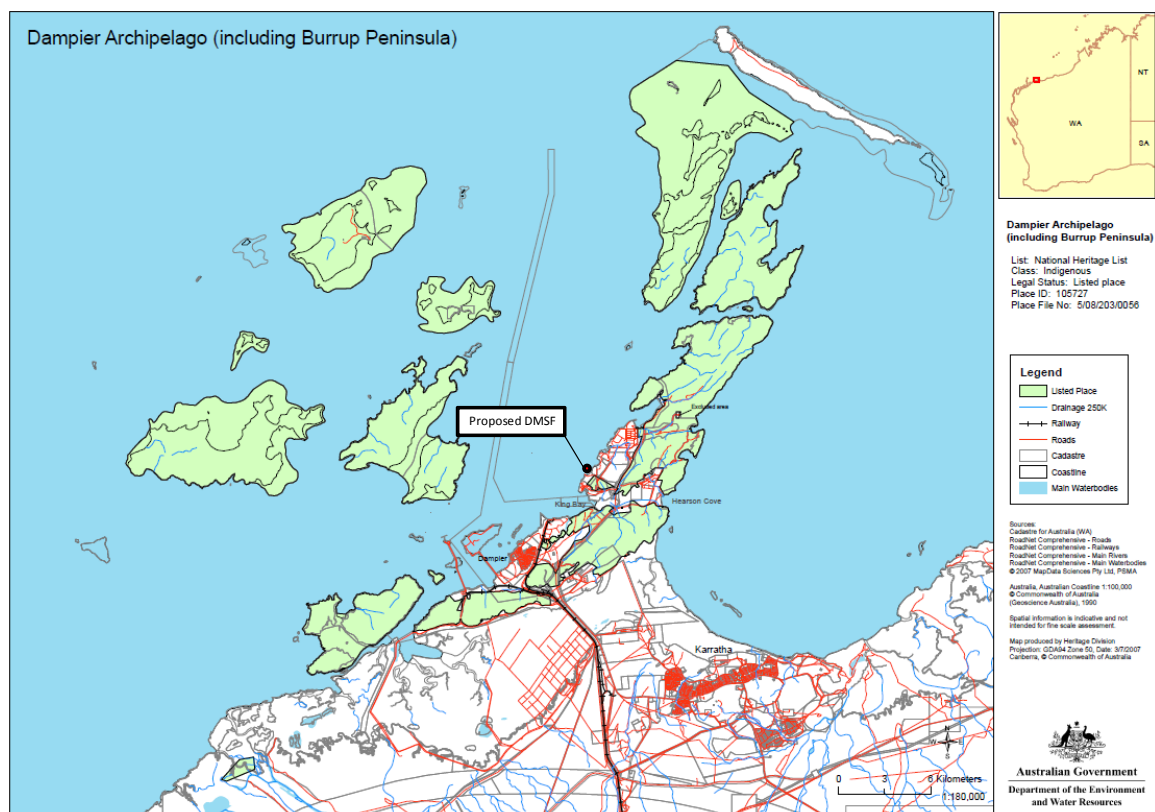


Figure 6: Location of proposed DMSF relative to Dampier Archipelago (including Burrup Peninsula) National Heritage Listed Place

### 3.1.3 Wetlands of International Importance (declared Ramsar wetlands)

#### (a) Description

Roebuck Bay, located approximately 650 kilometres to the north of Dampier, represents the nearest Ramsar Listed Wetland Site to the proposed DMSF.

#### (b) Nature and extent of likely impact

The proposed DMSF will not have any significant impact to the values of the Roebuck Bay Ramsar Listed Wetland Site.

### 3.1.4 Listed threatened species and ecological communities

#### (a) Description

Ten (10) threatened species were identified as having potential to occur, or have habitat situated within the DMSF project area, as determined using the EPBC protected matters search tool. This information is summarised in **Table 2**.

No threatened ecological communities were identified within or immediately adjacent to the proposed DMSF.

#### (b) Nature and extent of likely impact

With the exception of the marine reptiles, none of the species listed in **Table 2** are expected to occur within the DMSF project area due to the nature of the marine and terrestrial habitats present. Although the Flatback turtle (*Natador depressus*) was identified by the EPBC search tool as potentially having breeding habitat within the proposed DMSF project area, this is highly unlikely given the rocky nature of the foreshore.

It is not expected that any of the identified listed threatened species would be 'significantly' impacted by the proposed DMSF, as per the definitions provided in *EPBC Act 1999* Guidelines.

Given the complete absence of threatened ecological communities within or proximal to the DMSF project area, it is not expected that there will be any significant impacts to these communities.

**Table 2:** Threatened species that could potentially occur or have habitat within the DMSF project area

Group	Species	Common Name	Status
Birds	<i>Macronectes giganteus</i>	Southern Giant-Petrel	Endangered <sup>#</sup>
Mammals	<i>Dasyurus hallucatus</i>	Northern Quoll	Endangered <sup>**</sup>
	<i>Megaptera novaeangliae</i>	Humpback Whale	Vulnerable <sup>***</sup>
	<i>Rhinonictis aurantius</i> (Pilbara form)	Pilbara Leaf-nosed Bat	Vulnerable <sup>#</sup>
	Reptiles	<i>Caretta caretta</i>	Loggerhead Turtle
	<i>Chelonia mydas</i>	Green Turtle	Vulnerable <sup>#</sup>
	<i>Dermochelys coriacea</i>	Leatherback Turtle	Endangered <sup>#</sup>
	<i>Eretmochelys imbricata</i>	Hawksbill Turtle	Vulnerable <sup>#</sup>
	<i>Natador depressus</i>	Flatback Turtle	Vulnerable <sup>**</sup>
Sharks	<i>Rhincodon typus</i>	Whale Shark	Vulnerable <sup>#</sup>

**Note:**

<sup>#</sup> Species or species habitat **may** occur in the area

<sup>\*\*</sup> Species or species habitat **likely** to occur in the area

<sup>\*\*\*</sup> Species or species habitat **known** to occur in the area

### 3.1.5 Listed migratory species

#### (a) Description

Twenty-four (24) Listed Migratory Species were identified as having potential to occur, or have habitat



situated within the DMSF project area, as determined using the EPBC protected matters search tool. This information is summarised in **Table 3**.

