Cape Lambert Port B Development

Proponent Responses to Issues Raised in Submissions to the Public Environmental Review and Draft Public Environment Report

(EPA Assessment No. 1717; EPBC Referral No. 2008/4032)

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1. INTRODUCTION

1.1 Overview

The Proponent for the Cape Lambert Port B Development (hereafter in this document is referred to as the Port B development) is Pilbara Iron Pty Limited, a member of the Rio Tinto Group.

The Port B development was referred to the Western Australian Environmental Protection Authority (EPA) under Section 38 of the *Environmental Protection Act 1986* (EP Act) and the Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA) under the provisions of the *Environmental Protection and Biodiversity Conservation Act 1999* (Cwth) (EPBC Act).

The EPA advised the level of assessment for the proposal would be a Public Environmental Review (PER) with an eight week public review period. The DEWHA determined that the proposal was a 'controlled action' and advised that a Public Environment Report (PER) would be required. The DEWHA stated that the proposal should be assessed for the purposes of the EPBC Act through a coordinated PER process led by the State.

An Environmental Scoping Document (ESD) for the proposal was submitted to the EPA and the DEWHA. The ESD and a set of Guidelines (same as ESD) were approved by the EPA and the DEWHA and served as the basis for the preparation of the PER.

The PER was released for public review over the period 13 April 2009 to 9 June 2009.

This document provides the Proponents response to issues raised in submissions received during the public review of the PER. This document should be read in conjunction with the PER (Rio Tinto 2009).

1.2 Submissions received during the public review period

A total of 15 submissions was received during the public review period: 12 from government (State and local) agencies and 3 from non-government organisations.

Submissions were received from (alphabetically listed):

- Centre for Whale Research
- Dampier Port Authority
- Department for Planning and Infrastructure
- Department of Environment and Conservation – Environmental Management Branch
- Department of Environment and Conservation – Environmental Regulation (Noise)
- Department of Environment and Conservation – Industry Regulation (Regional Office)
- Department of Environment and Conservation – Marine Ecosystems Branch
- Department of Health
- Department of Indigenous Affairs
- Department of Mines and Petroleum
- Department of Water
- Ngarluma Aboriginal Corporation
- Point Samson Community Association
- Shire of Roebourne
- Western Australian Museum

1.3 Purpose and scope of this document

The *Environmental Impact Assessment (Part IV Division 1) Administrative Procedures 2002* require that once relevant submissions have been received by the EPA, the Proponent provide a summary of the key issues raised in public and government agency submissions.

Issues raised in each relevant submission has been tabulated into primary groupings (eg Emissions, Biodiversity, Dredging/Spoil grounds, Water supply, Aboriginal heritage/Native Title) and then secondary groupings (eg air quality, ambient noise/marine noise, dust/noise, light spill, waste water/surface water under Emissions) according to the environmental factor they addressed.

A draft summary table of submissions document was submitted to the EPA on 9 July 2009. The EPA advised that the summary table of submissions document was considered to provide an accurate and complete summary of submissions received on the PER on 10 July 2009.

The purpose of this Response to Submissions document is to provide the summary and the Proponent response to all issues raised in public and government agency submissions on the Port B development.

The summary and response to submissions will be considered by the EPA during its assessment of the proposal and in setting conditions pertaining to the proposal. Other documents that will be considered during its assessment will be the PER and the individual submissions received during the PER public review period.

1.4 Structure of this document

The Response to Submissions document has been structured as follows:

Section 1: Introduction – provides an overview of the assessment process undertaken, the source of submissions received and the purpose and scope of the document;

Section 2: Responses to issues – provides the grouping of issues and the Proponent responses to each issue raised in submissions received during the public review period, and summarises changes to the proposal and undertakings made by the Proponent and additional information/reports available since the release of the PER.

2. RESPONSES TO ISSUES

2.1 Issues raised in submissions

The 117 individual issues raised across all submissions have been tabulated, grouped and addressed under the following categories:

Part 1: Emissions
- 1.1 Air quality
- 1.2 Ambient noise/marine noise
- 1.3 Dust and noise
- 1.4 Light spill
- 1.5 Waste water management/surface water discharges

Part 2: Biodiversity
- 2.1 Invertebrates/Short range endemics
- 2.2 *Lerista nevinae* skink
- 2.3 Marine fauna (turtles/whales)

Part 3: Dredging/Spoil grounds

Part 4: Water supply and water efficiency
- 4.1 Water supply
- 4.2 Water efficiency
- 4.3 Dewatering

Part 5: Planning/coastal processes
- 5.1 State Planning Policy 2.6 State Coastal Policy
- 5.2 Buffer zone (between Cape Lambert and Point Samson)
- 5.3 Coastal processes

Part 6: Marine management

Part 7: Health

Part 8: Social
- 8.1 FIFO
- 8.2 Wickham Back Beach

Part 9: Aboriginal heritage/Native Title
- 9.1 Aboriginal heritage
- 9.2 Native Title/consultation

Part 10: Project design
- 10.1 Wharf design
- 10.2 Project staging

Part 11: Other
- 11.1 Acid sulphate soils
- 11.2 Rehabilitation and closure
- 11.3 Port management
- 11.4 Works Approval and Licensing
- 11.5 Impact of Third Party Infrastructure Users and BHP Billiton Joint Venture with Proponent

Some submissions raised issues that were the same or similar to issues raised by other submissions. These are presented as separate issues.

Cross referencing to common issues has been undertaken to avoid unnecessary repetition in the Proponent responses.

2.2 Proponent responses

The Proponent responses to issues raised in submissions received during the public review period for the Port B development PER are provided in Appendix A.

2.3 Changes to proposal

Since the release of the PER for public review, the following changes to the Port B development are proposed or being considered:

- Subject to the outcomes of ongoing studies, the construction of the Port B development might be staged such that the entire project scope might not be undertaken as a single construction phase.

- The provisional route for the re-alignment of Boat Beach road (shown in Figure 4-1 of PER) will be further optimised during final design so as to avoid coastal dunes habitat as much as possible whilst by-passing around the Port B development.

- The Proponent is seeking to optimise the jetty/wharf arrangement as part of the ongoing feasibility studies for the Port B development. The proposed alignment as presented in the PER will be retained; however, the optimisation relates to the option to reduce the length of the jetty/wharf (ie bringing the wharf structure closer to shore through a slightly shorter jetty length). Subject to further consideration (including geotechnical assessment), the potential environmental benefits include reduced number of piles, reduced duration of the pile driving program, a minor improvement to the visual aspects, and based on current estimates, no upward revision to the estimated required dredging volume (16 Mm^3) associated with the current proposal.

