Port Hedland Port Authority
Utah Point Panamax Berth Project

ENVIRONMENTAL SCOPING REPORT

- Final
- R04
- July 2007
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Executive Summary

Port Hedland Port Authority (PHPA) is a statutory body responsible for operating the port of Port Hedland in Western Australia’s Pilbara region. The port is Australia’s largest bulk port, with over 110 million tonnes of cargo handled in the 2005/2006 financial year. With forecast growth in the volume of cargo to be exported through the port in the next five years, PHPA proposes to develop a new panamax berth, stockpiles and associated infrastructure at Utah Point on Finucane Island (Figure 1). PHPA proposes to allocate the use of this berth to the export of iron ore, chromite and manganese.

The Environmental Protection Authority (EPA) set a Public Environmental Review (PER) level of assessment for this project on 11 December 2006. PHPA has commissioned Sinclair Knight Merz (SKM) to scope the key environmental issues to be carried forward for detailed assessment as part of the PER process. This document outlines the issues identified through the scoping process for presentation to the EPA.

Background

Utah Point is located within the Port Hedland Harbour area, to the west of PHPA and BHP Billiton Iron Ore (BHPBIO) port facilities at Nelson Point. To the north of the proposed development site on Finucane Island is the BHPBIO Finucane Island stockpile and port berth facility, and to the south-east is the site for the proposed Fortescue Metals Group (FMG) stockpile and port berth facility at Anderson Point.

In the immediate and surrounding area, there are a number of approved planning developments that have either commenced construction as in the case of Fortescue Metals Group (FMG) or have not commenced and are understood to be subject to further planning negotiations i.e. Hope Downs Iron Ore Project.

The Hope Downs Iron Ore Project gained environmental approval for a port berth at Harriet Point in November 2002. The port berth proposed for Hope Downs is located at Harriet Point, immediately south of Utah Point with stockyards located on the mainland immediately south of the causeway. The approvals for the Hope Downs proposal are expected to lapse in November 2007 and due to recent developments in the Ultimate Development Plan (UDP) for the Harbour, the project, as approved by the Minister for the Environment in 2002, will not proceed as per the current design.

In a letter to Hope Downs Joint Venture dated 19th June 2007 (Appendix A), PHPA, as manager of the Port of Port Hedland, have advised that it is in the process of allocating Harriet Point to others and that berths at Harriet Point shall no longer be available for consideration by HDJV. PHPA determined that in the light of the EPA’s Guidance Statement 29 related to Benthic Primary
Producer Habitat Protection it has been necessary to reconsider the port development strategy with a view to optimising operational efficiency and limiting mangrove destruction. The planned destruction of 88ha of mangroves per HDJV previous development plans was deemed excessive and as such alternative berth and stockyard locations have been earmarked to reduce the destruction to more acceptable levels (Figure 4). These areas are subject to further consideration and negotiation with HDJV and do not include for any necessary environmental approvals.

PHPA proposes to build a new bulk commodities berth suitable for Panamax style ships with a capacity of approximately 16 million tonnes per annum. The current proposal includes for an export volume of nine million tonnes per annum which is delivered to the port by means of road trains. Export material includes iron ore, chromite and manganese ranging in size from ultra-fine iron ore concentrate of 50µm to chromite ore lump material up to 120mm in diameter.

The proposal footprint consists of the following aspects of the development:

- Stockyard area on Finucane Island;
- Road access around stockyards;
- Seawalls around road to protect from storm surge and neap tides;
- Workshops and associated infrastructure;
- Conveyor system;
- Port berth and wharf; and
- Dedicated access road to Finucane Island, including causeway over West Creek.

The balance of seven million tonnes per annum is envisaged to allow for future export opportunities that can be delivered to the port by means other than road transport. Approvals for this future export will be sought separate to this submission.

Environmental Setting
The proposal site is located at Utah Point on Finucane Island in the Pilbara region of Western Australia. The Pilbara region contains four local governments, the Shires of Roeburne, Ashburton, East Pilbara and Port Hedland. The region is sparsely populated, with a total population of approximately 40 000 people. The regional industries include pastoralism, fishing and tourism, with mining being the main industry.

The Port of Port Hedland is defined as “all that piece of water within a radius of 10 nautical miles off Hunt Point Beacon (Beacon 47)” (PHPA 2001) and is managed by PHPA under the Port Authorities Act 1999 (WA). The port consists of a 20 nautical mile dredged channel leading to a dredged basin between Nelson Point and Finucane Island, where several intertidal creeks converge.
The harbour has been highly modified by dredging activities, and development and operation of port related industry.

The dredged areas are largely devoid of epibenthic marine life, as the sediments are regularly disturbed from dredging and shipping traffic. The diversity of plankton is generally low for the area, however over one hundred fish species have been found in the harbour. The mangrove area within port limits is occasionally visited by sea turtles and dugongs accessing this area through the port, however the sightings are sporadic.

The mangroves in the development area are specifically protected through the EPA Guidance Statement No.1, Protection of Tropical Arid Zone Mangroves along the Pilbara Coastline. The mangroves are also protected under the EPA Guidance Statement No. 29, Benthic Primary Producer Habitat Protection for Western Australia’s Marine Environment.

Finucane Island occurs in the Littoral Land System unit, which is characterised by bare coastal mudflats with mangroves present on the seaward fringes, with samphire flats, sandy islands, coastal dunes and beaches (Payne 1995). The vegetation of the proposed development area provides habitat for a number of terrestrial fauna species. In particular, the Littoral Land System (Payne 1995) provides habitat to several bat and bird species which are largely restricted to the mangrove vegetation units.

Air quality at Port Hedland is significantly impacted by dust emissions from the currently operating port facilities. There has been a large amount of monitoring data collected in the area, as well as numerous modelling studies undertaken. These studies have indicated that dust concentrations in Port Hedland are elevated, with the proximity of residents to the port exacerbating this issue.

The Pilbara region is home to a number of different indigenous tribes, and is rich in Aboriginal heritage sites. The Aboriginal tribe indigenous to the Port Hedland area is the Karriyarra and Nyamal peoples, with these people maintaining a long standing association with the area. Previous surveys have identified an Aboriginal heritage site on Finucane Island, within the proposed footprint of the development. The site, named ‘Sounness Drive Camp’ requires further investigation to clarify the exact location and characteristics of the site.

The proposed site is located on vacant crown land within the Town of Port Hedland, which has been vested with PHPA for the purpose of port dependant industry.

Scope of Works

As there is a significant volume of existing information for both the development site and the region, much of this information will be used as part of this project. A summary of the site works to be undertaken is provided below:
Terrestrial flora and vegetation – existing survey data available, site visit to re-assess vegetation health, condition and presence of any recently declared priority flora;

Terrestrial fauna – existing survey data available, site visit to confirm the occurrence and extent of fauna habitat;

Mangroves – existing survey data available, site visit to re-assess mangrove health, condition and significance;

Air quality – detailed modelling for a range of scenarios, including impacts from proposed development, cumulative impacts and current situation;

Noise – detailed modelling to assess potential noise impacts attributed to the construction and operation of the proposed development;

Aboriginal heritage – site survey by Aboriginal monitor to assess the site for Aboriginal heritage value;

Traffic Impact Assessment – to be undertaken in parallel with the PER;

Soil & groundwater sampling – to be undertaken in parallel with the PER; and

Ore leachability study – to be undertaken in parallel with the PER.

A number of desktop studies will also be undertaken, including:

- Marine flora and fauna;
- Ecotoxicological effects of manganese and chromite ore
- Hydrology and hydrogeology;
- Landforms and soils;
- Waste management;
- Marine water quality;
- European heritage;
- Recreational activity;
- Visual amenity;
- Risk and safety; and
- Social impact.

Community Consultation
Community consultation has been initiated and will continue throughout the program of the PER. Consultation will be achieved through a combination of public information tools, including briefings, community meetings, newsletters, presentations, advertisements and other communication methods as appropriate. This program will ensure that people are informed and
aware of the proposal and any decisions being made, while allowing them the opportunity to have input that may improve the environmental and social acceptability of the proposal.
1. Introduction

1.1 Proposal Overview
Port Hedland Port Authority (PHPA) is a statutory body responsible for the management of the port of Port Hedland in Western Australia’s Pilbara region (Figure 1). The port is the key export centre for many of the mines operating in the Pilbara region, with iron ore the main export commodity, along with other products such as salt, manganese, chromite, copper concentrate and general cargo. It is Australia’s largest bulk port, with over 110 million tonnes of cargo handled in the 2005/2006 financial year.

It is forecast that the volume of cargo exported through the port will increase significantly in the next five years, with trade likely to exceed 200 million tonnes per annum. These increases in trade will require the development of new port berths and improved infrastructure at the Port of Port Hedland.

PHPA currently manages three berths at the port, which are used for a variety of cargoes such as chromite, manganese, copper concentrate, salt and general cargo. Berth No. 1 is a dedicated bulk commodities berth through which manganese and chromite ores and copper concentrate is handled. This berth is currently operating at full capacity and PHPA therefore proposes to build a new bulk commodities berth at Utah Point on Finucane Island (Figure 1). PHPA proposes to allocate the use of this berth to the export of chromite and manganese, as well as to cater for identified future iron ore product.

The project has been split into two separate stages, summarised as:

- Stage A: Dredging and Reclamation
- Stage B: Construction and Operations.

The project was originally referred to the EPA on 6 September 2006 as a complete project, however it was determined that the project should be staged to ensure the opportunity to utilise dredging plant was not compromised. The referral for Stage A has been submitted to the EPA and it has been agreed that the dredging will be approved as an amendment to the existing FMG approval. The Stage A works are being co-ordinated by PHPA as a separate submission. For Stage B the EPA set the level of assessment at Public Environmental Review (PER) This was set on 11 December 2006 and included for the construction and operation of the wharf, stockyards and associated infrastructure as detailed in Section 3.2.

PHPA commissioned Sinclair Knight Merz (SKM) to undertake the PER for Stage B of the proposal.
1.2 Purpose of Document

This document has been prepared to address the requirements of Section 6.1 of the Environmental Impact Assessment (Part IV Division 1) Administrative Procedures 2002 for Stage B of the proposed development. These procedures require an Environmental Scoping Document to be prepared where the EPA has set a PER level of assessment for any proposal. This document outlines the key environmental issues identified and scopes the assessment methodology to be applied in completing the PER.