**Table 3:** Migratory species that could potentially occur, or have habitat within, the DMSF project area

Group	Sub-group	Common Name	Status
Migratory Terrestrial Species	Birds	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle <sup>***</sup>
		<i>Hirundo rustica</i>	Barn Swallow <sup>#</sup>
		<i>Merops ornatus</i>	Rainbow Bee-eater <sup>#</sup>
Migratory Wetland Species	Birds	<i>Ardea alba</i>	Great Egret, White Egret <sup>#</sup>
		<i>Ardea ibis</i>	Cattle Egret <sup>#</sup>
		<i>Charadrius veredus</i>	Oriental Plover, Oriental Dotterel <sup>#</sup>
		<i>Glareola maldivarum</i>	Oriental Pratincole <sup>#</sup>
		<i>Numenius minutus</i>	Little Curlew, Little Whimbrel <sup>#</sup>
Migratory Marine Birds	Birds	<i>Apus pacificus</i>	Fork-tailed Swift <sup>#</sup>
		<i>Ardea alba</i>	Great Egret, White Egret <sup>#</sup>
		<i>Ardea ibis</i>	Cattle Egret <sup>#</sup>
		<i>Macronectes giganteus</i>	Southern Giant-Petrel <sup>#</sup>
Migratory Marine Species	Mammals	<i>Balaenoptera edeni</i>	Bryde's Whale <sup>#</sup>
		<i>Dugong dugon</i>	Dugong <sup>**</sup>
		<i>Megaptera novaeangliae</i>	Humpback Whale <sup>***</sup>
		<i>Orcinus orca</i>	Killer Whale, Orca <sup>#</sup>
		<i>Sousa chinensis</i>	Indo-Pacific Humpback Dolphin <sup>#</sup>
		<i>Tursiops aduncus</i>	Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) <sup>***</sup>
	Reptiles	<i>Caretta caretta</i>	Loggerhead Turtle <sup>#</sup>
		<i>Chelonia mydas</i>	Green Turtle <sup>#</sup>
		<i>Dermochelys coriacea</i>	Leatherback Turtle <sup>#</sup>
		<i>Eretmochelys imbricata</i>	Hawksbill Turtle <sup>#</sup>
		<i>Natator depressus</i>	Flatback Turtle <sup>†</sup>
	Sharks	<i>Rhincodon typus</i>	Whale Shark <sup>#</sup>

**Note:**

# Indicates species or species habitat **may** occur in the area

\*\* Species or species habitat **likely** to occur in the area

\*\*\* Species or species habitat **known** to occur in the area

† Breeding likely to occur in the area

**(b) Nature and extent of likely impact**

A very small proportion of the Listed Migratory Species shown in **Table 3** would be expected to occasionally utilise the proposed DMSF project area. However, it is not expected that these species would be 'significantly' impacted by the proposed development (as per the definitions provided in *EPBC Act 1999* Guidelines).

The marine and terrestrial habitats within the proposed DMSF project area represent a negligible proportion of the total habitat available at local and regional spatial scales. The suite of migratory species identified would be expected to utilise a wide range of habitats other than those represented in the proposed DMSF project area.

**3.1.6 Other Matters Protected by the EPBC Act**

**(a) Description**

A number of Listed Marine Species were identified as by the EPBC protected matters search tool for the proposed DMSF area, comprising: Birds (10 species), Mammals (1 species), Ray-Finned Fishes (25 species), Reptiles (22 species) and Whales and other Cetaceans (11 species). A complete list of "Other

Matters Protected by the *EPBC Act* is provided in **Appendix 4**.

**(b) Nature and extent of likely impact**

A very small proportion of the Listed Marine Species listed in **Appendix 4** would be expected to occasionally utilise the proposed DMSF project area. However, it is not expected that these species would be 'significantly' impacted by the proposed development (as per the definitions provided in *EPBC Act 1999* Guidelines).

The marine and terrestrial habitats within the proposed DMSF project area represent a negligible proportion of the total habitat available at local and regional spatial scales. The suite of marine species identified would be expected to utilise a wide range of habitats other than those represented in the proposed DMSF project area

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**3.1.7 Commonwealth Marine Area**

**(a) Description**

The proposed DMSF will not be undertaken within or immediately adjacent to a Commonwealth Marine Area. The boundary of the nearest Commonwealth Marine Area is approximately 33 kilometres from the proposed DMSF.

**(b) Nature and extent of likely impact**

No impacts to a Commonwealth Marine Area are expected.

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**3.1.8 Commonwealth land**

**(a) Description**

There are no Commonwealth Lands within or immediately adjacent to the proposed DMSF.

**(b) Nature and extent of likely impact**

No impacts to a Commonwealth Land Area are expected.

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### 3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, or actions taken on Commonwealth land

3.2.1	Is the proposed action a nuclear action?	✓	No
			Yes (provide details below)

3.2.2	Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?	✓	No
			Yes (provide details below)

3.2.3	Is the proposed action to be taken in a Commonwealth marine area?	✓	No
			Yes (provide details below)

3.2.4	Is the proposed action to be taken on Commonwealth land?	✓	No
			Yes (provide details below)

### 3.3 Other important features of the environment

#### 3.3.1 Soil and vegetation characteristics

The supratidal component of the proposed DMSF is composed largely of coastal rock platform and Rhyodacite rock formations and does not contain significant areas of soil strata (**Photos 1 and 2**). This appears to be a major limited factor for the establishment of vegetation communities. In addition to this, the vegetation within the terrestrial component of the proposed DMSF project is regularly impacted by strong cyclonic waves and a higher level of salinity in the skeletal soil than is found in other areas of the Burrup Peninsula.

Vegetation over the Burrup Peninsula has been mapped on a broad scale by Trudgen (2002). However, a detailed botanical survey of the supratidal zone within the proposed DMSF was completed in August 2009 by Astron Environmental (Astron 2009). The following points provide a brief summary of this survey:

- No Threatened Ecological Communities (TEC) as listed under the *EPBC Act 1999* occur within or nearby to the proposed DSMF;
- No Declared Rare Flora (DRF) as listed under the *State Wildlife Conservation Act 1950* were recorded within the proposed DMSF or in the wider Burrup Peninsula;

- *Terminalia supranatifolia*, a low shrub commonly associated with rock piles and rocky upper slopes, was sparsely recorded within the proposed DMSF. The species has been identified as having 'Priority Three' status, which means that it is a poorly known taxon within Western Australia, but is not currently endangered. It is noted that despite its status as "Priority Three" this species is not afforded any special protection under the *Wildlife Conservation Act 1950*.
- Four weed species were recorded within the proposed DMSF, including *Aerva javanica* (Kapok Bush), *Cenchrus ciliaris* (buffel grass), *Passiflora foetida* (Wild Passionfruit) and one occurrence of *Physalis minima* (Cape gooseberry), which was removed at time of survey. These were principally recorded in disturbed areas (i.e. along or at the base of rock batters).
- The vegetation along the rocky coastal fringe within the proposed DMSF area is comprised of scattered low trees and shrubs of *Acacia coriacea*, *Ipomoea costata*, *Ficus virens* var *virens*, *Ficus brachypoda* with *Stylobasium spathulatum* and *Terminalia supranatifolia*. There are sheltered rock pockets where the vegetation is more dense with mixed low woodland and shrubland of *Ipomoea costata*, *Acacia coriacea*, *Stylobasium spathulatum* with *Ficus virens* var *virens*.
- Towards the northern section of the proposed area extends a corridor of *Triodia epactia* grassland with low shrubland of *Pluchea tetranthera*. This latter vegetation association is rarely occurring on the Burrup Peninsula (Trudgen 2002).



**Photo 1:** Proposed DMSF looking towards the Pluto LNG Jetty



**Photo 2:** Proposed DMSF looking towards the DPA Lower Laydown Area and Port Control Building.

### 3.3.2 Water flows, including rivers, creeks and impoundments

Permanent water bodies do not exist within or traverse the supratidal area of the proposed DMSF. However, several minor drainage lines traverse this area, although they are only ephemeral features; water flow occurs principally during the wet season (November to April). Surface water from the greater catchment drains westward into Mermaid Sound. Changes to the local topography made by the proposed DMSF are not expected to change the quality or quantity of freshwater flows to Mermaid Sound.

The most prominent ephemeral waterway nearest to the proposed DMSF footprint exists approximately 150 metres to the east (refer to **Figure 1**). Drainage to this catchment will not be affected by the proposed DMSF.