Additional undertakings for the Port B development that have been made in the Proponent responses (refer Section 3) that are not already specifically incorporated in the PER or associated management plans include:

- **Rail noise and Wickham** - The Proponent will consider implementing further noise reduction initiatives (including options such as installing an electronic braking system, erecting noise barriers or revising operational practices) should rail noise becomes an issue with the Wickham community. (Issue 1.2.2)

- **Plant noise and Boat Beach** - Whilst recognising that additional available options are limited, the Proponent will undertake a further review of noise reduction options for the stockyard area during the feasibility studies to seek to reduce potential noise at Boat Beach. Until that work is completed, the Proponent has set a preliminary aspirational goal for noise levels on Boat Beach to be in the order of 55 dB(A). A significant constraint to achieving further reductions in the aspiration goal is the relative proximity of Boat Beach and the limited space available in the lease area. (Issue 1.2.4)

- **Cetacean management** - The Proponent has prepared a Cetacean Management Plan that outlines management measures and opportunistic surveys for implementation during the construction phase (dredging and marine works for the jetty/wharf construction). These measures are mostly derived from the PER and DSDMP, in addition to some new actions such as opportunistic surveys. (Issue 1.2.7)

- **Cetacean/turtle management** - The Proponent will apply soft start up procedures during pile driving activities for the jetty/wharf construction (Issue 1.2.7)

- **Lerista skink surveys** - The Proponent will undertake further targeted surveys for *Lerista nevinae* (beyond those surveys already completed and reported in the PER) in consultation with the DEC (Issue 2.2.1)

- **Pile driving**– The Proponent will implement strategies to manage whales during dredging and pile driving, including use of fauna observers, soft start-up procedures, and the establishment of a 2.5 km observation zone, a 500 m exclusion zone and a 100 m suspension zone surrounding pile driving works to avoid stress or injury to whales as specified in the Cetacean Management Plan. (Issue 2.3.4)

- **Spoil Ground utilisation** - The Proponent could increase its utilisation of Spoil Ground 3 (further from sensitive BPPH near Delambre Island) rather than Spoil Ground 1 or 2 as a management option during dredging, but only if existing management strategies prove less effective than anticipated. (Issue 3.22 and 3.23)

- **Water supply and Bungaroo option** - The Proponent is scheduled to refer the Bungaroo borefield option to the EPA in September 2009, with baseline environmental studies and other technical studies scheduled for the latter half of 2009. (Issue 4.1.1)

- **Project design and sea level change** - The Proponent has designed the stockyard and surrounding infrastructure to be protected from flooding impacts associated with a 1 in a 100 year annual recurrence interval immunity and has designed the wharf structure to have an additional height clearance of around 0.5m (for dolphins) and 0.2m (for actual wharf/jetty structure). Storm surge levels considered the joint probability of concurrent increased ocean levels and significant ocean wave height to ensure storm immunity for the Port B development facility. (Issues 5.1.1 and 5.1.3)

- **Boat Beach road and fencing of stockyard** - The Proponent will install an appropriately designed security fence around the perimeter of the Port B development stockyard and associated facilities to ensure security and safety of the public using Boat Beach road and environs. (Issue 5.1.4)

- **Boat Beach road access** - The Proponent will ensure that continued road access to Boat Beach is maintained. The indicative route shown in Figure 4-1 in the PER will be optimised during the feasibility studies to minimise effects on coastal dune habitat and avoid the Port B development area. (Issue 5.1.5 and 8.2.1)

- **Buffer zone between Cape Lambert and Point Samson** - The Proponent supports the proposal for a buffer zone between Cape Lambert and Point Samson. Further discussion will be required on the specific boundaries of any buffer zone near the Cape Lambert lease area. (Issue 5.2.1)

- **Ship crew behaviour** - The Proponent will continue to seek to influence the behaviour of ship's crews visiting the port such that they exhibit acceptable operating and environmental behaviours whilst in port waters, to the extent that the Proponent can control such matters. (Issue 6.2)

- **Mosquito management** - The Proponent is progressing mosquito management as part of its current and planned mosquito management program for its coastal operations and towns, and

this will progress independent of, but will ultimately include, the Port B development. A part of this program involves the preparation of a mosquito management plan. (Issue 7.1)

- **Housing/FIFO** - The Proponent will undertake further analysis to better refine the optimum split between residential and FIFO roles at the locations of Wickham and Roebourne for new accommodation construction. (Issue 8.1.1)

- **Progressive rehabilitation** - The Proponent will undertake progressive rehabilitation during construction of those areas that have been disturbed and are no longer required to be used for either construction or ongoing operational requirements and will be completed by the end of the construction program. (Issue 11.2.1)

2.4 Additional information/reports

Since the release of the PER, additional reports have been finalised. These include the following:

- Air quality – a peer review of the SKM Air Quality Impact Assessment report (Appendix A7 in the PER) has been undertaken by PAE-Holmes and is provided as Attachment 1.

- Air quality – key figures from the SKM Air Quality Impact Assessment report (Appendix A7 of PER) have been revised to incorporate background dust as a Supplementary Report and are provided as Attachment 2.

- Cetacean management – a new Cetacean Management Plan (that consolidates management and monitoring measures) has been prepared and is provided as Attachment 3.

- Underwater noise – the SVT Underwater Noise Assessment report presented as Appendix A21 in the PER has been revised and updated to take account of a peer review by Curtin University and EPA comments and is provided as Attachment 4.

- Marine turtles – a report on outcomes of marine turtle monitoring at Bells Beach and other rookeries in the Dampier Archipelago during the 2008/2009 season is provided as Attachment 5.

- Water Quality – a final report providing baseline turbidity, light, sediment and temperature data at 13 locations in the Cape Lambert area between February 2008 and May 2009 has been prepared and is provided as Attachment 6.

- Benthic Primary Producer Habitat (BPPH) – a final report on the monitoring of sub-tidal BPPH at 13 locations in the Cape Lambert area between July 2008 and May 2009 has been prepared and is provided as Attachment 7.

- Intertidal areas – a baseline intertidal study undertaken over a 12 month period to describe the temporal and spatial variability in benthic life form on intertidal reef platforms in the Cape Lambert/Point Samson region has been prepared and is provided as Attachment 8.

All Attachments are provided separately in the CD enclosed with this report.

Appendix A:

Proponent responses to issues raised in submissions to the Cape Lambert Port B development PER

Appendix A. Proponent responses to issues raised in submissions to the Cape Lambert Port B development PER

Issue	Topic	Submission from	Comment	Proponent response
			PART 1: EMISSIONS	
			1.1 Air quality	
1.1.1	Dust impacts on Point Samson	Shire of Roebourne	The proposal to initially expand the export capacity of Cape Lambert from 85 Mtpa to 215 Mtpa [Port B Stage 1] and then to 285 Mtpa [Port B Stage 2] will increase throughput by 153% in the first stage and ultimately by 235% over the currently approved export capacity of 85 Mtpa. Given that the basic design of the operations are the same as the existing facilities, albeit with some design improvements, the prediction based on air quality dispersion modelling that 24 hour maximum concentrations at Point Samson of PM10 and TSP dust emissions will only increase by 3 ug/m^3 [16%] and 4 ug/m^3 [15%] is difficult to accept. The determination of "background" levels of dust, the contribution of Cape Lambert to total dust emissions and the verification of modelling through the monitoring of emissions are matters that the Shire would like to be further considered. The Shire requests that an independent audit of all dust sources be undertaken, including a thorough review and specification of all possible design and operational management improvements to minimise emissions. The Shire would further recommend that the identified improvements be made conditions of any subsequent approval for the Port B proposal. These conditions would need to specify the inclusion of all design improvements in the design for Port B, the retro-fitting of design improvements to Port A and the implementation of all operational management improvements for the overall operation of Cape Lambert. These matters are also one of a number of issues in regard to which the Shire will request specialist advice from the EPA/DEC and briefings from the Proponent, prior to the preparation of any final PER for this proposed development.	The scope of any future expansion beyond that detailed in the PER is uncertain, hence the environmental approval process must be limited to that which is proposed and addressed in the PER. Accordingly, the Air Quality Impact Assessment (AQIA) (Appendix A7 of the PER) addresses the proposal for an additional 130 Mtpa. Any expansion beyond that will be subject to a separate approvals process. The relatively small predicted increase in dust levels is due to the commitments made to reduce dust emissions across the site, including upgrades to the existing Cape Lambert operation and mitigation and management measures proposed for the Port B development, as detailed in Table 8-5 of the PER. The Proponent acknowledges the level of concern regarding the impact to dust concentrations and commissioned a peer review of the air quality modelling undertaken by SKM. The peer review was undertaken by PAE-Holmes and is presented in **Attachment 1**. The peer review addressed the SKM AQIA through checking off the report against the technical requirements and issues set out by the Air Quality Modelling Guidance Notes (DEC 2006), and by commenting on general aspects of the AQIA report and details considered to warrant comment. The peer review found that the AQIA: "*…is based on a methodology that has been applied to previous air quality studies at Cape Lambert. Even though the modelling methodology might not be described a current best practice in some respects, there is a reasonable level of confidence in the results because of model validation presented in the AQIA. The SKM report's conclusions are reasonable in terms of compliance with the DEC's air quality criteria, provided that projected levels of dust control are achieved. There are no air quality criteria available that provides a direct measure of short-term deposition events. However, the existing and proposed real-time emissions management procedures are beneficial in limiting these events.*" Furthermore, the PAE-Holmes review stated that: "*Technically, most of the relevant requirements of the DEC (Air Quality) Modelling Guidance have been met, although not in some specific aspects such as how results of modelling ought to be presented. These items are, however, not relevant to the question of how reliable the predictions are, but impinge more on interpretation and assessment of the model results.*" The peer review also commented on the question of the rationale