The purpose of this Environmental Scoping Report is to:

- Provide an outline of the proposed Utah Point Panamax Berth Development;
- Identify the relevant environmental factors;
- Identify the potential environmental impacts known at this early stage of the development;
- Detail the scope of environmental investigations and studies to assess the potential environmental impacts and their timing; and
- Outline preliminary environmental management strategies recommended to minimise potential adverse impacts.

1.3 Identification of Proponent

The proponent for this proposal is:

Port Hedland Port Authority (PHPA)
PO Box 2
Port Hedland WA 6721

PHPA is a statutory authority owned by the Western Australian Government. PHPA has a charter to operate along commercial lines and the primary purpose is to facilitate trade through the port. PHPA is responsible for the management of the port, which is Australia’s largest bulk export port, and its environs. The Port Authority has a responsibility to plan for and manage new developments whilst protecting the environment of the port.

The Port Authority’s mission is to ‘promote, facilitate and expand trade through the Port of Port Hedland, via the provision of safe and efficient services, and timely infrastructure development, whilst fulfilling our social and environmental responsibilities’.
Correspondence relating to the environmental aspects of this project should be directed to:

Mr Craig Wilson  
PHPA Environmental Engineer  
PO Box 2  
Port Hedland WA 6721

Ph: (08) 9173 0021  
Fax: (08) 9173 0060  
Mob: 0417 004 580  
Email: craig.wilson@phpa.com.au
2. Environmental Impact Assessment Process

2.1 Overview
The proposed development of a bulk commodities berth at Utah Point requires State review to obtain environmental approvals under the *Environmental Protection Act 1986* (WA). The project was referred to the EPA under Section 38(1) of the Act, with the EPA setting a Public Environmental Review (PER) level of assessment on 11 December 2006.

Referral of the project to the Commonwealth Department of Environment and Water Resources (DEW) for determining whether components of the project are considered a ‘controlled action’ under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) will also be required. Potential impacts on Benthic Primary Producing Habitats i.e. mangrove habitats may constitute a ‘controlled action’ under the Act.

The PER process follows the following basic stages of progress:

- Preparation of scoping document guidelines to outline the requirements of the environmental investigations for the PER, which is reviewed and agreed to by the EPA after consultation with the proponent;
- Preparation of a draft PER to address issues raised in the guidelines;
- The PER is made publicly available for review and consultation;
- A ‘Response to Submissions’ document is prepared, to address comments from regulatory authorities and stakeholders on the draft PER document;
- EPA prepares and releases report and recommendations to the Minister for the Environment; and
- Minister for the Environment determines approval status of the final PER and issues conditions on approval.

The key objectives of the environmental review document are to:

- Place the proposal in the context of the local and regional environment;
- Provide a source of information from which individuals and groups may gain an understanding of the proposal, the need for the proposal, the economic and other benefits that might arise from the proposal, the alternatives, the environment that it would affect, the impacts that may occur and the measures taken to minimise those impacts;
- Provide a basis for public consultation and informed comment on the proposal; and
- Provide a framework against which regulatory bodies can consider the environmental aspects of the proposal, set conditions for approval to ensure environmentally sound development.
2.2 Applicable Legislation and Regulations

The Environmental Protection Act 1986 (WA) is the key legislative tool for environmental protection in Western Australia. The Act is administered by the EPA and the Minister for the Environment. The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 protects matters of National Environmental Significance, and is administered by the Minister of the Environment and Water Resources.

This development proposal is also subject to the requirements of other relevant legislation, both State and Commonwealth, as listed below.

2.2.1 Commonwealth Legislation

- Environment Protection and Biodiversity Conservation Act 1999
- Australian Ballast Water Management Requirements and Australian Quarantine Regulations.

2.2.2 State Legislation

- Aboriginal Heritage Act 1972;
- Conservation and Land Management Act 1984;
- Clean Air Regulations 1967;
- Contaminated Sites Act 2003;
- Environmental Protection (Controlled Waste) Regulations 2004;
- Environmental Protection (Noise) Regulations 1997;
- Environmental Protection (Clearing of Native Vegetation) Regulations 2004;
- Environmental Protection Act 1986;
- Environmental Protection Regulations 1987;
- Explosives and Dangerous Goods Act 1961;
- Heritage of Western Australia Act 1990;
- Mines Safety and Inspection Regulations 1995;
- Port Authorities Act 1999;
- Soil and Land Conservation Act 1945;
- Soil and Land Conservation Regulations 1992;
- Western Australian Marine Act 1982;

Other legislative tools include specific EPA Guidance Statements and Department of Environment and Conservation Guidelines and Standards.
3. **Utah Point Proposal**

3.1 **Development Location**

The area proposed for development is located on Finucane Island, Port Hedland, Western Australia (Figure 2). It includes a berth at Utah Point, stockyards on the peninsula extending out to Stanley Point and an access road extending from FMG’s operations and running parallel to the existing access road, rail and conveyor for BHPBIO’s Finucane Island operations.

Utah Point is located within the Port Hedland Harbour on the eastern shores of Finucane Island. It is located west of the existing port facilities at Nelson Point and directly opposite the existing public berths managed by Port Hedland Port Authority. To the north of Utah Point is the BHP Billiton Iron Ore (BHPBIO) Finucane Island stockpile and port berth facility (Berth C and D), which is connected to the BHP berths at Nelson Point via a 1.4 km under-harbour tunnel that passes directly beneath the proposed berth at Utah Point.

3.1.1 **Existing Approvals for the Immediate and Adjacent Location**

In the immediate and surrounding area, there are a number of approved planning developments that have either commenced construction as in the case of Fortescue Metals Group (FMG) or have not commenced and are understood to be subject to further planning negotiations i.e. Hope Downs Iron Ore Project (Figure 3).

The Hope Downs Iron Ore Project gained environmental approval for a port berth at Harriet Point in November 2002. The port berth proposed for Hope Downs is located at Harriet Point, immediately south of Utah Point with stockyards located on the mainland immediately south of the causeway. The approval for the Hope Downs proposal is expected to lapse in November 2007 and due to recent developments in the Ultimate Development Plan (UDP) for the Harbour, the project, as approved by the Minister for the Environment in 2002, will not proceed as per the current design.

In a letter to Hope Downs Joint Venture dated 19th June 2007 (Appendix A), PHPA, as manager of the Port of Port Hedland, have advised that it is in the process of allocating Harriet Point to others and that berths at Harriet Point shall no longer be available for consideration by HDJV. PHPA determined that in the light of the EPA’s Guidance Statement 29 related to Benthic Primary Producer Habitat protection it has been necessary to reconsider the port development strategy with a view to optimising operational efficiency and limiting mangrove destruction. The planned destruction of 88ha of mangroves per HDJV previous development plans was deemed excessive and as such alternative berth and stockyard locations have been earmarked to reduce the destruction to more acceptable levels (Figure 4). These areas are subject to further consideration and negotiation with HDJV and do not include for any necessary environmental approvals.
Environmental impacts identified as part of the assessment for Hope Downs will not be included in the baseline for the environmental impact assessment for this proposal.

3.2 Development Plan
PHPA proposes to build a new bulk commodities berth suitable for Panamax style ships at Utah Point on Finucane Island, Port Hedland. This berth is proposed to meet expanding export demands on the current port facilities for minerals including manganese, chromite and iron ore. The port will be designed to accommodate approximately 16 million tonnes per annum. The current proposal includes for an export volume of nine million tonnes per annum which is delivered to the port by means of road trains. It is estimated that 130 ships per annum will use the Utah Point berth, with materials being exported through the berth ranging in size from ultra-fine iron ore concentrate of 50µm to chromite ore lump material up to 120mm in diameter.

The balance of seven million tonnes per annum is envisaged to allow for future export opportunities that can be delivered to the port by means other than road transport. Approvals for this future export will be sought separate to this submission.
Figure 2

Project WV03278

Drawing Title
Port Hedland Harbour and Utah Point Development Proposal

Drawing No.
Figure 2

Revision No. 0

Date: 19.01.07

Client
Port Hedland Port Authority

Project
Utah Point Panamax Berth Project

Mangrove
Shipping channel (approximate location)
Proposed Utah Point site
Foreshore flat
Saline coastal flat
Salt evaporator ponds
Port Hedland built up area

Scale 1:50,000 @ A4
Datum: GDA94
Map Grid: MGA94 Zone 50

As no rail infrastructure is currently available to the proposed port users, the ore will be transported via truck along a dedicated access road. The exact alignment of the access road is yet to be determined, however it is anticipated that the road will extend from the Fortescue Metals Group (FMG) Anderson Point access road approximately 3km from Wedgefield, travelling parallel to the BHPBIO Finucane Island access road and railway (Figure 2). The access road will be within a 50m wide road and services corridor east of the existing overhead power supply line. The road will extend across a widened causeway over West Creek to the stockyard area (Figure 5). The access road will be designed to a standard suitable for use by triple and quad road trains, it will be sealed and will have street lighting where appropriate.

The trucks will travel along an elevated perimeter road surrounding the stockyard and side dump the material into hoppers. Radial stackers (luffing and slewing) will stockpile the material within defined areas. Up to four front end loaders will load the material onto the overland conveyor for transfer to Panamax style vessels berthed at Utah Point.

The proposal footprint consists of the following aspects of the development:

- Stockyard area on Finucane Island;
- Dedicated access road to Finucane Island, including causeway over West Creek and truck cleaning facility;
- Seawalls around perimeter road to protect from storm surge and neap tides;
- Workshops, security control room, fuel storage, offices and associated infrastructure;
- Power supply, potable water, dust suppression, fire protection, settlement pond and miscellaneous services;
- Conveyor system transfer towers and sample station; and
- Panamax wharf and associated facilities and services.

The area proposed for development on Finucane Island, including the berth pocket and wharf, is approximately 25ha (Figure 5). This will consist of c. 3ha for a 273m long Panamax wharf at Utah Point, equipped with a shiploader capable of loading at 5000-7500 tonnes per hour with provision for a cascading chute for fine or easily degradable products. There will be a stockpile area of approximately 20ha on Finucane Island, with stacking and reclaiming equipment and 2ha of services and materials handling infrastructure connecting the stockyard to the wharf.
Approved and Pending Proposals

Client: Port Hedland Port Authority
Project: Utah Point Panamax Berth Project
Drawing Title: Approved and Pending Proposals

Figure 4

Drawing No. 0
Date: 27.03.07
Project WV03278

Scale 1:20,000 @ A4
Datum: GDA94
Map Grid: MGA94 Zone 50

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The stockpile area is located along a limestone ridge along the southern arm of Finucane Island and extends onto the marine muds of the mangroves (Figure 5) at Stanley Point. The stockyard area has been located to minimise the impact on mangroves of Finucane Island, by concentrating development to the north east of the proposal area adjacent to where the causeway will be widened. The development footprint and construction methodology aims to minimise loss of the dense closed canopy mangroves.