### 3.3.3 Outstanding natural features, including caves

The natural features of the DMSF project area are typical of Burrup Peninsula landforms. The supratidal zone of the proposed DMSF is dominated by rocky outcrops interspersed by sparse patches of vegetation. A prominent feature of the supratidal zone is a large rock berm, which exists roughly between six and eight metres above LAT. The rock berm has been generated by strong wave action during long period cyclone activity.

### 3.3.4 Gradient (or depth range if action to be taken in a marine area)

The relevant levels within the each zone of the proposed DMSF are as follows:

- **Reclamation zone:** Ranges between -5 and +5 metres relative to LAT.
- **Dredging zone:** Ranges between -5 and -8 metres relative to LAT.
- **Supratidal zone:** Rises from 5 to 9 metres relative to LAT. The adjoining hills rise to approximately 40 metres relative to LAT.

### 3.3.5 Buildings or other infrastructure

The Dampier Cargo Wharf, Heavy Load Out facility and their associated berthing area and swing basin are located within the dredging zone of the proposed DMSF. The Dampier Port Lower Laydown Area currently adjoins the proposed DMSF along approximately 450 metres of its southern boundary (refer to **Figure 1**).

### 3.3.6 Marine areas

The proposed DMSF will not have any impact, significant or otherwise, on Commonwealth Marine Areas. The dominant sub-tidal marine habitats within the proposed DMSF are coral reef and bare sand / silty sand substrates. It is notable that approximately 60 percent of the DMSF is located within Zone A of the Pluto development, which is identified as potentially having 100% coral loss during the site development. The entire remainder of the proposed DMSF is within Zone B of the Pluto development. This zone has been identified as potentially having some 10% of coral impacted from the Pluto site development. It is also important to note that the coral monitoring to date by the Pluto project has not recorded any coral mortality in these areas directly related to dredging.

### 3.3.7 Fauna

A desktop study of fauna known or likely to inhabit Dampier Port Authority owned lands, including the proposed DMSF identified the Pilbara Olive Python (*Liasis livacea barroni*) as potentially existing within the supratidal zone of the proposed DMSF. This species is known to occur in deep rock fissures in the King Bay area (Pearson, 2002). These landforms are not found in the proposed DMSF, and is therefore not considered core habitat for this species.

Given the proposed DMSF represents a negligible proportion of this species total available habitat, it is not expected that this species would be 'significantly' impacted by the development, as per the definitions provided in *EPBC Act 1999* Guidelines. It is noted that the Pilbara Olive Python was not identified by the Protected Matters Search Tool for the proposed DMSF area.

### 3.3.8 Current state of the environment in the area

The proposed DMSF is located between existing developments (Dampier Cargo Wharf, Bulk Liquids Berth) and current developments (Woodside's Pluto Project). The dredging and reclamation zones of the proposed DMSF are situated within marine environments that have been previously disturbed by these developments. The supratidal zone of the proposed DMSF is almost entirely undeveloped, although it is subject to natural impacts from long period cyclone events (i.e. strong wave action – Refer to **Photo 1 & 2**).

### 3.3.9 Other important or unique values of the environment

The environmental values of the proposed DMSF existing environment have been described in detail throughout this referral document.

### 3.3.10 Tenure of the action area (e.g. freehold, leasehold)

The Dampier Port Authority has tenure over the seabed, water and land associated with the proposed DMSF.

### 3.3.11 Existing land/marine uses of area

The proposed DMSF is located within an active Port and Industrial area. To the east are Woodside's Pluto Gas Plant development and the North West Shelf Venture Karratha Gas Plant. To the West are the King Bay Industrial Estate and Rio Tinto's Parker Point iron ore export facility.

### 3.3.12 Any proposed land/marine uses of area

See Section 3.3.11.

## 4 Measures to avoid or reduce impacts

It is anticipated that the current proposal will not have any significant impact to Matters of National Environmental Significance. However, all measures to avoid or reduce impacts of the proposed DMSF will be taken, including:

- **Several locations for proposed DMSF investigated:** Several locations for the proposed DMSF were investigated during the design of the project. The current location represented the option with least environmental impact;
- **Keeping the reclamation footprint to a minimum:** The extent of dredging operations will be balanced with the size of the reclamation area to promote the disposal of all dredged material without requiring sea disposal. This provides for the beneficial reuse of a potentially damaging waste and minimises the area to be impacted by reclamation;
- **Construction Environmental Management Plan (CEMP):** The construction of the proposed DMSF will occur in accordance with a CEMP approved by the Dampier Port Authority. The project will also require State approval and subsequent Ministerial approval. This approval is expected to contain a range of Ministerial approval conditions pertaining to environmental management and monitoring during construction and operational phases of the proposed DMSF;
- **Incorporating Water Sensitive Urban Design (WSUD) Concepts:** WSUD will be incorporated, where possible, into the design of the proposed DMSF. This is intended to reduce peak flows from the proposed DMSF and protect water quality in the receiving environment;
- **Hydrodynamic Modelling:** The potential environmental impacts of dredging and reclamation to nearby sensitive marine receptors will be identified through hydrodynamic modelling assessments. The results of these assessments will be fed into the CEMP for the proposed DMSF project, and appropriate controls established to mitigate these impacts.

# 5 Conclusion on the likelihood of significant impacts

## 5.1 Do you THINK your proposed action is a controlled action?

- No, complete section 5.2
- Yes, complete section 5.3

## 5.2 Proposed action IS NOT a controlled action.

This referral document has highlighted that the proposed Dampier Marine Services Facility (DMSF) is not expected to result in a “significant” impact to any matters of National Environmental Significance. The following dot points summarise the key reasons that this proposed action is not a controlled action:

- The proposed DMSF is not located within or nearby to: Commonwealth Land or Marine Waters, World Heritage Areas, Threatened Ecological Communities or Wetlands of International Significance;
- The existing access road to the Dampier Port Authority and proposed DMSF traverses a National Heritage Listed Place, however, no impacts to the values of this Place are expected;
- Migratory and threatened species would not be ‘significantly’ impacted by the proposed development as per the definitions provided in *EPBC Act 1999* Guidelines. Several Threatened and Migratory Species were identified as being known or likely to utilise the marine and terrestrial habitats within the proposed DMSF. However, only a small sub-set of these species would be expected to occasionally utilise the habitats within the area. Further, these habitats are not unique, and are well represented at local and regional spatial scales, including within existing declared conservation areas.

## 5.3 Proposed action IS a controlled action

### Matters likely to be impacted

- sections 12 and 15A (World Heritage)
- sections 15B and 15C (National Heritage places)
- sections 16 and 17B (Wetlands of international importance)
- sections 18 and 18A (Listed threatened species and communities)
- sections 20 and 20A (Listed migratory species)
- sections 21 and 22A (Protection of the environment from nuclear actions)
- sections 23 and 24A (Commonwealth marine environment)
- sections 26 and 27A (Protection of the environment from actions involving Commonwealth land)
- section 28 (Protection of the environment from Commonwealth actions)
- Sections 27B and 27C (Commonwealth Heritage places outside the Australian Jurisdiction)