				behind modelling outcomes with regard to large increases in throughput of ore and resultant low modelled predictions when effective dust mitigation measures are taken into account. The Proponent believes that the environmental approvals process as being conducted under Part IV of the *Environmental Protection Act 1986* (and its Administrative Procedures 2002) and the works approval/licensing process (to be conducted) under Part V of the same Act are sufficiently rigorous to comprehensively examine the proposed design and management measures for the Port B development without the need for any independent audit of dust sources. Consultation with the Shire and others will continue through the feasibility study for the Port B development.
1.1.2	Dust impacts on Wickham	Shire of Roebourne	While Wickham is not currently impacted by dust emissions from Cape Lambert to the same extent as Point Samson, the location of the proposed stockpiles for Port B [Stage 1] and the unspecified, but likely, location of the stockpiles for Port B [Stage 2], will bring this major source of dust pollution much closer to the township of Wickham. The Shire therefore requests that an independent audit of all dust sources be undertaken, including a thorough review and specification of all possible design and operational management improvements to minimise emissions. The Shire further recommends that the identified improvements be made conditions of any subsequent approval for the Port B proposal. These conditions would need to specify the inclusion of all design improvements in the design for Port B, the retro-fitting of design improvements to Port A and the implementation of all operational management improvements for the overall operation of Cape Lambert. In addition, the impact of dust lift-off from rail operations, which is often observed with rail movements between Pannawonica and Cape Lambert, needs to be specifically considered as part of the recommended audit. This source of pollution will dramatically increase with the planned 150% plus increase in rail movements, all of which pass close to Wickham and are subjected to the prevailing westerly and northerly wind during the critical hot and windy northern summer period. Likewise any identified improvements to the design and operation of rail operations, including covering rail cars or dust suppression coating of loaded rail cars, should be the subject of conditions in any approval for Port B.	The Proponent acknowledges that the proposed stockpiles will be located closer to Wickham than the existing stockpiles associated with the existing Cape Lambert operation. The southern end of the Port B development stockyard will be located approximately 4.5 km closer to Wickham than the southern end of the existing stockyard at the Cape Lambert operation and will be approximately 3.5 km closer to Wickham than the existing southern end of the existing Cape Lambert Coarse Ore Stockpile. The air quality modelling (Appendix A7 of the PER) considered the scope and location of these new sources of dust and hence the predicted impact from the Port B development includes the likely impact on Wickham from the new sources. Refer also to the Proponent response to Issue 1.1.1 with regard to the need for an independent audit of dust sources and the outcomes of the peer review conducted on the air quality modelling. The planned application of the binding agent PDX100 to ore at some mines (refer to the Proponent response to Issue 1.1.7) will assist reduce the risk of dust lift off from rail wagons passing Wickham. The Proponent does not consider the covering of rail wagons is warranted or feasible due to the manner in which rail wagons are currently loaded at the mines and unloaded at the ports. To revise these standard loading and unloading practices through the installation of covers will be a substantial capital cost and will impose logistical difficulties at each mine site and port throughout the Proponent's Pilbara operations.
1.1.3	Background PM concentrations	Department of Health	A satisfactory assessment of the impact of particulate matter (PM) on the community of Point Samson is hampered by the omission of background concentrations of PM in the modelling. As is evident in the Air Quality Impact Assessment report prepared by SKM consultants, the modelling data under predicts the PM concentrations at Point Samson. Under unfavourable meteorological conditions (on-shore winds), the NEPM exceedance guideline for PM10 is currently being regularly exceeded at Point Samson due to activities in the region that include the Port A development. Toxicology suggests that any model validation should include backgrounds levels at Point Samson and Wickham. The Proponent is reminded that visual monitoring is not appropriate in residential areas.	Whilst background concentrations were included in Section 5.5.2 of the PER and Appendix A7 of the PER, the Proponent acknowledges the lack of inclusion of background data in the modelling. Background data has now been included; the relevant sections of the AQIA (Appendix A7 to the PER) has been updated and a Supplementary Report is provided in **Attachment 2**. A summary is provided below: To include background in model predictions, monitoring data from the Point Samson, Rocky Ridge and Wickham monitoring stations was reviewed. A daily background was calculated by taking the minimum recorded concentration of the three stations on each day. This value