The stockyards are within the intertidal zone of the harbour and will require up to 1.5m of fill. The access road will preferably be designed with a longitudinal profile that allows cut-to-fill volumes to be matched to minimise the requirement for fill and if possible provide a source of fill for the stockyard. Other potential fill sources may include dredge spoil and borrow pits, with any potential fill source to be assessed and discussed in the PER.

The stockyards will be surrounded by a 1.5m high elevated perimeter road of 10m width with a surrounding seawall. This will extend a further 1m above the outside edge of the perimeter road at sufficient height to avoid breaching during cyclone tidal surges. The seawalls will be designed to minimise buttressing and therefore minimise clearing of mangroves.

Drainage from the site will ultimately be directed to Port Hedland Harbour or to West Creek, however discharges will be controlled through a combination of techniques such as bunding, evaporation, treatment and re-use. Stormwater and conveyor and wharf washdown water will be drained to a retention pond designed to ensure that the electrics and other sensitive working parts remain above the maximum likely water level. This pond will be designed for settling, recycling and waste disposal.

Currently the site is a ‘greenfield’ site with no existing services. Water requirements for the site will be met from the towns reticulated water supply, with an estimated requirement of 0.4GL per year when in full operation or a maximum of 1,200kL per day. The proposed facilities will improve water efficiency relative to the existing manganese and chromite operations at Nelson Point (which are planned to be moved over to the new facilities) due to reduced handling of ore and more efficient and automated stockpiling and reclamation processes.

3.3 Alternatives Considered
Prior to the submission of the referral document for this proposal to the EPA by PHPA, some alternative development options were considered. These alternatives, which are summarised below, were not considered as preferred options as they did not adequately address the issues currently facing PHPA. Therefore the new port berth at Utah Point has been proposed as the preferred option for development and is consistent with the Ultimate Development Plan for the Port area.
3.3.1 No Development Option
This option was not considered appropriate as it does not accommodate the predicted growth in port throughput when the current port facilities will be operating at full capacity in two years. A No Development Option would mean that there would continue to be no options available for new market entrants (“Iron Ore Juniors”) to export ore from Port Hedland. This option also fails to address increasing pressures on the town of Port Hedland in relation to the impacts from truck movements, dust and loss of amenity resulting from the projected increased throughput over the Port Hedland public berth.

3.3.2 Upgrade Current Public User Facilities
PHPA commissioned WorleyParsons to investigate possible upgrade and improvement options for the current three public user berths. These options focused on new ship loaders and conveyor systems to improve loading times. This upgrade would include increasing the speed of the conveyors at Berth 1, which would not be suitable for the handling of manganese ore which would degrade at higher conveyor speeds. The stockyard area to support increased throughput is limited, particularly at Berth 2. The cost of these upgrades was found to be less than the cost of the new development, however the improvements which would be gained would be limited and capacity would soon be reached.

3.3.3 Utah Point Development
The proposal to develop a new stockyard and port berth facility on Finucane Island was considered the most suitable for addressing the future growth in port throughput. The location had previously received environmental approvals to be developed as a port berth, and was therefore considered an environmentally suitable site. It also presents the added benefit of reducing the manganese and chromite dust concentrations in Port Hedland, whilst reducing pressures on Port Hedland from increased truck movements.
4. Environmental Setting

4.1 Pilbara Region and Port Hedland

The proposal site is located at Utah Point on Finucane Island in the Pilbara region of Western Australia. The Pilbara region covers over 500,000 square kilometres, with the coastal extent stretching from the Exmouth Gulf to Cape Keraudren, north of Port Hedland. This area supports a diverse range of environments, both marine and terrestrial, many of which are isolated and rugged and recognised for high conservation value. Some of these areas formally recognised include Ningaloo Marine Park, Cape Range National Park, the Burrup Peninsula and the surrounding proposed Dampier Archipelago Marine Park.

The Pilbara region contains four local governments, the Shires of Roeburne, Ashburton, East Pilbara and Port Hedland. The region is sparsely populated, with a total population of approximately 40,000 people. The regions industries include pastoralism, fishing and tourism, with mining the main industry.

Port Hedland is one of the major towns located in the Pilbara region and is one of the three ports operating in the Pilbara region. It is one of the largest ports in the world based on throughput and the largest in Australia, with over 110 million tonnes handled through the port in the 2005/2006 financial year. The first jetty was built at Port Hedland in 1896, with an extension occurring in 1908 as a result of the discovery of gold at Marble Bar. Since then the port has undergone continued expansion and development with the economic growth of the Pilbara and the growth in the mining industry.

The Port of Port Hedland is defined as “all that piece of water within a radius of 10 nautical miles off Hunt Point Beacon (Beacon 47)” (PHPA 2001) and is managed by PHPA under the Port Authorities Act 1999 (WA). The port consists of a 20 nautical mile dredged channel leading to a dredged basin between Nelson Point and Finucane Island, where several intertidal creeks converge. The harbour has been highly impacted by dredging, industry and development.

The port itself was first dredged in 1965 and has been dredged extensively since as industry has developed the port further. Maintenance dredging is required approximately every 3–4 years due to sediment accumulation from natural flux of sediments with tidal action and as a consequence of storms and cyclones. Seasonal rainfall also increases the sediment flux into the harbour significantly. The sediments are mainly fine muds of terrestrial origin, with sandy sediments found in some locations.
4.2 Study Area
The area subject to the environmental investigations being conducted for this PER extends over the southern arm of Finucane Island and along a strip of land parallel to the existing Finucane Island access road. The area encompasses the direct footprint of the proposed development (Figure 4) and the immediate surrounds.

4.3 Climate
The Pilbara region is located in the arid-tropics, with low and variable rainfall experienced throughout the area. Bureau of Meteorology (BoM 2007) data indicates that annual rainfall totals vary from 250–400mm, with many years reporting no significant rainfalls. The area experiences hot temperatures and high humidity during the summer months. Monthly average maximum temperatures range from approximately 30–37 degrees Celsius.

The coastline between Port Hedland and the Exmouth Gulf is the most cyclone prone in Australia, with several severe cyclones causing significant damage in the past 30 years. These cyclones occur predominantly between January and March and account for the majority of rainfall in the region.

4.4 Marine and Coastal Environment
4.4.1 Overview
The Pilbara marine and coastal environment has many unique conservation values that are recognised at both State and national levels. However, the proposed development of a port berth facility at Utah Point is located within the Port Hedland Harbour, a marine area which has undergone significant alterations since European settlement. This section will focus on the mangrove and coastal aspects of the marine environment. This is due to the offshore marine impacts being largely addressed by the referral for dredging and reclamation and as the operations planned for this berth are of a much smaller scale than those occurring elsewhere within the port. Notwithstanding this, there is potential for some offshore marine impacts to occur as a result of the proposal and these aspects are briefly discussed below.

Port Hedland is located at the confluence of five creeks which create a natural anchorage at the port. The port is accessed via a dredged channel which connects the shipping routes with the berthing facilities within the dredged harbour of Port Hedland.

The dredged areas are largely devoid of epibenthic marine life, as the sediments are regularly disturbed from dredging and shipping traffic. The diversity of plankton is generally low for the area, however over one hundred fish species have been found in the harbour.

The mangrove area within port limits is occasionally visited by sea turtles and dugongs accessing this area through the port, however the sightings are sporadic.
4.4.2 Mangroves

The tropical arid-zone mangroves of the Pilbara are some of the best examples in the world of this type of ecosystem and they also play an important ecological role. The mangroves prevent coastal erosion and the subsequent silting of offshore reefs, as well as providing nurseries for some juvenile marine species (CSIRO 2001). These mangroves are specifically protected through the EPA Guidance Statement No. 1, the *Protection of Tropical Arid Zone Mangroves along the Pilbara Coastline* (EPA 2001). The mangroves are also protected under the EPA Guidance Statement No. 29, *Benthic Primary Producer Habitat Protection for Western Australia’s Marine Environment* (EPA 2004).

Port Hedland is surrounded by a large area of arid zone mangroves associated with the creeks systems running into the harbour. Large areas of intertidal salt flats are found in association with these mangrove areas. Here a high diversity of benthic invertebrates is found represented by the classes Polychaeta, Mollusca and Crustacea. The mangrove areas themselves are home to a large variety of animals, including some species of birds and bats restricted to mangroves in particular (Paling et al 2001).

The mangal areas within port limits are comprised of species associations summarised by Paling *et al* (2001) as outlined below:

- Closed canopy woodland of *Rhizophora stylosa*;
- Closed canopy woodland of *R. stylosa* and *Avicennia marina*;
- Closed canopy woodland of *A. marina* (seaward fringe);
- Closed canopy woodland of *A. marina* (landward margins);
- Low open woodland of *A. marina* on saline flats;
- Low scattered *A. marina* and scattered samphires;
- Low, dense *Aegiceras corniculatum*;
- Low open *Ceriops tagal*; and
- *Aegialitis annulata*.

The mangroves in the vicinity of the proposed development area have been surveyed previously and the species and assemblages were shown to follow similar patterns to those observed elsewhere in the region (Hope Downs Management Services 2002). Of the seventeen mangrove species which occur along the Western Australian coast, there are six which have been documented to occur in Port Hedland harbour (Hope Downs Management Services 2002). These species are:

- *Avicennia marina* (white mangrove);
- *Rhizophora stylosa* (stilt-rooted mangrove);
- *Ceriops tagal* (yellow-leaved spurred mangrove);
- *Aegiceras corniculatum* (horned mangrove);
- *Aegialitis annulata* (club mangrove); and
- *Bruguiera exaristata* (rib-fruit orange mangrove).

The most abundant and widespread species of these is *Avicennia marina*, with *Rhizophora stylosa* forming dense stands either as a monospecific unit or in association with *A. marina* (Hope Downs Management Services 2002). **Figure 2** shows the general location and extent of mangroves along the coastline at Port Hedland.

The Port Hedland mangroves fall under ‘Guideline 4’ as defined by Guidance Statement No. 1, *Protection of Tropical Arid-Zone Mangroves along the Pilbara Coastline* (EPA 2001) as they are located within a designated industrial and port area. The EPA thereby recognises the significance of these mangrove areas, but acknowledges that they occur within industrial area and associated ports. Impacts on mangroves here must be kept to a minimum practical level.