## 6 Environmental history of the responsible party

		Yes	No
6.1	<p>Does the party taking the action have a satisfactory record of responsible environmental management?</p> <p>Provide details</p>	✓	
6.2	<p>Has the party taking the action ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?</p> <p>If yes, provide details</p>		✓
6.3	<p>If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?</p> <p>If yes, provide details of environmental policy and planning framework</p> <ul style="list-style-type: none"> <li>The Dampier Port Authority (DPA) operates in accordance with an Environmental Management System and Environmental Policy (<b>Appendix 4</b>). These provide the DPA with a framework for continuous improvement;</li> <li>The DPA were recognised as Australian Port of the Year 2007 (Lloyds List DCN);</li> </ul>	✓	
6.4	<p>Has the person proposing to take the action previously referred an action under the EPBC Act?</p> <p>Provide name of proposal and EPBC reference number (if known)</p> <ul style="list-style-type: none"> <li><b>2003/1265</b> – Dampier Port Authority/Water transport/Dampier/WA/Port Expansion and Dredging – 30 Oct 2003;</li> <li><b>2003/1150</b> – Dampier Port Authority &amp; BGC Contracting Pty Ltd/Urban and commercial new development/Burrup Peninsula/WA/King Bay East Rock Quarry &amp; Industrial Estate Development – 13 Aug 2003;</li> <li><b>2003/1293</b> – Dampier Port Authority/Manufacturing/Burrup Peninsula/WA/Development of Industrial Land, Port of Dampier – 24 Nov 2003;</li> <li><b>2004/1751</b> – Dampier Port Authority/Urban and commercial new development/Burrup Peninsula/WA/Stages 1 &amp; 2 Port of Dampier Security Upgrade &amp; Associated Works – 27 Aug 2004.</li> </ul>	✓	



# 7 Information sources and attachments

## 7.1 References

- Astron Environmental (2009) Dampier Port Authority Project Margins Vegetation and Flora Survey, August 2009. *Draft Report* Prepared by Astron Environmental on behalf of Dampier Port Authority;
- Burrup Rock Art Monitoring Management Committee (2009) Report and Recommendations to the Minister for State Development, April 2009;
- Department of Environment, Water, Heritage and the Arts (2009) Protected Matters Search. <http://www.environment.gov.au/erin/ert/epbc/index.html>. Accessed July 2009. Department of Environment, Water, Heritage and the Arts, Canberra;
- Pearson, D. (2002) Report on a survey for Pilbara Olive Pythons on the proposed Western Stevedores loading facility and laydown area, Dampier Public Wharf South. Unpublished Report Prepared for Western Stevedores by CALM.
- Trudgen M.E. (2002) A flora, vegetation and floristic survey of the Burrup Peninsula, some adjoining areas and part of the Dampier Archipelago, with comparisons to the floristics of areas on the adjoining mainland. Vol 1. Prepared for the Department of Mineral & Petroleum Resources Perth WA February 2002.

## 7.2 Reliability and date of information

- Source of information is provided in Section 7.1;
- The date of information sources is also provided in Section 7.1;
- The information contained in this referral was prepared and reviewed by environmental scientists with considerable experience in the field of impact assessment;
- Significant work has been done in the region;
- There are no uncertainties in the information provided in this referral document.

### 7.3 Attachments

		✓ attached	Title of attachment(s)
<b>You must attach</b>	figures, maps or aerial photographs showing the project locality (section 1)	✓	Figure 1, 2, 3 and 4 – DMSF Project location.
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Figure 5 – Location of known Aboriginal Heritage sites. See
<b>If relevant, attach</b>	copies of any state or local government approvals and consent conditions (section 2.3)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.4)		
	copies of any flora and fauna investigations and surveys (section 3)		Report is currently in draft and under review by DPA. When this report has been finalised, a copy can be emailed to DEWHA (if required).
	technical reports relevant to the assessment of impacts on protected matters and that support the arguments and conclusions in the referral (section 3 and 4)		
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

# 8 Contacts, signatures and declarations

## Dampier Marine Services Facility

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### 8.1 Person proposing to take action

Name Wayne Young  
Title Environment Manager  
Organisation Dampier Port Authority  
ACN / ABN (if applicable) 23897227533  
Postal address PO Box 285, DAMPIER WA 6713  
Telephone +61 8 9159 6525  
Email Wayne.young@dpa.wa.gov.au  
Declaration I declare that the information contained in this form is, to my knowledge, true and not misleading. I agree to be nominated as the proponent for this action.  
Signature \_\_\_\_\_ Date \_\_\_\_\_

---

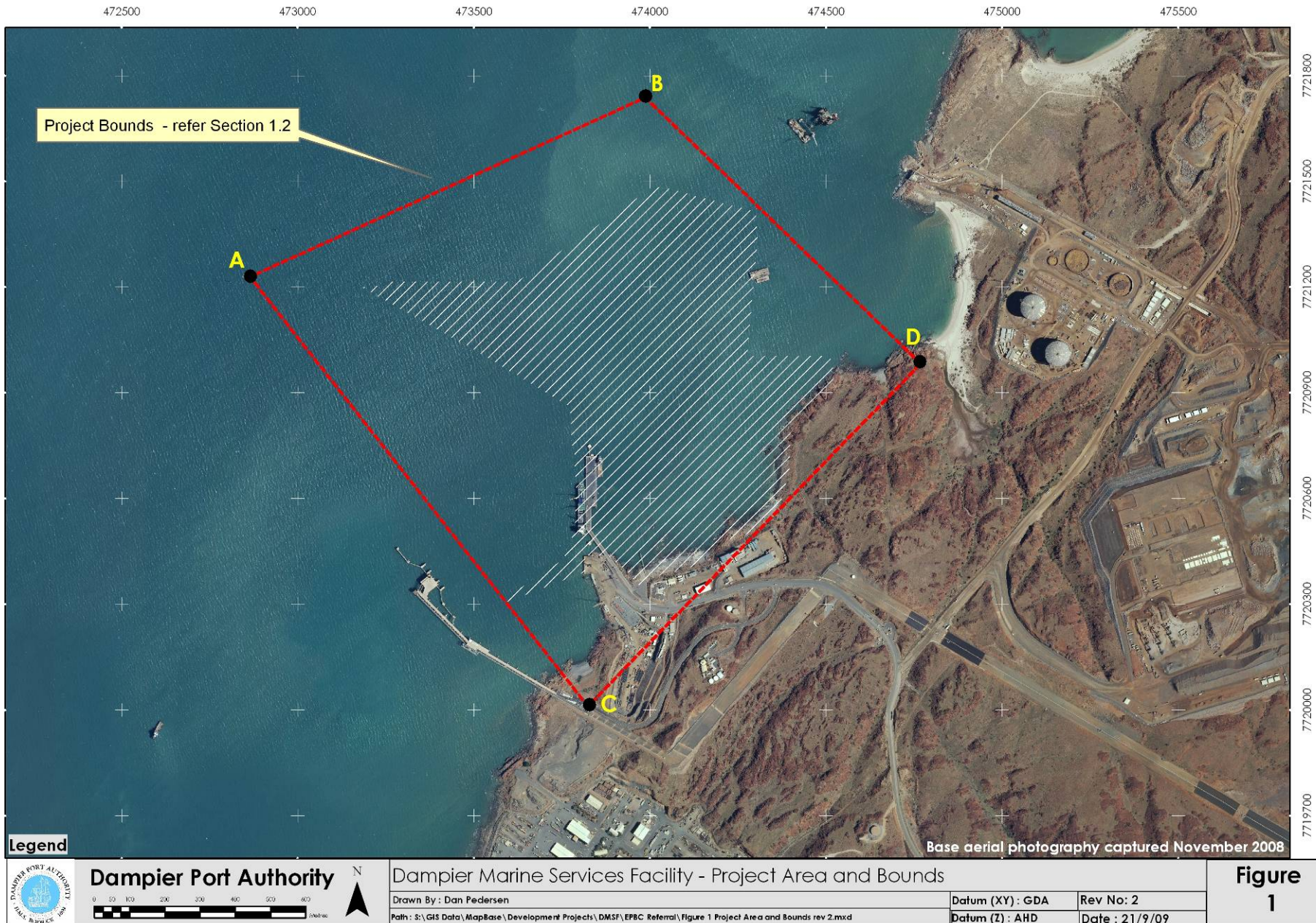
### 8.2 Person preparing the referral information (if different from 8.1)