				represents the measured concentration least influenced by anthropogenic sources, thus better representing natural background concentrations. Any day that had unavailable station data was not included in calculations. As there were several unavailable days of data, the daily background 70th percentile was taken as a blanket background level applied to each day. This is the recommended approach of the Victorian State Environment Protection Policy (Air Quality Management) in the absence of appropriate background data. For PM_{10} the background dust levels applied was 21.9 µg m^{-3}. Without monitored TSP or $PM_{2.5}$ data to use, a ratio was applied to the PM_{10} concentration. This ratio was derived from monitoring data at nearby Dampier from 2002 to 2006. TSP background used was 29.2 µg m^{-3} and $PM_{2.5}$ was 5.3 µg m^{-3}. The Port B development will not contribute to any additional exceedences of the NEPM at Point Samson beyond that already experienced due to background concentrations and existing operations.
1.1.4	Part V licensing condition setting	DEC – Industry Regulation - Pilbara Region	Dust will be a significant issue for the Port B development during both construction and operation. Point Samson and Wickham are the nearest receptors for the Port B development, being located 5km to the west and 6km to the south respectively. There is a history of dust concerns from the residents of Point Samson. This has been recognised in previous Ministerial Approvals with relatively prescriptive conditions (see Ministerial Statement 741 and in particular Schedule 2). Although DEC IR supports the intent of these conditions, the EPA should be mindful of the role of Part V licensing when setting conditions. A number of these conditions, in particular ones relating to monitoring against targets and reporting etc, are more appropriate for the Part V license. The EPA should set conditions outlining the broad framework by which the Proponent should operate in.	The Proponent acknowledges that dust is an important issue relating to the Port B development and that dust concerns have been raised by residents of Point Samson. Dust during construction will be managed in accordance with the Dust Management Procedure (EMP 009) of the CEMP. The Proponent acknowledges the importance of Part V licensing with regard to monitoring against targets and reporting. Proposed draft environmental conditions 6-1, 6-2 and 6-3 in Table 11-3 of the PER were drafted on this basis, as summarised in Table 11-2 of the PER.
1.1.5	Modelled dust and background dust levels	DEC – Industry Regulation - Pilbara Region	Despite the influence of regional factors on dust levels at Point Samson, the Proponent acknowledges that there are at times, contributions from the Cape Lambert Operations. Modelling of the ambient air quality in areas surrounding Cape Lambert has been conducted with emissions sources being quantified and dispersion modelling techniques used. The modelling showed that there would be an increase in the maximum PM10 levels experienced in Point Samson. The levels predicted are well below the NEPM standard, however as the modelling was conducted using only the port's emissions, it is difficult to determine what the actual ambient air quality is in Point Samson with all sources considered (background etc).	As stated in the Proponent response to Issue 1.1.3, whilst background concentrations were included in Section 5.5.2 of the PER and Appendix A7 of the PER, the Proponent acknowledges the absence of background data in the modelling. Background data has now been included; the relevant sections of the AQIA (Appendix A7 of the PER) has been updated and a Supplementary Report is provided (**Attachment 2)**. A summary of the amended text is provided in the Proponent response to Issue 1.1.3.
1.1.6	Historical dust levels	DEC – Industry Regulation - Pilbara Region	Historical dust monitoring shows that the Cape Lambert Operation has resulted in the exceedence of NEPM Ambient Air Quality Standards (50 µg/m^3) at Point Samson (the nearest receptor) on a number of occasions (24 times between 2004 and 2007). Note that the NEPM standard allows 5 exceedences annually. The Proponent's method for determining their contribution to monitored ambient air dust levels is outlined in Figure 5-12. Although analysis of the data shows that the Cape Lambert Operation has only contributed to a small percentage of these exceedences, there appears to be an increase in number of exceedences occurring annually (refer to Figure 5-15). This is a significant concern if increases are due to activities at Cape Lambert. DEC's aim is to continue ensuring that the Cape Lambert Operations remains under the NEPM standard of 5 exceedences of 50 µg/m^3 each year. It is not clearly demonstrated by the Proponent in the PER that this will be the case.	The Proponent acknowledges that the data presented in Figure 5-15 of the PER indicates an increase in 2007 over previous years. However, this is at all three monitoring stations (Point Samson, Rocky Ridge and Wickham), and is therefore indicative of a general increase occurring across the region during 2007. Data from the now-available 2008 monitoring year was used to update Figure 5-15 and is provided in **Attachment 2**. It can be seen that annual average concentrations during 2008 was reduced at the same three monitoring stations (Point Samson, Rocky Ridge and Wickham). The Annual Environmental Reports prepared by the Proponent and submitted to Government have stated the following: • During 2007, there were 12 occasions when the 24 hour averaged data exceeded the 50 ug/m^3 trigger. On none of these occasions

				did the contribution exceed 50% when the wind was from the 310 – 15 degree (290-20 degree for December). This means that Cape Lambert met its target of no exceedences of 50 ug/m^3 (where site operations contributed significantly to PM10 levels recorded by the Point Samson TEOM) • During 2008, there were six occasions where the 24 hour averaged data exceeded the 50 µg/m^3 trigger. On four of these occasions the contribution exceeded 50% when the wind was from the 290-20º arc of influence. This means that Cape Lambert did not meet its target of zero exceedences of 50 µg/m^3 (where site operations contributed significantly to PM_{10} levels recorded by the Point Samson TEOM The revised and updated Table in **Attachment 2** provides further evidence that the high concentrations in 2007 were not solely due to emissions from the Cape Lambert operations, and that concentrations across all monitoring sites are likely to be dominated by sources of dust other than the port.
1.1.7	Commitments and management for dust, and community consultation	DEC – Industry Regulation - Pilbara Region	DEC IR notes that the Proponent has made a number of commitments relating to the mitigation and management of dust emissions. Firstly they have designed the site using best available technology for dust minimisation including (refer to Table 8-5): • Enclosure of car dumpers; • Dust extraction systems at car dumpers and screenhouse; • Water cannons on stockpiles; • Use of chemical surfactants; and • Installation of water sprays, scrapers and dust booths where appropriate. The upgrade will also mean the improvement of dust mitigation for existing port infrastructure (refer to Table 8-5 of PER). The Proponent will continue to monitor dust levels at numerous dust monitoring locations, including Point Samson, Wickham and background locations. An additional two permanent ambient air monitoring locations will be installed between the port operations and the main receptor, Point Samson to improve the resolution of information and the detection of dust migrating towards the town. The Proponent has made all their monitoring results available on the internet. Onsite management of dust is dictated by the Cape Lambert Dust Management Plan. DEC IR notes that the Proponent will need to revise the existing plan, which currently applies to the Cape Lambert Port A operations, to include necessary changes. One significant item that will need to change will be the arc of influence for calculating the contribution of Cape Lambert dust to ambient air quality in Point Samson. The Proponent currently engages with the local community and government regulators through both the Coast al Community Environmental Forum (CCEF) and a variety of Community Forums. DEC IR recommend that this consultation should continue as it is a valuable information exchange and allows regular presentation of dust monitoring and improvements.	The Proponent wishes to clarify that PDX is actually a binding agent applied to ore at some mines. It is not a surfactant for road surfaces. Section 8.3.4 of the PER states that roads within the Cape Lambert Port B development will be sealed, negating the need for surfactants. Text in relation to chemical surfactants in Table 8-5 of the PER should more accurately read as follows: “application of the binding agent PDX at some mines to ensure ore arrives at the port with the right moisture content”. The Proponent recognises that ongoing on-site management of dust will be undertaken through the amended Cape Lambert Dust Management Plan and that it needs to incorporate necessary changes to reflect the addition of the Port B development. Specifically, the Dust Management Plan will be updated, as specified in Table 8-5 of the PER, and as stated in the Proponent response to Issue 1.1.9. The Proponent supports the need for ongoing local community and government consultation with stakeholders on dust and other relevant environmental issues. This will involve continued discussions on dust monitoring and potential improvement plans through the Coastal Community Environmental Forum (CCEF). The Proponent supports the DEC IR view on the value of the CCEF and variety of community fora co-ordinated by the Proponent.
1.1.8	Part V condition setting	DEC – Industry Regulation - Pilbara Region	The *EP Act* licence can be used to ensure ongoing management of dust emissions. DEC IR will assess dust mitigation measures to be implemented by the Proponent in their application for a works approval under Part V to ensure emissions are minimised. DEC IR will also review the current licence to ensure implementation of a	Comments noted. The dust mitigation measures to be incorporated into the design and operation of the Port B development by the Proponent will be detailed in the Works Approval application to be submitted to the DEC under Part V of the *Environmental Protection Act* 1986. The