The requirements of Guidance Statement No. 29 *Benthic Primary Producer Habitat Protection for Western Australia’s Marine Environment* state the need for a management area of approximately 50 square kilometres to be established for the management of Benthic Primary Producer Habitat (BPPH). Within the management area cumulative impacts on BPPH since European settlement is assessed, with a goal of no more than 10% of habitat to be lost. This Guidance Statement was first applied to the region as part of the FMG PER and will provide the basis for further BPPH loss assessments.

### 4.5 Terrestrial Environment

#### 4.5.1 Landforms, Geology and Soils

The Pilbara landscape is typically flat and highly weathered with low rangelands occurring in the interior, representing a landscape that has remained largely unchanged for 100 million years. The Port Hedland area consists of flat sandy lowlands, with broad areas of bare coastal mudflats, intertidal mudflats and tidal creeks, and a significantly altered open harbour at Port Hedland.

The Port Hedland area is located on the Holocene, Bossut Formation, a body of unconsolidated sedimentary soils described as sandy calcarenite, oolite and calcilutite, which outcrops discontinuously near the coast. These dune, beach ridge, beach and offshore bar deposits are predominantly marine with the exception of the barrier dune system which is of Aeolian origin.

Finucane Island occurs in the Littoral Land System unit, which is characterised by bare coastal mudflats with mangroves present on the seaward fringes, with samphire flats, sandy islands, coastal dunes and beaches (Payne 1995).
Previous studies undertaken as part of the Pilbara Iron Ore and Infrastructure Project (Fortescue Metals Group 2004) have indicated that acid sulphate soils (ASS) are potentially not of concern in the study area, however further studies will be required.

4.5.2 Surface Drainage, Groundwater and Hydrology

The Port Hedland area consists of broad areas of intertidal and coastal mudflats and mangroves, which are periodically inundated by seawater during storm surges or particularly high tides. This inundation plays a key role in reducing the salinity of the groundwater adjacent to the creeks, therefore enabling the mangroves to survive.

There are also numerous intertidal creeks which converge at the port, including West Creek, South West Creek, South Creek, South East Creek and Stingray Creek (Figure 2). The highly variable nature of rainfall in the region results in varied surface water flows, with fresh water runoff tending to occur as sheet flow, particularly during high rain periods in the wet season (Hope Downs Management Services 2002).

4.5.3 Terrestrial Flora and Vegetation

The sandy lowlands are populated by hummock grasslands and salt-tolerant open low shrublands, with the intertidal creeks populated by mangroves (Aquaterra 2004). The coastal vegetation has been described by Beard (1975) as being a terrestrial environment gradually merging into a marine environment consisting of tidal lagoons, samphire flats and mangrove. This gradual transition has been attributed to the coastal protection granted by reefs, and the small gradient of the Abydos Plain. This gentle sloping has also resulted in the vegetation patterns typically being mosaic rather than regularly repeating.

Previous proponents have surveyed the terrestrial vegetation in the vicinity of Port Hedland harbour and Finucane Island, including for the Hope Downs PER (Hope Downs Management Services 2002) and the Pilbara Iron Ore and Infrastructure PER (Fortescue Metals Group 2004). These studies indicate that the project area is within the Abydos Plain physiographic unit and that there are two vegetation habitats; Littoral Vegetation – Shrub Dominated and Sandy Plain Vegetation – Spinifex Dominated. According to these surveys two main vegetation associations occur within the Littoral Vegetation – Shrub Dominated habitat, being:

- Am: Mangals; and
- As: *Halosarcia* spp., *Frankenia ambita* scattered low shrubs to low open shrubland.

There is a possibility of a third vegetation association occurring within the project area, being:

From the above mentioned surveys there appears to be a possibility that this vegetation association may be found in small isolated pockets within the proposed site access road corridor.

According to the assessment at the level of the vegetation types defined by the study undertaken by Biota for the Pilbara Iron Ore and Infrastructure PER (Fortescue Metals Group 2004), the Unit ‘As’ (the low shrublands of samphires and other salt-tolerant species) is considered to have moderate conservation significance being restricted to the mudflats of the littoral fringe along the coast and also sensitive to disturbance. The Unit ‘Apt1’ which may potentially be found in the proposed site access road corridor according to the Biota survey is dominated by *Triodia secunda*, which is not a particularly common species for the study area.

According to the above survey studies the Littoral Vegetation association consisted of succulent and/or salt tolerant shrub dominated vegetation, with scattered low shrubs to low open shrubland. The dominant species in the locations surveyed near the Port Hedland harbour were:

- *Halosarcia* spp. (Samphires); and
- *Frankenia ambita* (Frankenias).

Lesser amounts of the following plants were also identified from the harbour area:

- *Eragrostis falcata*;
- *Hemichoroa diandra*;
- *Muellerolimon salicorniaceum*;
- *Neobassia astrocarpa*;
- *Sporobolus virginicus*; and
- *Trianthema turgidifolia*.

While all native flora are protected under the *Wildlife Conservation Act* 1950, some species are assigned an additional level of conservation significance based on the number of known population and the perceived threats to these populations. Species of the highest conservation significance are designated Declared Rare Flora (DRF). Species that appear to be rare or threatened, but for which there is insufficient data to properly evaluate their conservation significance, are assigned to one of four Priority flora categories.

The initial harbour section of the Hope Downs PER (2002) site flora survey undertaken by Biota follows quite closely the proposed footprint that this project will take, travelling parallel to the BHPBIO Finucane Island access road and railway. From this survey no DRF or flora protected by the EPBC Act were found. The search of CALM’s (now Department of Environment and Conservation) Threatened (Declared Rare) and Priority Flora database undertaken for the Pilbara
Iron Ore PER and Hope Downs PER did not identify any Priority or Threatened Flora within the proposed project footprint.

Vegetation clearing will be required along the southern extent of the access road from Wedgefield to Finucane Island. The area to be cleared consists of samphire flats commonly associated with the Littoral Land System (Payne 1995). The Littoral Land System is characteristic of the Pilbara coastline with large areas of land representative of this unit.

4.5.4 Terrestrial Fauna
The vegetation of the proposed development area provides habitat for a number of terrestrial fauna species. In particular, the Littoral Land System (Payne 1995) provides habitat to several bat and bird species which are largely restricted to the mangrove vegetation units.

The clearing of vegetation for this development, both terrestrial and mangrove, has the potential to impact on terrestrial fauna habitats. Based on the investigations undertaken as part of the Hope Downs PER (Hope Downs Management Services 2002) and the Pilbara Iron Ore and Infrastructure PER (Fortescue Metals Group 2004), it has been identified that impacts on bats through loss of mangrove habitat is the most significant issue for terrestrial fauna. The species of potential concern are:

- *Mormopterus loriae coburgiana* (little north-western mastiff bat); and
- *Nyctophyilus arnhemensis* (northern long-eared bat).

The conservation significance of fauna species is denoted at a National, State and Regional level. At a National Level the Commonwealth *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999* provides a list of species in decline. A search on the proposed project area with the Department of Environment and Water Resources EPBC Act 1999 Protected Matters Search Tool (2007) resulted in the list of species presented in Table 1 and Table 2.

Because of the lack of fine control with the search tool, endangered or vulnerable marine species (58 in total) including whales other Cetaceans, turtles and sharks were listed as being potentially found in the proposed project area. It is considered highly unlikely that this project would have any impact on these species as the proposal site for the Panamax Berth is located at Utah Point on Finucane Island and is not in direct or open marine waters. It is also considered highly unlikely that the Southern Giant Petrel would be found in this region as it is considered to have a circumpolar pelagic range from Antarctica to approximately 20° S (DEC, NSW 2007). According to Strahan (1995) there is also low likelihood of the *Dasyurus hallucatus* being found in the proposed project area as it now appears to be restricted to only six areas in Australia; the Hamersley Range; the Northern Kimberley; northern and western Top End; Cape York Tip; Atherton Tableland and Carnarvon Range.
Table 1 Threatened fauna species listed as Protected Matters under the EPBC Act for the Proposed Project Area

<table>
<thead>
<tr>
<th>Threatened Species</th>
<th>Status</th>
<th>Type of Presence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Macronectes giganteus</em> Southern Giant-Petrel</td>
<td>Endangered</td>
<td>Species or species habitat may occur within area</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Dasyurus hallucatus</em> Northern Quoll</td>
<td>Endangered</td>
<td>Species or species habitat may occur within area</td>
</tr>
<tr>
<td><em>Megaptera novaeangliae</em> Humpback Whale</td>
<td>Vulnerable</td>
<td>Species or species habitat known to occur within area</td>
</tr>
<tr>
<td><em>Rhinonciteris aurantius (Pilbara form)</em> Pilbara Leaf-nosed Bat</td>
<td>Vulnerable</td>
<td>Community likely to occur within area</td>
</tr>
<tr>
<td><strong>Reptiles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Caretta caretta</em> Loggerhead Turtle</td>
<td>Endangered</td>
<td>Species or species habitat may occur within area</td>
</tr>
<tr>
<td><em>Chelonia mydas</em> Green Turtle</td>
<td>Vulnerable</td>
<td>Species or species habitat may occur within area</td>
</tr>
<tr>
<td><em>Dermochelys coriacea</em> Leathery Turtle, Leatherback Turtle, Luth</td>
<td>Vulnerable</td>
<td>Species or species habitat may occur within area</td>
</tr>
<tr>
<td><em>Eretmochelys imbricata</em> Hawksbill Turtle</td>
<td>Vulnerable</td>
<td>Species or species habitat may occur within area</td>
</tr>
<tr>
<td><em>Natator depressus</em> Flatback Turtle</td>
<td>Vulnerable</td>
<td>Breeding likely to occur within area</td>
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<tr>
<td><strong>Sharks</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Rhincodon typus</em> Whale Shark</td>
<td>Vulnerable</td>
<td>Species or species habitat may occur within area</td>
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</tbody>
</table>

Table 2 Migratory fauna species listed as Protected Matters under the EPBC Act for the Proposed Project Area