Name Dan Pedersen  
Title Senior Environment Officer  
Organisation Dampier Port Authority  
Postal address PO Box 285, DAMPIER WA 6713  
Telephone +61 8 9159 6525  
Email Dan.pedersen@dpa.wa.gov.au  
Declaration I declare that the information contained in this form is, to my knowledge, true and not misleading.  
Signature \_\_\_\_\_ Date \_\_\_\_\_

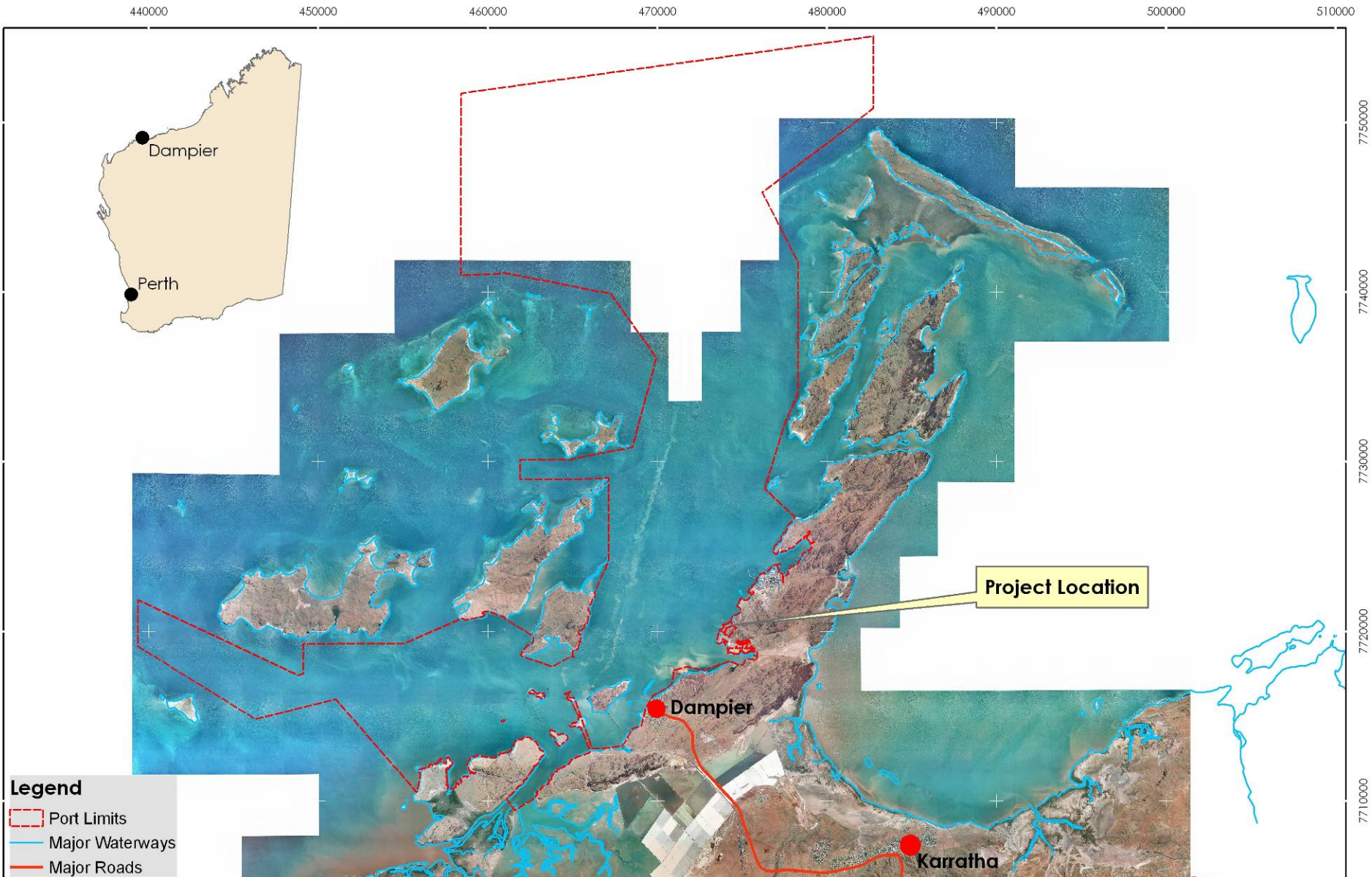
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If the referring party is a small business (fewer than 20 employees), estimate the time taken, in hours and minutes, to complete this form (include your time reading the instructions, working on the questions and obtaining the information and time spent by all employees in collecting and providing this information).

Hours	Minutes



**Figure 1**



**Legend**

- Port Limits
- Major Waterways
- Major Roads

**Dampier Port Authority**



Scale: 0 to 10,000 feet



<b>Dampier Marine Services Facility - Location Map</b>	
Drawn By: Wayne Young	Datum (XY): GDA
Path: S:\GIS Data\MapBase\Development Projects\DMSF\Figure 1.1 Location Map.mxd	Rev No: 1
	Datum (Z): AHD
	Date: 28/6/09