			comprehensive set of conditions relating to dust management. Conditions for ports throughout WA are currently being investigated following the Esperance lead issue. The Pilbara is a focus of this process, given the long history of dust issues at both Port Hedland and Dampier. The conditions will be related to monitoring against set targets, reporting annually and any exceedences, and improvement processes to be implemented when exceedences become apparent.	Proponent will liaise with the DEC on proposed conditions associated with the Works Approval and Licence. The Proponent welcomes the review of conditions applying to the Cape Lambert operation and will engage in this process with the DEC IR as required. In relation to this, the current NEPM criteria fails to account for the naturally high dust levels of the Pilbara which was acknowledged by the DEC upon the initial implementation of the NEPM in Western Australia. The Proponent would expect that monitoring, reporting exceedences and improvement process conditions will take this situation into account in its review.
1.1.9	Dust Management Plan revision	DEC – Industry Regulation - Pilbara Region	The current Cape Lambert Dust Management Plan needs to be revised to incorporate the arc of influence. DEC IR recommends that the Proponent consult with the DEC during this review process.	As stated in the PER (Table 8-5 and Appendix A7 of the PER), the development of an updated (and extended) arc of influence to incorporate the Port B development infrastructure will be undertaken in consultation with the DEC. This extended arc of influence will be incorporated into an updated Cape Lambert Dust Management Plan around the time of final Port B development commissioning or early in the operations phase.
1.1.10	Cumulative impacts	DEC – Industry Regulation - Pilbara Region	Due to the Cape Lambert Port B development being adjacent to the existing Cape Lambert Operations, the Proponent has given consideration of potential cumulative impacts. It should be noted that background data has not been incorporated into the dust modelling and as such, ambient air quality can not be fully determined by the information presented (ie. with the Port B development, is the overall ambient air quality above or below NEPM standards?)	Comment on the Proponent's consideration of potential cumulative impacts (of the existing Cape Lambert operation and the Port B development) is noted. Refer to the Proponent response to Issue 1.1.3 which addresses the matter of inclusion of background data.
1.1.11	Alternative project options – dust management	Shire of Roebourne	In terms of dust management, one option that would significantly reduce dust impacts on the existing communities, which are already detrimentally impacted, that has not been considered in the PER would be to site the stockpiling and screening operations in a location where any emissions from these primary generator sources would either be minimised or eliminated all together. This option would involve a site inland from Cape Lambert to be selected for the development of a stockpile and screening facility for the whole operation with a feed conveyor linking the facility to the load-out operations. The Shire understands that such a solution is technically feasible and therefore recommends this option be considered, particularly given that this solution has the potential to virtually eliminate both existing and future dust emissions as a source of nuisance and detriment. This would be of great benefit to existing and future residents and visitors to Point Samson and Wickham as well as to the continuity of the Proponent's current and future operations.	As stated in the Proponent response to Issue 1.1.4, the Proponent remains confident that the environmental controls that have been incorporated into the proposal will ensure the increased throughput associated with the Port B development can be effectively managed and cause minimal increase in dust emissions to the Point Samson and Wickham towns. In addition to proposed dust controls, further enhancement will be achieved through ongoing continuous improvement under the Proponents Environmental Management System environmental improvement program. The suggested option to locate car dumping, stockpiling/blending, reclaiming and screening activities inland from Cape Lambert and convey ore by overland conveyor to ship loaders on the wharf will pose significant land access (absence of tenure) issues for the Proponent and will spread the environmental footprint of the Port B development over a very large area. The area within the Port B development has been subject to much greater disturbance, thus if the stockyards were re-located inland better quality vegetation is more likely to be affected. Re-location further inland will move the stockyard nearer to the town of Roebourne which may result in similar issues there. If the stockyard was re-located 20-25 km inland from Cape Lambert, it will have a cost penalty of between $800 M and $1,000 M (20-25 km @ $20,000/m by two conveyors) just for the additional length of the two conveyors. The Proponent does not support the proposition that this option should be considered as part of the current development.
1.1.12	Increased dust	Point Samson Community Association	Page xiii of Executive summary, section 8.3.4 The PSCA have participated constructively at the Coastal Community Environmental Forum (CCEF) since its inception and have developed a good relationship with senior local Rio management. Given this, the PSCA is extremely disappointed to witness the	The Proponent does not agree that the language used in the PER is "uncaring and brazen"; however, although correct as a technical term, its application of the phrase 'potential nuisance issue' in this instance is regretted. As stated in the response to Issue 1.1.4, the Proponent

			resurgence of RTIO's uncaring and brazen language in the subject PER, whereby dust pollution on Point Samson residents is described as a 'potential nuisance issue'. The Proponent knows very well that fugitive dust emanating from Cape Lambert has a significant detrimental effect on its downwind victims, not the least of which is: • The disgust and despair residents feel when having to deal with the filth on all external surfaces including houses, patios, windows, washing, cars and boats under prevailing westerly winds in summer. • Elevated costs of living associated with cleaning, water consumption and greater use of air-conditioning (caused by inability to open windows because of dust ingress). • Reduction of property values. • Accelerated corrosion on metal roofs. • Damage to living things e.g. mangroves, corals, plants etc. The Proponent's obvious and regrettable intent to further trivialize this issue is evidenced by invoking the traditional polluter's defence of deliberately overstating the contribution of background dust. (Point Samson is very different to say, Dampier. People did live here long before the Cape Lambert facility was commissioned and know exactly where the sources of 'background dust' emanated from and the levels to expect. This is not the case in Dampier or Wickham where the town folk arrived with the iron ore and were completely captive to the industry.) For the Proponent to contend that the 130 Mtpa export facility will not have any significant effects on Point Samson is unduly optimistic, particularly given that the previous 50 Mtpa facility (prior to CLU 85) was bad enough. Also compare this with the current 45 Mtpa facility at East Intercourse Island (same company, same procedures, same technology, same material, and same plant design) which is primarily responsible for Dampier's high dust levels under prevailing westerly wind conditions. Now in this case, triple the volume of material being processed, fill a few pages with largely unvalidated dust modelling and conclude with a prediction that there are minimal threats and impacts. Such a process seems fundamentally flawed and does not fill the Point Samson community with confidence. Also, it does appear that the proposed plant design excludes the enclosure of the ship loader (jetty) conveyor as does the current configuration at Cape Lambert. The PSCA are well aware that this particular conveyor is responsible for significant material liftoff; it is easily and often witnessed by locals and is very obvious. This cost cutting measure does not come close to best practice and it is the community's fear that this standard of engineering may well be indicative of other sub-optimal design features which will be replicated in the 130 Mtpa facility. The PSCA believe the following actions by the Proponent are necessary to promote a better understanding and further improvement to dust management. • Stop describing this pollution as a potential nuisance issue, own up and take accountability for company generated pollution which seriously affects the amenity of nearby residential areas. • Measure background contributions at a representative location, ideally Bezout Island or other islands further to the west (note the CSIRO levels established on the Burrup) • Develop and implement meaningful measures that accurately reflect the angst felt by residents from the effects of this pollution and that are understood by lay people. These should be primarily deposition type measures. • Develop measures averaged over short periods (it only takes an hour or so to	acknowledges that dust is an important issue relating to the Port B development and that dust concerns have been raised by residents of Point Samson. Dust is the main issue that is discussed at CCEF meetings. The issue of background dust is addressed in the Proponent response to Issues 1.1.3, 1.1.5 and 1.1.6. The outcomes of the air quality modelling (and the subsequent peer review commissioned by the Proponent) are addressed in the Proponent response to Issue 1.1.1. In relation to enclosure of the wharf and access jetty, this has been previously investigated and preliminary costs determined. The inclusion of a solid type of cladding cover adds a large wind load to the wharf structure which affects the substructure and piles. The costs of such an installation of prohibitively expensive and is in the order of $100M for the Port B wharf alone. The majority of other long conveyors on-shore are typically well shielded and also have a more favourable topography adjacent to them and hence do not require covering. Modelling has indicated that the environmental benefit in covering the jetty conveyors is minimal. The Proponent does not support the proposition that background contributions should be monitored at a remote site such as Bezout Island, or other islands to the west, as these are entirely unrepresentative of the conditions experienced on land such as that near the towns in the Cape Lambert region. This has been discussed at CCEF meetings and the rationale for this position presented. Monitoring of air quality and dust deposition is conducted at a large number of locations, as detailed in the Dust Management Plan (Appendix B5 to the PER) but not on islands, as there are no human receptors on these islands. Logistically, monitoring on offshore islands will also be difficult and costly. Deposition measurements are made at Point Samson and at Wickham and are compared to standard criteria for deposited dust. These criteria are based on daily averages, which encompass short term peaks. This data is publically available. The impact assessment acknowledges the existing contributions from the existing Cape Lambert operation. The conclusion that the incremental impact from the Port B development is small is the result of the modelling assuming the successful implementation of a wide range of comprehensive dust reduction measures, as detailed in Table 8-5 of the PER, at both the existing Cape Lambert operation and the Port B development. Section 6.4 of Appendix A7 to the PER provides details of the validation of modelled emissions and is addressed in the PAE-Holmes peer review (**Attachment 1**). Model validation is expected to be required for the modelling undertaken for the Port B development as well. Performance standards may be set by the DEC under Part V of the EP Act; that is a matter for the DEC. Requirements for performance reporting are usually incorporated in conditions associated with recent