<table>
<thead>
<tr>
<th>Migratory Species</th>
<th>Status</th>
<th>Type of Presence</th>
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</thead>
<tbody>
<tr>
<td><strong>Migratory Terrestrial Species</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Haliaeetus leucogaster</em> White-bellied Sea-Eagle</td>
<td>Migratory</td>
<td>Species or species habitat likely to occur within area</td>
</tr>
<tr>
<td><em>Hirundo rustica</em> Barn Swallow</td>
<td>Migratory</td>
<td>Species or species habitat may occur within area</td>
</tr>
<tr>
<td><em>Merops ornatus</em> Rainbow Bee-eater</td>
<td>Migratory</td>
<td>Species or species habitat may occur within area</td>
</tr>
<tr>
<td><strong>Migratory Wetland Species</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Charadrius veredus</em> Oriental Plover, Oriental Dotterel</td>
<td>Migratory</td>
<td>Species or species habitat may occur within area</td>
</tr>
<tr>
<td><em>Glareola maldivarum</em> Oriental Pratincole</td>
<td>Migratory</td>
<td>Species or species habitat may occur within area</td>
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<td>Species or species habitat may occur within area</td>
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<td>-----------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numenius minutus</td>
<td>Little Curlew, Little Whimbrel</td>
<td>Migratory</td>
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**Migratory Marine Birds**

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<tr>
<th>Species or species habitat may occur within area</th>
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<tbody>
<tr>
<td>Macronectes giganteus</td>
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**Migratory Marine Species**

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<tr>
<th>Species or species habitat likely to occur within area</th>
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<tbody>
<tr>
<td>Balaenoptera edeni</td>
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<tr>
<th>Species or species habitat likely to occur within area</th>
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<tr>
<td>Dugong dugon</td>
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<tr>
<th>Species or species habitat known to occur within area</th>
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<tr>
<td>Megaptera novaeangliae</td>
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<th>Species or species habitat likely to occur within area</th>
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<tbody>
<tr>
<td>Orcinus orca</td>
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<table>
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<tr>
<th>Species or species habitat likely to occur within area</th>
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<tbody>
<tr>
<td>Sousa chinensis</td>
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<table>
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<tr>
<th>Species or species habitat likely to occur within area</th>
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<tbody>
<tr>
<td>Tursiops aduncus</td>
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**Reptiles**

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<th>Species or species habitat may occur within area</th>
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<tr>
<td>Caretta caretta</td>
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<tr>
<th>Species or species habitat may occur within area</th>
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<tbody>
<tr>
<td>Chelonia mydas</td>
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<tr>
<th>Species or species habitat may occur within area</th>
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<tbody>
<tr>
<td>Dermochelys coriacea</td>
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<th>Species or species habitat may occur within area</th>
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<tr>
<td>Eretmochelys imbricata</td>
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<tr>
<th>Breeding likely to occur within area</th>
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<tbody>
<tr>
<td>Natator depressus</td>
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**Sharks**

<table>
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<tr>
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<tbody>
<tr>
<td>Rhincodon typus</td>
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At a State Level in Western Australia all native fauna species are protected under the Western Australian *Wildlife Conservation Act* 1950. Fauna species that are considered rare, threatened with extinction or have a high conservation value are specifically protected under the Act and are classified into four Schedules of taxa.

At a Regional Level the DEC also catalogue fauna under five different Priority codes based upon the current levels of knowledge concerning the distribution, abundance and threatening processes to the species.
4.6 Ambient Air Quality

The semi-arid landscape of the Pilbara is a naturally dusty environment with wind-blown dust contributing significantly to ambient dust levels within the region. In 2000, an aggregated emission study conducted by SKM (SKM 2003) found that the Pilbara region emitted around 179,000,000 kg of wind blown particulate matter during the 1998/1999 financial year. Measurements recorded at the Port Hedland airport since 2002 confirmed that particulate concentrations often exceed the National Environment Protection Measure (NEPM) standard level for PM$_{10}$ of 50 µg/m$^3$ (DoE, 2004). In addition, the study also concluded that the majority of the PM$_{10}$ measured in the town of Port Hedland was locally generated.

Measurements of other atmospheric pollutants in Port Hedland, such as NO$_x$ and ozone, were below the NEPM criteria (DoE, 2004).

Due to the proximity of private residences to the port facilities and the high concentrations of dust experienced, the Department of Health (DoH) has initiated an in-depth toxicological and epidemiological study of health impacts associated with exposure to the dust at Port Hedland. One of the key issues identified in the draft Literature Review and Report on Potential Health Impacts of Exposure to Crustal Material in Port Hedland (DoH 2006) is the potential health impacts of manganese dust generated at the current Nelson Point facilities. The chromite dust being generated at the current facilities will also be subject to further review and investigation as part of the DoH study.

4.7 Socio-Economic Environment

4.7.1 Industry and Infrastructure

Port Hedland was first discovered by European settlers in 1863, and was developed as a port for the pastoral and pearling industries of the region being developed at the time. A jetty was built in 1896 and extended in 1908 with the discovery of gold at Marble Bar. The port grew over the first half of the twentieth century with exports of pearl, wool, livestock, copper, manganese and tin.

With the commencement of large scale iron ore mining in the Pilbara in the 1960’s, the region experienced significant growth. Previously isolated and largely inaccessible, the growth in the mining industry opened up much of the Pilbara for further development.

The mining industry commenced with the identification and development of the iron ore resources in the Hamersley Ranges, which required a subsequent investment in infrastructure. The shift to large scale modern mining practices resulted in the development of new roads and rail connecting the isolated mines to the coastal port facilities. Towns such as Tom Price and Newman were built, while existing towns such as Port Hedland experienced significant growth and development as a result of the mining industry growth. Port Hedland is now the largest port in Australia based on tonnage of exports and is projected to experience further growth in the future.
4.7.2 Aboriginal Heritage

The Pilbara region is home to a number of different indigenous tribes, and is rich in Aboriginal heritage sites. The Aboriginal tribes indigenous to the Port Hedland area is the Karriyarra and Nyamal peoples, with these people maintaining a long standing association with the area.

Various studies have been undertaken throughout the Pilbara and the Port Hedland area to identify the location of Aboriginal heritage sites, with several sites identified on Finucane Island. One significant burial site has been identified within the BHPBIO site on the island, with indigenous representatives requiring continued access to the coastline and beaches from BHPBIO.

Previous surveys have identified an Aboriginal heritage site on Finucane Island, within the proposed footprint of the development. The site, named ‘Sounness Drive Camp’ requires further investigation to clarify the exact location and characteristics of the site.

4.7.3 Tourism

Tourism is an expanding industry in the Pilbara and north-west Western Australia, with eco-tourism becoming increasingly popular. However, much of this tourism focuses on national parks such as Cape Range and Millstream Chichester which are located in more isolated areas of the region.

Port Hedland has limited tourism within the town and direct surrounds, yet as it is the largest town in the Pilbara, it is a hub for flights, access and services. Some industrial tourism does occur, as well as fishing charters and overland tours.

4.7.4 Land Use and Zoning

The proposed port berth and stockyards facility site is located on Lot 370 on DP35619, which is vacant crown land vested under the Statute of PHPA for the purpose of port dependant industry. A small section of the access road is located on vacant crown land (Lot 371) outside of PHPA management boundaries.
5. **Scope of Works**

Based on initial desktop investigations and consultation with key stakeholders, a number of environmental and socio-economic factors have been flagged as being of relevance to this proposal. These factors are summarised in Table 4, with the scope of works for each factor described below. A comparison of the proposal against the five principles of environmental protection is presented in Table 3.

5.1 **Biophysical**

5.1.1 **Terrestrial Vegetation and Flora**

Based on the existing survey data available from previous investigations (Hope Downs Management Services 2002; Fortescue Metals Group Limited 2004) a flora and vegetation investigation including the following key requirements will be undertaken:

- Meet the requirements of the EPA’s Guidance Statement 51 ‘Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia’;
- Site visit to confirm the presence of flora species and vegetation associations identified in the survey undertaken by Biota in 2001;
- Confirm the condition of flora and vegetation associations with particular reference to any recent or historical disturbance;
- Confirm the conservation significance of the flora and vegetation identified within the site in a local and regional context; and
- Identify the presence of any significant flora species (Priority or Declared Rare), significant vegetation associations (Threatened Ecological Communities or locally significant associations) and introduced weed species listed since the previous survey was undertaken.

5.1.2 **Terrestrial Fauna**

A systematic fauna survey of the project area was undertaken in 2001 by Biota Environmental Services in conjunction with the Western Australian Museum. In line with the flora and vegetation assessment required for the project, an updated review of fauna presence will be required. Bat and migratory bird species have been identified as the key issue for fauna studies for the proposal and will be the focus of this section. Broadly, the key requirements of the fauna study are to:

- Meet the requirements of the EPA’s Guidance Statement 56 ‘Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia’;
- Undertake a site visit to confirm the presence of fauna species and habitat identified in the survey undertaken by Biota in 2001;
- Confirm fauna habitats and presence of significant species occurring within the proposed development area;
- Confirm the conservation significance of fauna habitats and fauna species identified within the site in a local and regional context; and
- Identify the presence of any significant fauna species (Specially Protected and Priority Fauna, fauna that is otherwise significant - Threatened Ecological Communities, CAMBA, JAMBA) listed since the previous survey was undertaken.

5.1.3 Mangroves
To assess the significance of the unavoidable mangrove habitat loss and impact associated with the Utah Point project further study within the port and associated area is necessary. Further study planned includes an assessment of the ecological significance of the mangroves within port limits in a regional context, and an assessment of loss threshold criteria. These works will be undertaken according to the requirements of Guidance Statements 1 and 29 (EPA 2001 & 2004) (see also Section 4.4.2). Some of the aspects to be studied include:

- Literature review of mangroves, other trophic levels (including algal mats) and ecological processes within port limits and associated areas;
- Mapping and assessment of mangrove units corresponding to habitat areas (including both open and closed canopy mangroves); and
- Determination of key maintenance processes for the mangrove units.

The mangrove habitat within port limits will be the focus of a desktop study to provide a basis for impact assessment and associated management measures to minimise impacts. The study will in particular focus on:

- Species occurrence;
- Ecosystem function and link to surrounding habitats;
- Significance of impact; and
- Literature review of potential toxicity impacts from manganese and chromite dust and leachate.

Offsets are recognised as an acceptable method of compensating for unavoidable environmental impacts with a view to achieving ‘net environmental benefit’ (EPA 2006). As part of the revised UDP, offsets for past and future degradation and/or loss of mangrove habitat within the Port Hedland Harbour are being considered (eg. 150ha of mangrove regeneration, pilot projects, education, etc). In determining offsets at such a strategic level it is expected that PHPA can better
co-ordinate stakeholder support and contribution from the various proponents with a focus on implementing measures that are not only consistent with the UDP but are in the interest of achieving ‘greater environmental good’ for the region. These measures will be further considered and included in the PER.