**Figure 2**



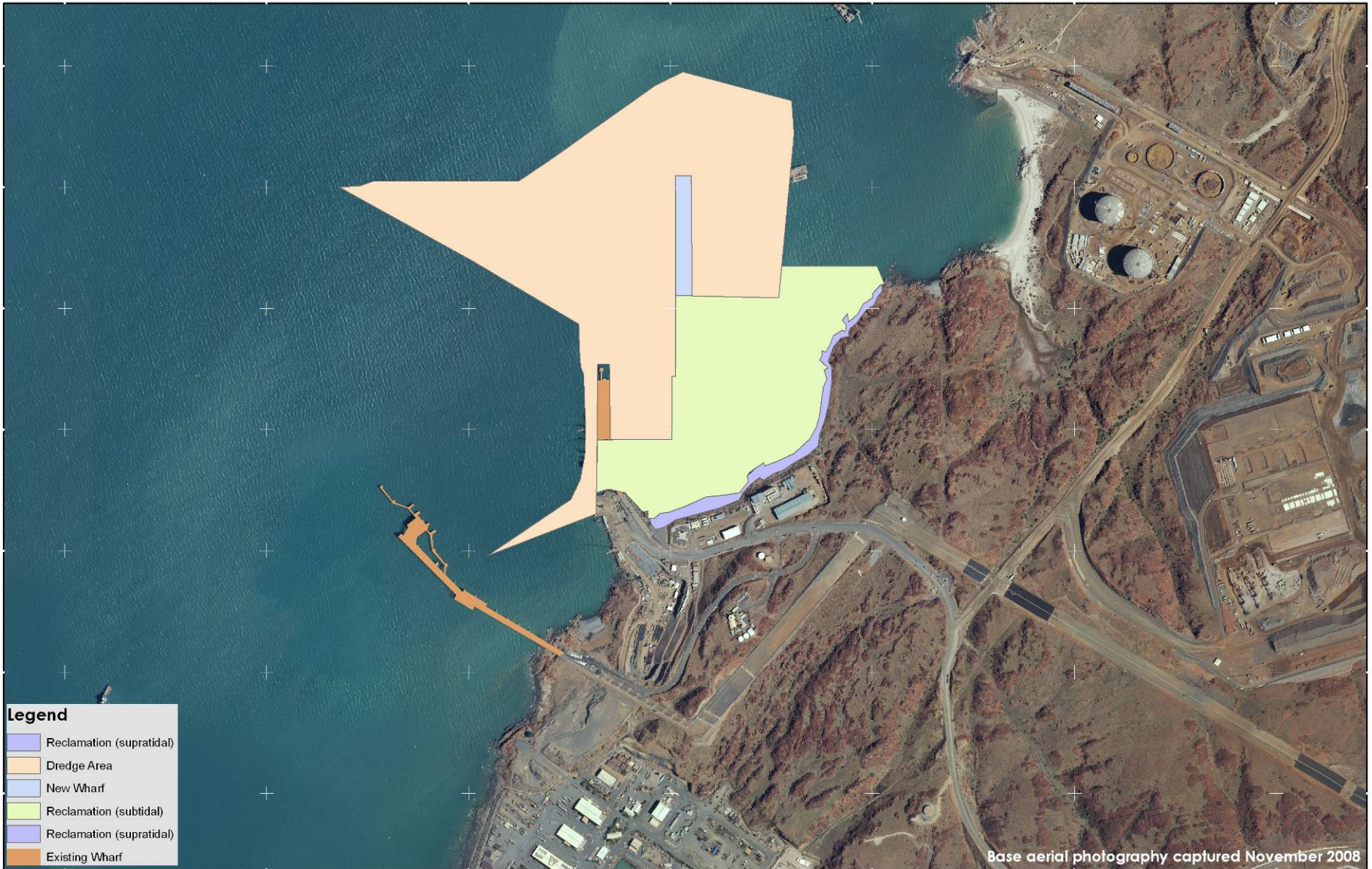
**Legend**

-  Project Area
-  Cadastre

Base aerial photography captured November 2008

	<b>Dampier Port Authority</b> 0 50 100 200 300 400 500 600 Metres	<b>Dampier Marine Services Facility - Project Area and Land Parcels</b>		<b>Figure 3</b>
		Drawn By : Dan Pedersen Path : S:\GIS Data\MapBase\Development Projects\DMSF\EPBC Referral\Figure 3 Project Area and Land Parcels rev 2.mxd	Datum (XY) : GDA Datum (Z) : AHD	

472500 473000 473500 474000 474500 475000 475500



7721500  
7721200  
7720900  
7720600  
7720300  
7720000  
7719700

**Legend**

- Reclamation (supratidal)
- Dredge Area
- New Wharf
- Reclamation (subtidal)
- Reclamation (supratidal)
- Existing Wharf

Base aerial photography captured November 2008



**Dampier Port Authority**

0 50 100 200 300 400 500 600

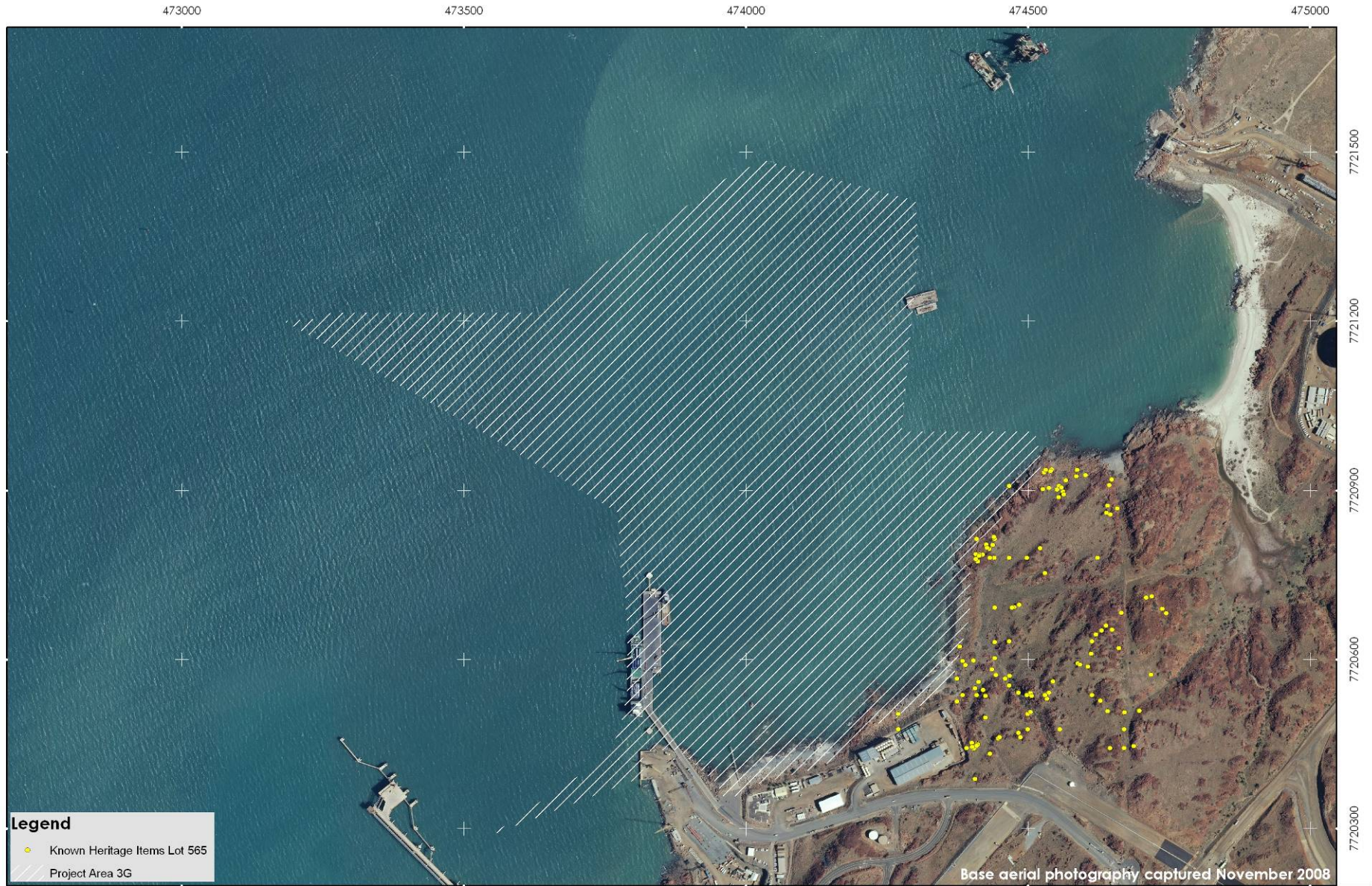
N

**Dampier Marine Services Facility - Project Layout**

Drawn By : Dan Pedersen  
 Path : S:\GIS Data\MapBase\Development Projects\DMSF\EPBC Referral\Figure 4 Project Layout rev 2

Datum (XY) : GDA	Rev No: 2
Datum (Z) : AHD	Date : 21/9/09

**Figure 4**



 <b>Dampier Port Authority</b> 0 50 100 200 300 400 1:50,000	Dampier Marine Services Facility - Known Heritage Sites Drawn By : Dan Pedersen Path : S:\14 DEVELOPMENT PROJECTS\14-06-0301 Additional Berth Study - Stage 2\EPBC Referral\Figure 5 Known Heritage Sites rev 2.mxd	Datum (XY) : GDA	Rev No : 2	<b>Figure 5</b>
		Datum (Z) : AHD	Date : 21/9/09	