			make a huge mess of a house with the windows left open in a severe event, but the number looks trivial when averaged over 24 hrs). Short term measures should be monitored to accurately initiate operational intervention (day and night) in the production process. • Implement best practice technology and design standards. Enclose long conveyors such as jetty conveyors. • Urgently validate all dust modelling by an externally approved, independent and credible process. • Respect and take serious notice of the recent survey data from Point Samson which reflects the town's view on Rio's dust management at Cape Lambert. The PSCA has real doubts about the accuracy and validity of the dust modelling used as the key predictive method for assessing likely dust deposition rates. Many community members also hold great scepticism about the Proponent being allowed to measure and report their own pollution as opposed to an independent monitoring process, appropriately funded by the polluter. In conclusion, with respect to dust, it is the PSCA's view that any approval based on unvalidated or optimistic modelling, must also make adequate provision for appropriate recompense for residents, should dust levels actually exceed those predicted. It seems very straightforward to us that should the Proponent or Approval Authority be so confident about predicted dust levels likely to be experienced in our town, then enforceable performance obligations should be easily agreed to. Such obligations would also need to be reflected in the Ministerial Conditions.	Ministerial Statements.
			1.2 Ambient noise/marine noise	
1.2.1	Noise impacts on Point Samson	Shire of Roebourne	The PER concedes that noise levels at Point Samson will continue to exceed EPA objectives and that for operations to be lawful approval for a variation to accommodate the continued exceedance of the EPA's maximum noise exposure levels will be required. The Shire would therefore request that an independent audit of all noise sources be undertaken, including a thorough review and specification of all possible design and operational management improvements to minimise noise emissions. The Shire would further recommend that the identified improvements be made conditions of any subsequent approval for the Port B proposal. These conditions would need to specify the inclusion of all design improvements in the design for Port B, the retro-fitting of design improvements to Port A and the implementation of all operational management improvements for the overall operation of Cape Lambert.	The preliminary assessment of the Regulation 17 application undertaken by the DEC Noise Branch is being finalised and it is understood that it concludes that there is no solid evidence that noise from the Cape Lambert operations is not, and will not be, able to comply with the Noise Regulations. The DEC Noise Branch states that given the existing Cape Lambert operation and the modelled future cumulative noise emissions for the Port B development will substantially comply with the Noise Regulations, it may advise the EPA not to recommend a Noise Regulation 17 variation. For the Proponent, this will mean that the Cape Lambert operation and the Port B development will need to manage its noise emissions to comply with the Noise Regulations. It is understood that this position has not changed following the site visit to Cape Lambert, Boat Beach, Point Samson and environs by the DEC Noise Branch on 25 and 26 June 2009. It is understood that the DEC Noise Branch is finalising its report on the outcome of its assessment for the EPA, including its site visit field measurements.
1.2.2	Noise impacts on Wickham	Shire of Roebourne	The location of Wickham, close to the Pannawonica to Cape Lambert railway lines, means that Wickham is especially susceptible to the noise generated by rail operations. Wickham will therefore be particularly exposed to the 150% plus increase in rail movements that would result from the implementation of the first stage of the Port B proposal. In addition rail movements occur around the clock, on a 24/7/365 basis, and are a particularly intrusive source of noise emissions that has historically lead to a high level of complaints from affected residents in Wickham and other areas that are similarly exposed. The Shire therefore requests that an independent audit of all noise sources generated by existing and proposed new rail operations be undertaken, including a thorough	Table 8-7 in Section 8.3.5 of the PER presents the modelled rail noise in Wickham. The modelled rail noise levels in Wickham for Port B rail movements in isolation was 42.1 dB(A) and 44.9 dB(A) for Port A and Port B combined rail movements. The Port B development will therefore result in an 2.8 dB(A) increase above existing noise levels from passing trains at the nearest point of Wickham town. Whilst it is acknowledged there will be an increase in rail movements reflecting the increased throughput associated with the Port B development, no existing noise limits will be exceeded. It should also be noted that the Proponent has never received a formal noise complaint on train noise emissions from Wickham residents.

			review and specification of all possible design and operational management improvements to minimise noise emissions. The Shire would further recommend that the identified improvements be made conditions of any subsequent approval for the Port B proposal. These conditions would need to specify the inclusion of all design improvements in the design for Port B rail assets, the retro-fitting of design improvements to existing rail assets and the implementation of all operational management improvements for rail operations on the Pannawonica to Cape Lambert railway infrastructure.	Noise arising from trains unloading at the car dumpers is not expected to change in nature or level as the general process will be similar as that currently employed for Car Dumper 2 at the Cape Lambert operation. The rail yard layout will mean the locomotives of the departing empty train will be behind existing hills that separate Wickham from the Port B development rail yard area, thus assisting to reduce noise levels at Wickham. Should rail noise become an issue with Wickham residents, further noise reduction initiatives (including options such as installing an electronic braking system, erecting noise barriers or revising operational practices) will be considered.
1.2.3	Potential non-compliance in Point Samson	DEC – Environmental Regulation - Noise	It was predicted that the noise emission from the proposed development might not comply with the night-time assigned noise level at Point Samson. The Proponent lodged its noise regulation 17 application to the Minister for the Environment on 24 November 2008 and outlined this application in the current PER documentation, as suggested by the DEC. The DEC Noise Branch has completed a preliminary assessment of the application and concluded that there is no solid evidence that the noise from the Proponent's Cape Lambert Port operations is not and will not be able to comply with the noise regulations. Therefore, the Noise Branch believes that noise from the Cape Lambert Port operations is able to substantially comply with the noise regulations. The Noise Branch may advise the EPA not to recommend a noise regulation 17 approval when a detailed assessment is completed. This means that the Proponent will be required to manage its noise emission from the Cape Lambert Port operations to comply with the noise regulations.	Comments noted. Refer to the Proponent response to Issue 1.2.1.
1.2.4	Noise emission level at Boat Beach	DEC – Environmental Regulation - Noise	The Noise Branch disputed the assigned noise level of 60 dB(A) for the Boat Beach in our previous comments, which would have a major impact on the amenity of the beach, and might even make the beach inappropriate for recreational use. Instead, the Noise Branch recommended that the Proponent develop an 'aspirational goal' for the Boat Beach, in accordance with the recreational value of this beach and in consultation with the local community. The Proponent stated in the current PER document that they are currently in the process of determining an aspirational goal for noise emissions at the Boat Beach recreational area. This aspirational goal will be determined by: • undertaking a site inspection to see if the modelling topography for the dunes separating the beach and the development is an accurate representation of the area • reviewing opportunities to further reduce noise impacts on the beach • consulting the community to assess their use of the beach. While the Noise Branch would agree that the approaches to respond to the Noise Branch's recommendation are appropriate, it is our recommendation that the Proponent need to show the results of these approaches before the proposed project commences.	The Proponent notes the comments from the DEC Environmental Regulation Noise Branch. The Proponent confirms that its consultant (SVT Engineering Consultants) has undertaken the planned site inspection of the Boat Beach area to verify that the topography for the dunes between Boat Beach and the Port B development is an accurate representation of that used in the modelling for the area. The site inspection was undertaken in November 2008. Advice received by the Proponent confirms that the topography of the dunes at the time of the inspection was adequately represented in the modelling. The plant design being applied to the Port B development is considered the best available low noise equipment. The noise controls that have been applied are listed in Issue 1.2.5 and were presented in Table 8-8 in Section 8.3.5 of the PER. There is limited other options available that could be applied to the actual plant design; however, further review of options will be undertaken as part of the feasibility studies. Community consultation on beach usage is to be undertaken. The setting of the aspirational goal for noise levels on Boat Beach requires further work by the Proponent; however the preliminary aspirational goal is expected to be in the order of 55 dB(A). Setting an aspirational goal is constrained by the relative proximity to Boat Beach and the limited space available within the lease area.
1.2.5	Noise commitments and	DEC – Industry Regulation -	Noise emissions will be generated onsite during the construction and operation phases. DEC IR notes that the Proponent has identified that the combined noise emission from	Comments noted.