5.1.4 Desktop Studies
A number of desktop studies will be undertaken as part of the Utah Point PER to identify potential risks and cumulative impacts of the proposed development. A summary of these biophysical desktop studies is provided below:

- Marine flora and fauna - to further describe the marine flora and fauna within the inner port and tidal creeks linked to the port to assess impacts from the development and increased shipping during the operations phase.
- Hydrology - to characterise the potential impacts from stormwater runoff and impacts on nearby drainage lines that occur within or adjacent to the development site.
- Hydrogeology - to describe the existing hydro-geological formations and the nature of any groundwater aquifers in the project area.
- Landforms and soils - Identify the existing soils and landforms within the project sites and to describe the characteristics of each soil and landform type, with particular focus on potential for ASS to occur.

5.2 Pollution Management
5.2.1 Dust
A detailed dust study will be undertaken for the proposed operations at the Utah Point facility. This will include the following:

- Identification of key sensitive environmental and human receptors;
- Identification and application of applicable air quality criteria and standards;
- Assessment of ambient air quality through a desktop review and access to PHPA and DEC ambient air monitoring information;
- Determine sources and concentrations of emissions;
- Atmospheric modelling to estimate dust emissions and dispersion from facility for existing, proposed and future scenarios;
- Comparison of modelling outputs to relevant standards and guidelines;
- Consideration of potential health impacts from manganese and chromite dust;
- Analysis of regional air quality, air shed capacity and impacts of proposal.
The PER will also include the preparation of a Dust Management Plan, which will outline the details of an ongoing monitoring program, dust minimisation techniques and remedial management strategies.

5.2.2 Noise
A noise assessment will be undertaken for the construction and operation of the port facilities, including:

- Identify relevant noise criteria that will apply to the construction and operational phases of the project;
- Identify nearby sensitive receptors;
- Identification of primary noise sources/activities;
- Model noise emissions from facility for existing, proposed and future scenarios;
- Include potential cumulative impacts from known and existing proposed noise sources; and
- Determine potential impacts of noise on any nearby sensitive receptors.

5.2.3 Traffic Impact Assessment
A detailed Traffic Impact Assessment (TIA) will be conducted in parallel to the PER. The TIA will provide information on the following aspects relevant to the PER process:

- Existing and future capacity of the road and intersections affected by this proposal;
- Impacts on current road users;
- Requirements for road redesign and/or traffic management; and,
- Amenity and severance impacts on community.

5.2.4 Site Contamination
A review of the DEC Contaminated Sites database and historic aerial photos confirms that there is no record of previous development or potentially contaminating activities occurring within the project area. However, historical and existing operations adjacent to the study area, (BHPBIO Utah Point Berth ore transfer facility operation and construction activities) present a source of contaminants with the potential to pollute or have polluted the Site. As part of the PER, a Preliminary Site Investigation will be completed in accordance with the broad requirements of DEC guideline entitled, Reporting of Site Assessments (December 2001). This PSI report will document future, current and past operations conducted at the Site and to assess the potential and
known impacts of these activities on the environmental condition of the Site and surrounding properties.

Subject to the findings of the PSI it is envisaged that further detailed investigations of the existing soil and groundwater composition will be necessary to provide a baseline upon which further studies may be determined and suitable management plans will be prepared. Baseline studies are likely to include the following:

- Leachability study;
- Soil sampling and groundwater monitoring;
- Qualitative toxicology studies; and
- Investigation of fill material sources.

A leachability study on the ores will provide an initial assessment as to the bioavailability of the metals and metal species present in the ore in the various aquatic conditions in which the ore may be deposited.

Soil sampling and groundwater monitoring activities will begin prior to the commencement of construction works. The site investigation will be undertaken in two phases; the first phase will consist of groundwater well installation and soil sampling. Wells will be installed and developed, soil samples will be collected at each well location at 0.5m intervals to 1.5m. The second phase of investigation will monitor groundwater quality over a period of eight months to assess seasonal variability in groundwater characteristics. Sampling will occur at a frequency of once every two months prior to construction starting at the site, with a minimum of three sampling events undertaken before construction commences.

It is proposed that four groundwater monitoring wells will be installed across the footprint of the proposed stockpile area and its perimeter. Soil and groundwater analytical suites have been selected to cover the breadth of analysis previously undertaken of marine sediments in the Port of Port Hedland, with the addition of chromium speciation to satisfy any potential toxicological concerns and the inclusion of parameters to monitor for acid sulfate soil disturbance in groundwater analysis. Soil samples will be analysed for:

- Total Recoverable Hydrocarbons (TRH);
- Benzene, Toluene, Ethyl-Benzene and Xylenes (BTEX);
- Metals (As, Cd, Cu, Ni, Pb, Zn, Hg, Mn, Fe, Al, Cr III and Cr VI);
- Organo-Chlorine and Organo-Phosphorus pesticides;
- Polynuclear Aromatic Hydrocarbons (PAH);
- Phenols;
- Poly-Chlorinated Biphenyls (PCB);
- Organo-Tin compounds (TBT); and
- Total Organic Carbon (TOC).

Groundwater samples also will be analysed for this analytical suite and additionally:
- electrical conductivity (EC);
- dissolved oxygen (DO);
- pH;
- total dissolved solids (TDS);
- total suspended solids (TSS);
- total alkalinity and acidity;
- cyanide (CN);
- ion balance;
- nitrate, nitrite, total ammonia and total kjehdahl nitrogen (TKN); and
- total phosphorus.

Results of groundwater monitoring will be compared to sediment sampling data provided by Port Hedland Port Authority (PHPA), seawater quality data provided by Department of Environment and Conservation Government of Western Australia (DEC WA) and DEC WA Contaminated Sites Management Series (2001) assessment levels.

A groundwater management plan will be prepared for the site. The groundwater management plan will be submitted to the DEC as part of the PER and will detail baseline and ongoing groundwater monitoring; reporting; management procedures; contingency methods; and other responsibilities.

A Contamination Management plan will also be developed to address the potential for contamination to be introduced from the manganese and chromite ores, as well as hydrocarbons and other potentially contaminating materials.

5.2.5 Desktop Studies
A number of desktop studies will be undertaken as part of the Utah Point PER to identify potential risks and cumulative impacts of the proposed development. A summary of these pollution management desktop studies is provided below:
5.3 Social Surroundings

5.3.1 Aboriginal Heritage
An approach to the management of Aboriginal heritage, including Native Title, has been developed to ensure the requirements of the *Aboriginal Heritage Act 1972* (WA) and the *Environmental Protection Act 1986* (WA) are met in relation to identification, assessment and management of significant sites.

Pilbara Native Title Service (PNTS) have been commissioned by PHPA to determine the Indigenous heritage significance of the project area and to provide advice on appropriate management / mitigation measures required as part of subsequent agreements or permissions deemed necessary.

The approach to design and construction is based on a policy of minimal disturbance, which is implemented via a stepwise approach, as follows:

- Completion of thorough archaeological and anthropological heritage surveys and consultations with relevant Indigenous groups to develop a detailed understanding of the heritage landscape;
- Classification and reporting of any identified sites; and,
- Where disturbance to sites is unavoidable, seek permission under Section 18 of the *Aboriginal Heritage Act 1972* (WA) to retrieve, relocate and where this is not possible, disturb Aboriginal heritage material.

5.3.2 Desktop Studies
A number of desktop studies will be undertaken as part of the Utah Point PER to identify potential risks and cumulative impacts of the proposed development. A summary of these social surroundings desktop studies is provided below:

- European Heritage – A study of non-indigenous heritage data will be completed.
- Recreational Activity – to assess the potential impacts on recreational uses of the area, particularly in relation to access to Utah Point for fishing.
- Visual Amenity – an assessment to consider and determine the visual impacts of the proposed development, including impacts from lighting.
- Risk and Safety – to identify and quantify the potential risk from the project to the public, users of the site and the environment, with the aim of reducing risks to As Low As Reasonably Practicable (ALARP).
- Social Impact – to determine the potential impacts of the proposed development on the local community, the social profile, services and facilities
### Table 3 Application of Principles of Environmental Protection