**Appendix 1:**  
**Deposited Plans of the Dampier Port Authority**

## **Appendix 2**

# **Proposed Layout for the Dampier Marine Services Facility**

## **Appendix 3**

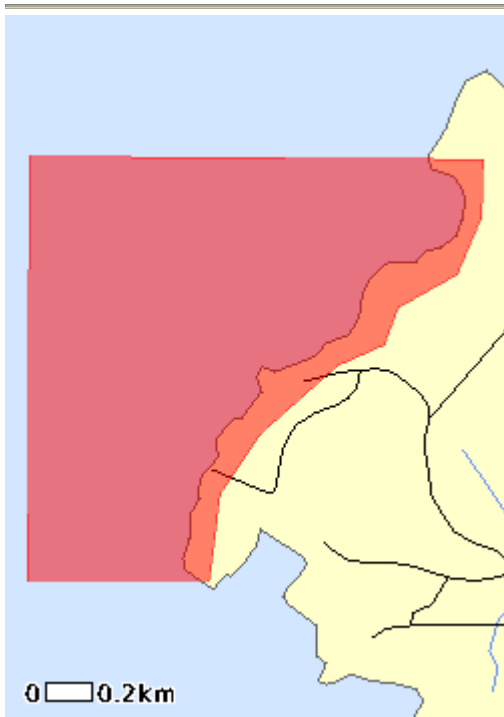
# **EPA Correspondence Regarding ARI Level of Assessment**

**Appendix 4:**  
**EPBC 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  
 © Commonwealth of Australia  
 (Geoscience Australia)  
 © 2007 MapData Sciences Pty Ltd, PSMA

**Search Type:** Area

**Buffer:** 0 km

**Coordinates:** -20.605736,116.757250, -20.605612,116.738196, -20.625826,116.738113, -20.625826,116.746770, -20.621726,116.747267, -20.618826,116.749214, -20.615595,116.752859, -20.614601,116.755096, -20.612820,116.755759, -20.611245,116.758576, -20.608512,116.759736, -20.605778,116.759818



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

[Details](#)

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

[Caveat](#)

[Acknowledgments](#)

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## 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>.

<b>World Heritage Properties:</b>	None
<b>National Heritage Places:</b>	None
<b>Wetlands of International Significance: (Ramsar Sites)</b>	None
<b>Commonwealth Marine Areas:</b>	None
<b>Threatened Ecological Communities:</b>	None
<b><u>Threatened Species:</u></b>	10
<b><u>Migratory Species:</u></b>	24

### 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>.

<b>Commonwealth Lands:</b>	None
<b>Commonwealth Heritage Places:</b>	None
<b>Places on the RNE:</b>	None

<b><u>Listed Marine Species:</u></b>	58
<b><u>Whales and Other Cetaceans:</u></b>	11
<b>Critical Habitats:</b>	None
<b>Commonwealth Reserves:</b>	None

## Extra Information

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

<b>State and Territory Reserves:</b>	None
<b>Other Commonwealth Reserves:</b>	None
<b>Regional Forest Agreements:</b>	None

## Details

### Matters of National Environmental Significance

Threatened Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<b>Birds</b>		
<a href="#"><i>Macronectes giganteus</i></a> Southern Giant-Petrel	Endangered	Species or species habitat may occur within area
<b>Mammals</b>		
<a href="#"><i>Dasyurus hallucatus</i></a> Northern Quoll	Endangered	Species or species habitat likely to occur within area
<a href="#"><i>Megaptera novaeangliae</i></a> Humpback Whale	Vulnerable	Species or species habitat known to occur within area
<a href="#"><i>Rhinonictis aurantius (Pilbara form)</i></a> Pilbara Leaf-nosed Bat	Vulnerable	Species or species habitat likely to occur within area
<b>Reptiles</b>		
<a href="#"><i>Caretta caretta</i></a> Loggerhead Turtle	Endangered	Species or species habitat may occur within area
<a href="#"><i>Chelonia mydas</i></a> Green Turtle	Vulnerable	Species or species habitat may occur within area
<a href="#"><i>Dermochelys coriacea</i></a> Leatherback Turtle, Leathery Turtle, Luth	Endangered	Species or species habitat may occur within area
<a href="#"><i>Eretmochelys imbricata</i></a> Hawksbill Turtle	Vulnerable	Species or species habitat may occur within area
<a href="#"><i>Natator depressus</i></a> Flatback Turtle	Vulnerable	Breeding likely to occur within area
<b>Sharks</b>		
<a href="#"><i>Rhincodon typus</i></a>	Vulnerable	Species or species habitat may occur



Whale Shark		within area
Migratory Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<b>Migratory Terrestrial Species</b>		
<b>Birds</b>		
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
<a href="#">Hirundo rustica</a> Barn Swallow	Migratory	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
<b>Migratory Wetland Species</b>		
<b>Birds</b>		
<a href="#">Ardea alba</a> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
<a href="#">Ardea ibis</a> Cattle Egret	Migratory	Species or species habitat may occur within area
<a href="#">Charadrius veredus</a> Oriental Plover, Oriental Dotterel	Migratory	Species or species habitat may occur within area
<a href="#">Glareola maldivarum</a> Oriental Pratincole	Migratory	Species or species habitat may occur within area
<a href="#">Numenius minutus</a> Little Curlew, Little Whimbrel	Migratory	Species or species habitat may occur within area
<b>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift	Migratory	Species or species habitat may occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
<a href="#">Ardea ibis</a> Cattle Egret	Migratory	Species or species habitat may occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel	Migratory	Species or species habitat may occur within area
<b>Migratory Marine Species</b>		
<b>Mammals</b>		
<a href="#">Balaenoptera edeni</a> Bryde's Whale	Migratory	Species or species habitat may occur within area
<a href="#">Dugong dugon</a> Dugong	Migratory	Species or species habitat likely to occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale	Migratory	Species or species habitat known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca	Migratory	Species or species habitat may occur within area
<a href="#">Sousa chinensis</a> Indo-Pacific Humpback Dolphin	Migratory	Species or species habitat may occur within area

[\*Tursiops aduncus\* \(Arafura/Timor Sea populations\)](#)  
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations)