	noise modelling	Pilbara Region	Port A and Port B operations will be elevated. Point Samson is the nearest receptor, located 5 km east of the Port B development and has the potential to be impacted by noise emissions. It should be noted that to date, there have been no significant complaints or issues about noise at Point Samson. The Proponent has committed to the following noise mitigation measures which are consistent with best practise: • Low noise idlers on all conveyors; • Large diameter idlers to reduce rotational speed and noise; • Low noise gearboxes; • Orientation of the screenhouse away from settlements; • Acoustic panelling and other barriers on the screenhouse, and other infrastructure; • Enclosure of car dumpers; and • Silencers on dust extractors. Low noise idlers will also be retrofitted to existing jetty and stockyard conveyors. DEC IR notes that the Proponent has applied for a variation to the noise levels under Regulation 17 of the *Environmental Protection (Noise) Regulations 1997* as modelling suggests that it is unlikely to meet EPA objectives for noise. It should be noted that in spite of this the upgrade and improvement in noise mitigation will improve the current noise levels. DEC IR notes that baseline noise surveys and noise modelling has been undertaken but further verification of the quality of data and modelling is required by the DEC Noise Regulation Branch.	No specific response required from the Proponent, except to note the following: • The Proponent agrees that there have been no significant complaints or issues about operational noise at Point Samson. • Note should be taken of the preliminary DEC Noise Branch assessment stated in its submission on the PER (Issue 1.2.3). Reference should also be made to the Proponent response to Issue 1.2.1 with regard to the preliminary findings of the DEC Noise Branch assessment of the Regulation 17 application made by the Proponent.
1.2.6	Noise licence conditions	DEC – Industry Regulation - Pilbara Region	Noise emission will also be assessed and regulated during the Part V works approval and licence stages. The Proponent will have to demonstrate the use of best available technology noise control and that predicted noise levels (from modelling) are in compliance with the *Environmental Protection (Noise) Regulations 1997* (subject to Regulation 17 application). A reasonable noise monitoring program will also have to be implemented. A typical license condition could be to monitor noise at sensitive receptors, compare with the Noise regulations and report on these results. Other conditions will be determined once a full assessment has been carried out. DEC IR will request advice from specialty branches such as the DEC Noise Branch where necessary.	Comments noted. No specific response required from the Proponent, except that conditions of Works Approval and Licences will be discussed with the DEC when the time is appropriate (once Part V applications are prepared and lodged). Given the preliminary findings of the DEC Noise Branch assessment of the Regulation 17 application (refer to the Proponent response to Issue 1.2.1), a comprehensive noise monitoring program at Point Samson or Wickham may not be warranted.
1.2.7	Recommendation for managing underwater noise and marine fauna	DEC - Environmental Management Branch	It is recommended that: Any approval for the project be contingent on the following noise mitigation measures to protect sensitive marine fauna (specifically marine turtles and marine mammals): • Soft start-up procedures be required for pile driving activities whereby the pile driving hammer power will be gradually increased over a 15 minute period. • An exclusion zone be established that limits significant noise emitting activities, particularly pile driving and blasting, when sensitive marine fauna species are within close proximity to operations. Management should aim to ensure that no turtle or marine mammal is inside the exclusion zone when piling begins and operations are suspended if animals come within the possible zone of injury. Specifically, the following should apply: o A marine fauna exclusion zone for sensitive species consisting of a 500 m radius from the noise emission source (ie pile driving) should be implemented. Marine fauna observers are to undertake marine fauna observation for a minimum of 15 minutes prior to noise emitting activities.	The Proponent acknowledges the recommended management measures; most of these will be included in the DSDMP and the draft Cetacean Management Plan (**Attachment 3**). The Proponent will implement a soft start up procedure for conducting pile driving. Soft start up procedures are usually applied during seismic surveys where the intention is to provide whales with the opportunity of moving away from the local area. Seismic surveys normally apply a 160 dB re μPa^2.s contour for whales. For Cape Lambert, the broad whale migration routes are well beyond the 160 dB re 1 μPa^2.s contour and thus, the soft start will be less applicable to whales, but to other species of interest (eg turtles, fish). Soft start up procedures are also more applicable to seismic surveys as they are a dynamic activity while pile driving is a static one. Static activities can be effectively managed using marine fauna monitoring.

			Should sensitive marine fauna be present or enter the 500 m exclusion zone, noise emitting activities are not to commence until such time as the animal has moved outside the 500 m exclusion zone or has not been sighted for 15 minutes. o Should sensitive marine fauna approach to within 100 m of the noise emission source during operations, pile driving is to be suspended until the animal has moved outside the 500 m exclusion zone or has not been sighted for 15 minutes. • Pile driving and blasting are to take place during daylight hours only to allow for effective marine fauna observation and to minimise impacts on nesting females or hatchlings. • Should blasting and drilling be required during the dredging program, a blasting management plan must be developed to the requirements of DEC. All blasting and drilling works should be timed to occur outside of peak turtle nesting season and peak whale migration season and should occur during daylight hours only.	As stated in the Proponent response to Issue 1.2.8, pile driving will not be undertaken at night during the turtle breeding season; however, the Proponent will apply to the DEC to allow it to pile drive into the night outside the turtle breeding season. Refer to the Proponent response to Issue 1.2.8 with regard to the preparation and scope of a management plan to cover any drilling and blasting activities if dredging cannot remove any hard rock. It should be re-iterated that geotechnical information indicates that there is currently a low risk that the pre-treatment of any consolidated material by drilling and blasting will be required.
1.2.8		DEC - Environmental Management Branch	The main sources of underwater noise during the Port B development will be generated during pile driving, vessel activity such as dredging, and potentially from drilling and blasting (if banded ironstone formation material is encountered during dredging works). Marine turtles and other significant fauna such as cetaceans are known to be sensitive to noise at various levels above natural background and for some construction activities there will be a zone of possible injury surrounding it. During the nesting period, pile driving activities may deter turtles from nesting on adjacent beaches. Based on information on known impact thresholds for turtles from available literature, DEC considers that there is also potential for adult turtles to incur physical injury including hearing loss if encountered within 100 m of pile driving, and for hatchlings to be physically injured up to 500 m from pile driving. In addition, dolphins and whales (humpback whales) have been observed in the vicinity of the development site and are susceptible to various noise impacts including temporary thresholds shifts, permanent thresholds shifts and potentially physical injury. While it is reasonable to predict that most whales and dolphins are likely to avoid or move away from the site during times of noise emitting activities, precautionary measures to prevent adverse impacts are recommended. Given the lack of conclusive evidence to indicate the noise emission thresholds for each species, a precautionary approach should be undertaken and a pile driving and blasting management protocol should be implemented to negate potential impacts.	The modelled effects of pile driving on underwater noise have been assessed, peer reviewed and the original report revised (**Attachment 4**). The Proponent has stated that pile driving will not be undertaken at night during the turtle breeding season. The Proponent will apply to the DEC to allow it to pile drive into the night outside the turtle breeding season. Turtle management associated with underwater noise is outlined in Table 9-13 in Section 9.2.4 of the PER, and Appendix B2 (Marine Turtle Management Plan) of the PER. Drill and blast activities will only be required if hard rock material is encountered during dredging requiring drill and blast; it is not currently planned by the Proponent but the possibility of that activity is highlighted. It is extremely costly and will be avoided where possible. The Proponent has addressed the management of underwater drill and blast and incorporates the development of a blasting management plan prior to commencement of such activity. As stated in Table 9-13 in Section 9.2.4 of the PER, that blasting management plan, if required, will include a description of the drill and blast methodology, developed according to detailed site characteristics, and environmental protection requirements. The management plan will be prepared in consultation with the DEC and DEWHA. The environmental management approaches will include: • Identification of potential impacts to the marine environment • Nomination of target blast pressures to afford suitable protection to the environment • Area inspection from a vessel immediately prior to the blast to identify if large marine fauna are present in the immediate area • Confirmation that large marine fauna have cleared the area before the blast is initiated (not sighted from a vessel for at least 20 minutes or are more than 500m from the blast site) • Post blast inspection from a vessel for injured or dead fauna • Management of injured fauna • Stake holder communication • Reporting requirements
			1.3 Dust and Noise	
1.3.1	Process	Shire of	The design of the new infrastructure for Port B and the on-going implementation of	The Proponent acknowledges that dust and noise are important issues