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<tr>
<th>Principle</th>
<th>Objective</th>
<th>Actions</th>
<th>Timing</th>
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| Precautionary Principle           | Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. | - Minimise impacts through appropriate design of facility, with a focus on limiting mangrove loss  
- Detailed investigations into existing environment to accurately assess potential impacts  
- Best industry practices applied throughout design, construction and operation phases  
- Preparation of management plans for key environmental factors | During design, construction and operation                                                               |
| Intergenerational Equity          | The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations. | - Detailed investigations into existing environment for reporting purposes  
- Ongoing management and monitoring of surrounding environment where required  
- Appropriate decommissioning, when required | During design, construction and operation                                                               |
| Conservation of Biological and Ecological Diversity | Conservation of biological diversity and ecological integrity should be a fundamental consideration. | - Investigations into terrestrial and marine ecology  
- A detailed mangrove assessment meeting the requirements of Guidance Statement 29 (EPA 2004)  
- Specific environmental management plans to ensure ongoing protection of biological and ecological diversity | During design, construction and operation                                                               |
| Improved Valuation, Pricing and Incentive | Environmental factors should be included in the valuation of assets and services. | - Environmental impacts to be taken into consideration at all stages of the design, construction and operational phases  
- Ongoing monitoring and assessment of site to ensure contamination or environmental degradation is identified early and addressed immediately  
- As a multi-user facility, all users to contribute to environmental management of site | During design, construction and operation                                                               |
| Waste Minimisation                | All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment. | - Appropriate facility design to minimise waste production during operations  
- Waste management plans for construction and for operations to be developed | Ongoing                                                                                             |
<table>
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<tr>
<th>Environmental Factor</th>
<th>Relevant Area</th>
<th>Environmental Objective</th>
<th>Potential Impacts</th>
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<tr>
<td><strong>Biophysical</strong></td>
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| Terrestrial Flora and Vegetation | Finucane Island Access Road          | To maintain the abundance, diversity, geographic distribution and productivity of terrestrial flora at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge. | Loss of habitat, significant terrestrial flora species and vegetation associations, introduction or spread of weed species along access road. | • Survey of vegetation, to identify any changes from previous surveys  
• Supplementary desktop flora studies to add to existing knowledge and identify the presence of significant flora species, vegetation communities and weeds  
• Determine the conservation significance of flora and vegetation in a local and regional context | • Evaluate the results of flora surveys and where appropriate provide recommendations into the design phase  
• Provide suitable management guidelines for weeds, ground disturbance and clearing | EPA Position Statements No’s 3 and 9; and EPA Guidance Statement No. 51 |
| Terrestrial Fauna     | Finucane Island Access Road, Finucane Island ecosystems | To maintain the abundance, diversity, geographic distribution and productivity of fauna species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge. | Loss of habitat, significant fauna species, direct disturbance from construction activities, indirect disturbance from noise and light during construction and operations. | • Survey of fauna species and fauna habitats, to identify any changes from previous surveys  
• Supplementary desktop fauna studies to add to existing knowledge and identify the presence of significant fauna species  
• Determine potential impacts on significant species and importance of such impacts in a local and regional context | • Evaluate the results of fauna surveys and where appropriate provide recommendations into the design phase  
• Provide suitable management guidelines for ground disturbance and clearing | EPA Position Statement No. 3 and EPA Guidance Statement No. 56 |
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</table>
| Marine Flora and Fauna       | Wharf and berth construction, operations (shipping)        | To maintain the abundance, diversity, geographic distribution and productivity of marine flora and fauna species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge. | Impacts on marine mammals and turtles during construction and operations from increased underwater noise and physical presence. Potential smothering of benthic habitats from increased siltation during construction and operations. Contamination of marine habitats from Mn, Cr and hydrocarbon spills. | • Desktop fauna studies to add to existing knowledge and to identify the presence of significant fauna species.  
• Determine potential impacts on such species and significance of such impacts in a local and regional context.  
• Leachate testing of Mn and Cr ores to determine bioavailability and potential mobility into environment and review of eco-toxicity literature | • Provide suitable management guidelines for the construction phase of the wharf and berth including management measures for limitations on impacts on marine flora and fauna, including turtles and marine mammals, during construction and from shipping  
• Ballast water management plan | EPA Guidance Statement No. 29 and 34;  
Required safe distance for cetaceans maintained by the survey vessel as per Part 8 EPBC Reg.’s 2000;  
ANZECC Guidelines for Fresh and Marine Water Quality.  
| Mangroves and marine salt flats | Stockpiles, wharf, access road, conveyors and infrastructure | To maintain the abundance, diversity, geographic distribution and productivity of marine flora and fauna species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge. In particular to limit the impact on the mangrove ecosystems and salt flats to the physical footprint associated with the project. | Direct loss of mangrove and salt flat habitat within the construction footprint at Finucane Island, along the access road, conveyor and from construction of associated infrastructure. Indirect impact on the salt flat and mangrove ecosystem including geomorphic units outside the footprint from altered hydrology associated with the construction footprint. | • Compilation of existing knowledge of mangroves and geomorphic units  
• Habitat mapping of mangroves and geomorphic units  
• Assessment of the historical distribution of mangroves in the area using aerial photography  
• Estimate the cumulative loss and assess the regional significance  
• Compilation of existing information on salt flat ecosystem in the | • Evaluate the results of the mangrove habitat study and the loss estimates, and provide recommendations into the design phase to minimise impacts  
• Evaluate the results of the salt flat desktop study to provide recommendations into the design to minimise impacts  
• Establishment of mangrove regeneration and/or conservation area to offset the loss of mangroves, developed in consultation with the | EPA Guidance Statements No. 1, 29 and 34 |
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</table>
| Hydrology            | Wharf and berth | Maintain the quantity and quality of water so that existing and potential environmental values, including ecosystem function, are protected. Minimise the potential for erosion due to concentrated stormwater flow. | Potential contamination of water resources from spills of hazardous materials or ballast water, sedimentation of drainage lines from erosion, increased and concentrated surface runoff flows, dissection of surface water flows and potential impact on downstream water dependent ecosystems. | Undertake surface hydrology studies and groundwater quality desktop studies
Investigate flood and storm surge levels and groundwater flow patterns
Consideration and inclusion of stormwater controls during the design phase
Investigate potential impacts from ballast water
Groundwater monitoring to be undertaken prior to construction and during construction and operations | Development of groundwater and surface water run-off management plans
A groundwater management plan will be submitted to the DEC as part of the PER and will detail monitoring; reporting; management procedures; contingency methods; and other responsibilities.
Development of spill response procedures
Hazardous materials management plan to be developed
| Landform and Soils   | All project areas, ASS in mangrove areas | To maintain the integrity, ecological functions and environmental values of landforms and soils. | Potential impacts resulting in the permanent physical change to landform, degradation of landform processes, erosion, soil contamination, loss of topsoil, soil compaction and acid generation from the exposure of potential | Review of geotechnical, landform and soils studies previously undertaken
ASS study undertaken
Undertake PSI study
Leachate testing of Mn and Cr ores to determine potential mobility into soils
Identification of | Incorporate requirement for erosion control measures during the design phase
Provide topsoil management during construction
Should potential ASS be identified, suitable studies and management measures | National Strategy for the Management of Coastal Acid Sulphate Soils (ANZECC/ARMCANZ).
<table>
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<tr>
<td></td>
<td></td>
<td>acid sulphate soils.</td>
<td>potential sources of contamination and potential pathways and receptors</td>
<td>will be implemented, in accordance with DEC Guidelines. This would include development of an ASS Management Plan</td>
<td>In the event of contamination occurring, the site will be investigated and remediated in accordance with Contaminated Sites Management Guidelines and in consultation with the DEC</td>
<td>Assessment Levels for Soil, Sediment and Water – Draft (Department of Environment 2003).</td>
</tr>
</tbody>
</table>

**Pollution Management**

**Air Quality**

- **Operations at facility**
  - To ensure that atmospheric emissions do not impact on environmental values, or the health, welfare and amenity of the population and land uses, by meeting statutory requirements and acceptable standards and guidelines.
  - Adverse impacts on human health, surrounding vegetation and fauna and ambient air quality from dust.
  - Undertake air emission studies and dispersion modelling to estimate emissions, ground level concentrations and deposition rates
  - Ground level concentrations and deposition rates
  - Compare to agreed standards and limits, including for Mn and Cr
  - Investigate best
  - Use of best practice engineering design in final facility design to minimise emissions
  - Use of best practice techniques during operations
  - DMP developed for operations
  - Dust minimisation techniques applied to

- **Applicable Guidance**
  - EPA Guidance Statement No. 18 and 34
<table>
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<tbody>
<tr>
<td>Noise</td>
<td>Stockpiles, conveyors, berth, shipping, transport.</td>
<td>To avoid adverse noise and light impacts to people and fauna and to ensure that noise and light levels comply with statutory requirements.</td>
<td>Behavioural modification to fauna, physiological damage to fauna and reduced amenity to nearby residents.</td>
<td>practicable technology measures to minimise emissions</td>
<td>Use of best practice engineering design in final facility design to minimise noise emissions</td>
<td>EPA Guidance Statement No. 3 and 34</td>
</tr>
<tr>
<td>Waste Management</td>
<td>All aspects of construction and operations</td>
<td>To ensure that potential impacts associated with liquid and solid wastes are managed appropriately.</td>
<td>Contamination of soils, sediments and water with pollutants such as hydrocarbons, manganese and chromium and introduced species.</td>
<td>Assess and describe potential impacts of proposal</td>
<td>Waste management plan developed for construction and operational phases</td>
<td>EPA Guidance Statement No. 2, 33, 34 and 47 DEC Contaminated Sites Management Series</td>
</tr>
<tr>
<td>Marine Environmental Quality</td>
<td>Construction and operation of berth and associated stockyard</td>
<td>Maintaining sediment, water and biota quality.</td>
<td>Adverse impacts on marine environment quality from shipping and loading activities, as well as runoff, discharge or spills.</td>
<td>Assess and describe potential impacts of proposal</td>
<td>Water management plan developed for construction and operational phases</td>
<td>DEC Pilbara Coastal water Quality Consultation Outcomes: Environmental Values and Environmental Quality Objectives ANZECC Guidelines for Fresh and Marine Water Quality (ANZECC/ ARMCANZ 2000).</td>
</tr>
<tr>
<td>Traffic</td>
<td>Access Road</td>
<td>To ensure that potential impacts associated with traffic and truck movements are managed</td>
<td>Ambient air quality reduced, amenity and severance issues for community, road users</td>
<td>A detailed TIA will be undertaken in parallel to the PER</td>
<td>Engineering design of road to minimise direct impacts</td>
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<tr>
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<tr>
<td>Aboriginal Heritage</td>
<td>All project components</td>
<td>To ensure that the proposal complies with the requirements of the Aboriginal Heritage Act 1972.</td>
<td>Disturbance of culturally significant sites.</td>
<td>Comprehensive heritage surveys completed prior to any ground disturbing activities being undertaken</td>
<td>Aboriginal Heritage Management Plan to be developed</td>
<td>EPA Guidance Statement No. 41</td>
</tr>
<tr>
<td>European Heritage</td>
<td>All project components</td>
<td>To ensure that the proposal complies with the requirements of the Heritage of Western Australia Act 1990 and commonwealth requirements.</td>
<td>Disturbance of culturally significant sites.</td>
<td>Complete a desktop review of non-indigenous heritage data including maritime heritage sites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreational Activity</td>
<td>All project components</td>
<td>To minimise potential impacts on recreational uses of the area.</td>
<td>The development and associated activities has the potential to affect the recreational uses of the project area, particularly fishing access.</td>
<td>Consultation with government and community will be undertaken to identify potential conflicts and ensure impacts are reduced to as low as practicable</td>
<td>All practicable measures will be implemented to design the facilities to minimise impact on recreation</td>
<td>EPA Guidance Statement No 3 and 33</td>
</tr>
<tr>
<td>Visual Amenity</td>
<td>All project components</td>
<td>To minimise impacts on the visual amenity of the area adjacent to the project.</td>
<td>The development and the proposed change to the landscape has the potential to affect the</td>
<td>Describe the prominent features of the existing landscape and determine the visual impacts of the proposed</td>
<td>All practicable measures will be implemented to design and operate facilities to minimise impact on</td>
<td>EPA Guidance Statement No 3 and 33</td>
</tr>
<tr>
<td>Environmental Factor</td>
<td>Relevant Area</td>
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<tr>
<td>Risk and Safety</td>
<td>All project components</td>
<td>To ensure that the risk to the workforce and public is as low as reasonably practicable.</td>
<td>Potential health and safety risks to the workforce and general public.</td>
<td>▪ A risk assessment completed to identify potential risks from the project and demonstrate that the risk is minimised to ALARP</td>
<td>▪ Management strategies would be implemented to ensure workforce and public health and safety are protected, as required</td>
<td>EPA Guidance Statement No 2 and 33</td>
</tr>
</tbody>
</table>
| Social Impacts       | All project components | To minimise the impacts to the local community, the social profile, and all services and facilities. | The physical presence and associated activities has the potential to affect the social profile of the area. | ▪ Potential impacts and constraints on existing community services and facilities will be assessed | ▪ Consultation to identify potential social impacts  
▪ Measures implemented to minimise impact to the social profile of the area  
▪ Management plan developed as required | |
6. Community and Stakeholder Consultation

Community consultation will be a key and ongoing aspect of the project and is identified as being crucial to the success of the PER. Community consultation has been incorporated into the program and scope of works for the project. To facilitate this process, the overall approach to managing communications during this PER is outlined below:

- Seek to understand respective interests very early in the process when it can have optimal influence on project design (through the EIS process) at a relatively low cost.
- Begin with a broad set of potential issues, impacts and stakeholders but quickly screen to allow communication to be focused on matters most important to the ultimate PER decision.
- Stage phases of consultation to have iterative rounds of data-gathering activity followed by the reporting back to consultees of the proponent’s interpretation of the data. For example, a collection of baseline data should be followed by proponent presentation of baseline situation to verify accuracy and shared understanding.
- Reduce uncertainty for all stakeholders by careful sequencing of consultation. By using sequencing to quickly screen the list of issues and accurately characterise potential impacts, the process optimally reduces the anxiety of those facing potential change.