Migratory Species or species habitat likely to occur within area

### Reptiles

[\*Caretta caretta\*](#)  
Loggerhead Turtle

Migratory Species or species habitat may occur within area

[\*Chelonia mydas\*](#)  
Green Turtle

Migratory Species or species habitat may occur within area

[\*Dermochelys coriacea\*](#)  
Leatherback Turtle, Leathery Turtle, Luth

Migratory Species or species habitat may occur within area

[\*Eretmochelys imbricata\*](#)  
Hawksbill Turtle

Migratory Species or species habitat may occur within area

[\*Natator depressus\*](#)  
Flatback Turtle

Migratory Breeding likely to occur within area

### Sharks

[\*Rhincodon typus\*](#)  
Whale Shark

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

[\*Apus pacificus\*](#)  
Fork-tailed Swift

Listed - overfly marine area Species or species habitat may occur within area

[\*Ardea alba\*](#)  
Great Egret, White Egret

Listed - overfly marine area Species or species habitat may occur within area

[\*Ardea ibis\*](#)  
Cattle Egret

Listed - overfly marine area Species or species habitat may occur within area

[\*Charadrius veredus\*](#)  
Oriental Plover, Oriental Dotterel

Listed - overfly marine area Species or species habitat may occur within area

[\*Glareola maldivarum\*](#)  
Oriental Pratincole

Listed - overfly marine area Species or species habitat may occur within area

[\*Haliaeetus leucogaster\*](#)  
White-bellied Sea-Eagle

Listed Species or species habitat likely to occur within area

[\*Hirundo rustica\*](#)  
Barn Swallow

Listed - overfly marine area Species or species habitat may occur within area

<a href="#"><i>Macronectes giganteus</i></a> Southern Giant-Petrel	area Listed	Species or species habitat may occur within area
<a href="#"><i>Merops ornatus</i></a> Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
<a href="#"><i>Numenius minutus</i></a> Little Curlew, Little Whimbrel	Listed - overfly marine area	Species or species habitat may occur within area
<b>Mammals</b>		
<a href="#"><i>Dugong dugon</i></a> Dugong	Listed	Species or species habitat likely to occur within area
<b>Ray-finned fishes</b>		
<a href="#"><i>Bulbonaricus brauni</i></a> Braun's Pughead Pipefish, Pug-headed Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Campichthys tricarinatus</i></a> Three-keel Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Choeroichthys brachysoma</i></a> Pacific Short-bodied Pipefish, Short-bodied Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Choeroichthys suillus</i></a> Pig-snouted Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Doryrhamphus janssi</i></a> Cleaner Pipefish, Janss' Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Doryrhamphus negrosensis</i></a> Flagtail Pipefish, Negros Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Festucalex scalaris</i></a> Ladder Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Filicampus tigris</i></a> Tiger Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Halicampus brocki</i></a> Brock's Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Halicampus grayi</i></a> Mud Pipefish, Gray's Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Halicampus nitidus</i></a> Glittering Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Halicampus spinirostris</i></a> Spiny-snout Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Haliichthys taeniophorus</i></a> Ribbioned Seadragon, Ribbioned Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><i>Hippichthys penicillus</i></a> Beady Pipefish, Steep-nosed Pipefish	Listed	Species or species habitat may occur within area

<a href="#"><u>Hippocampus angustus</u></a> Western Spiny Seahorse, Narrow-bellied Seahorse	Listed	Species or species habitat may occur within area
<a href="#"><u>Hippocampus histrix</u></a> Spiny Seahorse	Listed	Species or species habitat may occur within area
<a href="#"><u>Hippocampus kuda</u></a> Spotted Seahorse, Yellow Seahorse	Listed	Species or species habitat may occur within area
<a href="#"><u>Hippocampus planifrons</u></a> Flat-face Seahorse	Listed	Species or species habitat may occur within area
<a href="#"><u>Micrognathus micronotopterus</u></a> Tidepool Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><u>Solegnathus hardwickii</u></a> Pipehorse	Listed	Species or species habitat may occur within area
<a href="#"><u>Solegnathus lettiensis</u></a> Indonesian Pipefish, Gunther's Pipehorse	Listed	Species or species habitat may occur within area
<a href="#"><u>Solenostomus cyanopterus</u></a> Blue-finned Ghost Pipefish, Robust Ghost Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><u>Syngnathoides biaculeatus</u></a> Double-ended Pipehorse, Alligator Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><u>Trachyrhamphus bicoarctatus</u></a> Bend Stick Pipefish, Short-tailed Pipefish	Listed	Species or species habitat may occur within area
<a href="#"><u>Trachyrhamphus longirostris</u></a> Long-nosed Pipefish, Straight Stick Pipefish	Listed	Species or species habitat may occur within area
<b>Reptiles</b>		
<a href="#"><u>Acalyptophis peronii</u></a> Horned Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><u>Aipysurus apraefrontalis</u></a> Short-nosed Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><u>Aipysurus duboisii</u></a> Dubois' Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><u>Aipysurus eydouxii</u></a> Spine-tailed Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><u>Aipysurus laevis</u></a> Olive Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><u>Aipysurus tenuis</u></a> Brown-lined Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><u>Astrotia stokesii</u></a> Stokes' Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><u>Caretta caretta</u></a> Loggerhead Turtle	Listed	Species or species habitat may occur within area
<a href="#"><u>Chelonia mydas</u></a> Green Turtle	Listed	Species or species habitat may occur within area
<a href="#"><u>Dermochelys coriacea</u></a> Leatherback Turtle, Leathery Turtle, Luth	Listed	Species or species habitat may occur within area
<a href="#"><u>Disteira kingii</u></a>	Listed	Species or species habitat may occur

Spectacled Seasnake		within area
<a href="#"><i>Disteira major</i></a> Olive-headed Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><i>Emydocephalus annulatus</i></a> Turtle-headed Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><i>Ephalophis greyi</i></a> North-western Mangrove Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><i>Eretmochelys imbricata</i></a> Hawksbill Turtle	Listed	Species or species habitat may occur within area
<a href="#"><i>Hydrelaps darwiniensis</i></a> Black-ringed Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><i>Hydrophis czebelukovi</i></a> Fine-spined Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><i>Hydrophis elegans</i></a> Elegant Seasnake	Listed	Species or species habitat may occur within area
<a href="#"><i>Hydrophis mcdowellii</i></a>	Listed	Species or species habitat may occur within area
<a href="#"><i>Hydrophis ornatus</i></a> a seasnake	Listed	Species or species habitat may occur within area
<a href="#"><i>Natator depressus</i></a> Flatback Turtle	Listed	Breeding likely to occur within area
<a href="#"><i>Pelamis platurus</i></a> Yellow-bellied Seasnake	Listed	Species or species habitat may occur within area
Whales and Other Cetaceans [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
<a href="#"><i>Balaenoptera acutorostrata</i></a> Minke Whale	Cetacean	Species or species habitat may occur within area
<a href="#"><i>Balaenoptera edeni</i></a> Bryde's Whale	Cetacean	Species or species habitat may occur within area
<a href="#"><i>Delphinus delphis</i></a> Common Dolphin, Short-beaked Common Dolphin	Cetacean	Species or species habitat may occur within area
<a href="#"><i>Grampus griseus</i></a> Risso's Dolphin, Grampus	Cetacean	Species or species habitat may occur within area
<a href="#"><i>Megaptera novaeangliae</i></a> Humpback Whale	Cetacean	Species or species habitat known to occur within area
<a href="#"><i>Orcinus orca</i></a> Killer Whale, Orca	Cetacean	Species or species habitat may occur within area
<a href="#"><i>Sousa chinensis</i></a> Indo-Pacific Humpback Dolphin	Cetacean	Species or species habitat may occur within area
<a href="#"><i>Stenella attenuata</i></a> Spotted Dolphin, Pantropical Spotted Dolphin	Cetacean	Species or species habitat may occur within area
<a href="#"><i>Tursiops aduncus (Arafura/Timor Sea populations)</i></a> Spotted Bottlenose Dolphin (Arafura/Timor Sea	Cetacean	Species or species habitat likely to occur within area

populations)

[Tursiops aduncus](#)

Indian Ocean Bottlenose Dolphin, Spotted  
Bottlenose Dolphin

Cetacean Species or species habitat likely to  
occur within area

[Tursiops truncatus s. str.](#)

Bottlenose Dolphin

Cetacean Species or species habitat may occur  
within area

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## 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.

**Appendix 5:**  
**DPA Environmental Policy Statement**