This consultation will be achieved through a combination of public information tools, including briefings, community meetings, newsletters, presentations, advertisements and other communication methods. This program will ensure that people are informed and aware of the proposal and any decisions being made, while allowing them the opportunity to have input that may improve the environmental and social acceptability of the proposal. This will be an ongoing process, with initial consultation occurring during the early stages of development of the Draft PER. The public will also be informed at the commencement of the public review period via local media.

The community consultation program will require the involvement of a range of key stakeholders, including indigenous and non-indigenous groups. These stakeholders will include the following broad groupings:

- Members of the public;
- Conservation groups;
- Indigenous groups;
- Non government organisations; and
- Local and State Government Departments.
Some of the key stakeholders identified as being of specific interest to this project include:

- Residents of Port Hedland, South Hedland, Wedgefield and surrounds;
- Aboriginal communities;
- Town of Port Hedland;
- Environmental Protection Authority of Western Australia;
- Department of Environment and Conservation WA;
- Department of Fisheries WA;
- Department of Health WA;
- MainRoads WA;
- Department of Industry and Resources;
- Local, state and national conservation groups;
- Other port users, including BHPBIO and FMG;
- Tourism operators;
- Fishing operators;
- Harbour users;
- Elected and non-elected public officials;
- Unions; and
- PHPA staff.

Preliminary consultation with the DEC, EPA, Town of Port Hedland, Non-Government Organisations (Wedgefield Association, Progress Association, Care for Hedland), BHPBIO, and MainRoads has been undertaken to identify some key issues of importance to these stakeholders. Coordination with other industries in the area, particularly in light of the potential for ‘consultation fatigue’, is also of key importance to the project and will commence immediately. To aid in this process, a Communications Strategy will be developed to direct communications with key stakeholders and to provide a detailed record of the process.
7. PER and Assessment Schedule

The following timeline has been developed based on an early assessment of potential timeframes. There is likely to be significant changes to the schedule as the PER works progress, therefore the timetable is indicative only.

<table>
<thead>
<tr>
<th>Milestone Date</th>
<th>Description of Task</th>
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<tbody>
<tr>
<td><strong>Stage 1 – Environmental Scoping</strong></td>
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<tr>
<td>December 2006</td>
<td>Kick-off Meeting.</td>
</tr>
<tr>
<td>Jan 2 – Feb 13, 2007</td>
<td>Prepare and Submit Draft Environmental Scoping Document to DEC</td>
</tr>
<tr>
<td>Feb 14 – July 20, 2007</td>
<td>EPA Approval of Environmental Scoping Document as Basis for PER</td>
</tr>
<tr>
<td><strong>Stage 2 – PER Preparation</strong></td>
<td></td>
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<tr>
<td>Jan 8 – Mar 23, 2007</td>
<td>EPBC Referral Prepared, Detailed Cost Estimate and Schedule, Mobilization of Sub-consultants and Preparation of Communications Strategy</td>
</tr>
<tr>
<td>Feb 14 – July 20, 2007</td>
<td>Environmental Studies</td>
</tr>
<tr>
<td>Feb 14 – July 27, 2007</td>
<td>PER Preparation</td>
</tr>
<tr>
<td>Feb 28 – Oct 1, 2007</td>
<td>Community Consultation</td>
</tr>
<tr>
<td>Feb 26 – Aug 3, 2007</td>
<td>PER Review Period and Incorporation of Comments into Draft PER</td>
</tr>
<tr>
<td>Sep 3 – Sept 14, 2007</td>
<td>Incorporation of EPA Comments into Draft PER</td>
</tr>
<tr>
<td>Sept 17 – Oct 1, 2007</td>
<td>EPA Approval to Publish</td>
</tr>
<tr>
<td>Oct 1 – Oct 5, 2007</td>
<td>Printing and Distribution</td>
</tr>
<tr>
<td>Oct 8 – Nov 5, 2007</td>
<td>Public Review of PER</td>
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<tr>
<td><strong>Stage 3 – Response to Public Submissions</strong></td>
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<tr>
<td>Nov 5 – Nov 30, 2007</td>
<td>Proponents response to Public Submissions</td>
</tr>
<tr>
<td>Dec 3 – Feb 11, 2008</td>
<td>Preparation and Release of Assessment Report and Recommendations by the EPA (Allowance for 1wk Christmas/New Year break)</td>
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<tr>
<td>Feb 11 – Feb 25, 2008</td>
<td>Public appeal period for EPA Report and Recommendations</td>
</tr>
<tr>
<td>Feb 25 – Mar 24, 2008</td>
<td>Minister Consults with DMAs</td>
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<tr>
<td>Mar 24, 2008</td>
<td>Ministerial Statement Published</td>
</tr>
<tr>
<td><strong>Stage 4 – Review and Response to EPA Bulletin</strong></td>
<td></td>
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<tr>
<td>April, 2008</td>
<td>Review and Response Ministerial Statement and EPA Bulletin</td>
</tr>
<tr>
<td>April, 2008</td>
<td>Finalisation of Conditions (if not appealed by PHPA).</td>
</tr>
</tbody>
</table>
8. Study Team

The proposed study team for the PER is:

- PHPA – Operations Team: Proponent, operational advisors;
- SKM – Environmental and Technical Consultants;
- Vipac – Noise;
- V & C Semenik Research Group (VCSRG) – Mangroves;
- Biota – Ecologists.

PHPA recognises the value that the EPA places on the veracity of the technical work underpinning environmental assessments. As such, PHPA intend to undertake ongoing reviews of the environmental impact assessment process and of all deliverables.
9. References


Beard, J.S. (1975) Pilbara. Explanatory Notes and Map Sheet 5, 1:1,000,000 series. Vegetation Survey of Western Australia, University of Western Australia Press, Nedlands.


Appendix A  Letter to Hope Downs JV from PHPA
19 June 2007

Messrs Bill Hart and Grant Young
Hope Downs Joint Venture
Hamersley WA Pty Ltd
152-158 St Georges Tce
PERTH WA  6000

Dear Sirs

HOPE DOWNS DEVELOPMENT PLANS FOR PORT HEDLAND

At our meeting at your offices on 8 June 2007, along with Brian Wood, Department of Industry and Resources, and John Morris, Department of Planning and Infrastructure, we discussed the evolution of the port of Port Hedland and sought clarification on your future developments plans through the port. We confirmed that we remain supportive of HDJV investigating a berth at Stanley Point at the mouth of SW Creek capable of exporting iron ore by means of Cape Size vessels. However, for the reasons elaborated below, berths at Harriet Point shall no longer be available for consideration by HDJV:

- The 2003 Ultimate Development plan has evolved substantially over the last 18 months, particularly in light of the impacts of the issue of EPA’s guidance statement 29 in June 2004 related to Benthic Primary Producer Habitat Protection. The limitation imposed on mangrove destruction has led to PHPA seeking to optimise mangrove destruction within the port associated with future developments. The planned destruction of 88 hectares of mangroves per HDJV’s previous development plans for Harriet Point was deemed excessive and as such alternative berth and stockyard locations have been earmarked to reduce the destruction to more acceptable levels. PHPA deems an area to the west of the existing HBI conveyors is most suited for the development of stockyards. This information was conveyed to the HDJV technical team headed by Peter Taylor that visited the port on 15 August 2006 and as confirmed in our email of 18 August 2006.

- The problem with having to develop an extended grade separated rail crossing into the port was deemed impractical, costly and would increase noise generation. We deem that the rail should best run down the outside of the HBI conveyor or alternatively a loop similar to the FMG loop be envisaged (refer drawing attached).

- The land area in the vicinity of Harriet Point is not suited to the location of stockyards due to the propensity of mangroves in this area of the port. Harriet Berths are best suited for development of lay-by berths or loading berths that do not necessitate mangrove destruction for their feeder stockyards.
• PHPA has sought to increase the capacity of the port to meet existing and future proponent needs. To achieve this PHPA needs to develop lay-by berths to make more efficient use of the high tide departure windows. PHPA therefore supports the development of twin cape size berths served by a single travelling shiploader capable of achieving up to 45 mtpa or triple cape size berths served by 2 travelling shipladers capable of achieving up to 90 mtpa as the favoured configuration for both existing and future proponents. Proponents wishing to maintain a single berth, single ship loader configuration may only achieve 30 mtpa per berth as the port nears capacity. These changes shall permit the capacity of the port to handle Cape Size tidally constrained vessels to increase to 320 mtpa as confirmed by the findings of a recent channel capacity modelling study.

• PHPA has modified the 2003 plan to accommodate Cape Size berths in SW creek. PHPA has also gained a Panamax berth within the port at Utah point which shall be built above the cross harbour tunnel.

PHPA is happy to work along with HDJV and DOIR to investigate export development options through Port Hedland and to see if, and how best these may be accommodated. Please be aware that whilst we have earmarked two Cape Size berths at SW Creek for new iron ore entrants such as yourselves, the definitive allocation of these berths shall be on the basis of ‘first in best dressed’ and there being port channel capacity available at the time.

Yours faithfully

[Signature]

Andrew Bush
Chief Executive Officer

c Brian Wood, Department of Industry and Resources
John Morris, Department for Planning and Infrastructure