	Engineering	Roebourne	process design improvements across Port A and Port B are two of the most important factors in minimising the dust and noise emissions that are the key factors that cause nuisance and detriment to the communities of Point Samson and Wickham. The recommendations specified under the separate headings for the two towns are geared to ensuring that the design of any new infrastructure and the on-going improvement of existing infrastructure for the operations at Cape Lambert are designed to minimise the dust and noise emissions that already negatively impact on Point Samson and Wickham.	for the Port B development. Design work for the Port B development has been conducted with due consideration for dust and noise impacts on the community and the Proponent has endeavoured to minimise these impacts on the local community. The Proponent acknowledges (refer response to Issue 1.1.4) that dust concerns have been raised by residents of Point Samson. As stated, dust during construction will be managed in accordance with the Dust Management Procedure (EMP 009) in the CEMP. The Proponent is confident that environmental controls that have been incorporated will ensure the increased throughput from the Port B development can be effectively managed and cause minimal increase in dust emissions to the Point Samson and Wickham towns. In addition to proposed dust controls, further enhancement will be achieved through ongoing continuous improvement under the Proponents Environmental Management System environmental improvement program. During operations, dust is predicted to be a small increase above existing levels, principally as a result of the additional mitigation measures proposed for both existing Cape Lambert operation and proposed measures for the Port B development, as detailed in Section 5.5.2 of the PER. During the operations phase, dust will be managed through application of the updated Dust Management Plan. Part V licensing is also expected to ensure that adequate monitoring is undertaken and targets are set and met. The Proponent believes that existing noise levels from the Cape Lambert operation at Point Samson and Wickham have not been a significant issue to date, based on the level of public feedback and lack of registered community complaints. The modelled noise levels (refer Section 8.3.5 of the PER) shows that the combined operation of the existing Cape Lambert operation and the Port B development, incorporating the proposed noise mitigating measures, will result in a 0.3 dB(A) reduction in noise levels from the existing Cape Lambert operation in isolation with no additional retro-fitted noise controls. That excludes the over-prediction of the noise model (confirmed through model validation undertaken for previous Cape Lambert noise modelling) by an average of 1.6 dB(A) within 3 km of the plant. Table 8-8 in Section 8.3.5 of the PER presents the significant noise reduction measures that have been incorporated into the design of the Port B development. These noise mitigation measures are also listed in Issue 1.2.5. In addition, noise controls will also be implemented at the existing Cape Lambert operation, as part of the Port B development, including installation of low noise idlers on the existing Cape Lambert jetty conveyors and stockyard conveyors. During construction, noise will be managed through the implementation of Noise Management Procedure (EMP 011) in the CEMP. Key measures specific to the Port B development include a community complaints line being available for community feedback and concern regarding noise emissions, and noise levels at Point Samson and Boat Beach being monitored to verify noise emissions during construction. Operational noise at the Port B development will be managed through the standard management measures currently employed.

1.3.2	Operational management in adverse weather conditions	Shire of Roebourne	A critical factor in minimising the impact of dust and noise pollution is the way in which the Cape Lambert operations are managed, particularly during periods when adverse wind conditions affect the generation of dust, which has the greatest impact during the hot and windy summer conditions that are generally experienced in the Pilbara. The recommendations specified under the separate headings for dust and noise assessment and mitigation for the two towns (Point Samson and Wickham) are geared to ensuring that operational management is fully responsive to adverse weather conditions and that all available actions are taken, preferably prior to the impact of short term adverse weather events, to mitigate the impact of such conditions. These actions should specifically provide for those parts of the operations that cannot be effectively managed to satisfactorily mitigate the impacts of adverse weather conditions to be temporarily shutdown.	As stated in the Proponent response to Issue 1.1.4 and others, dust management will be managed through the updated Dust Management Plan that will apply to both the existing Cape Lambert operation and the Port B development. The Dust Management Plan outlines how the Proponent receives advance warning of adverse weather conditions specific to the Cape Lambert area over a three day period from the Bureau of Meteorology and with this knowledge can prepare through prior scheduling of water application from installed water cannons. This adaptive management approach will continue to be applied to cover the Port B development. The Proponent considers a shut down option as a last resort; the Proponent has temporarily and voluntarily suspended operations due to high velocity winds at Dampier in recent years. All other management options will be applied prior to any consideration of temporarily ceasing operations.
			1.4 Light spill	
1.4.1	Condition setting	DEC – Industry Regulation - Pilbara Region	Light spill could have an impact on turtle nesting activities around the Port B Operations. This may be more appropriately dealt with under turtle management provisions in the Ministerial Statement if deemed necessary. The works approval and licensing process does have the ability to deal with light emissions if necessary.	Comment noted. No specific response required from the Proponent. The PER addresses light spill in Section 9.2.3 of the PER, supported by the technical report presented as Appendix A8 of the PER. In addition, the Marine Turtle Management Plan presented in Appendix B2 of the PER presents management options for light spill.
1.4.2	Recommendation for light spill	DEC - Environmental Management Branch	It is recommended that: Any approval for the project be contingent on the following avoidance, mitigation and management requirements for lighting impacts: • The stockyard area closest to the railway and furthest from Bells Beach should be developed in the first phase of the proposed progressive stockyard development, with monitoring of the impacts from the first phase of the stockyard development used to verify lighting impacts on Bells Beach and inform design and management of subsequent phases. • Direct light spill from Port B on Bells Beach should be limited such that it shall not be detected on 95% of the beach from low water mark to the edge of the dune system. This should be coupled with a model validation program to provide evidence that direct light spill to 95% of Bells Beach is absent during construction and operation of this proposal. • Light glow on all areas of Bells beach should not exceed the accepted horizontal illuminance level for full moon light intensity. Light measurements should be taken during each key stage of construction and operation to provide evidence to DEC that light glow to Bells Beach does not exceed this level. • Light horizons on turtle nesting beaches at Delambre Island, Legendre Island, Hauy Island and Cleaverville Beach should be unaltered compared with current conditions, from the perspectives of both nesting female marine turtles and turtle hatchlings. • Specific design features, management measures and operating controls be implemented to avoid adverse impacts on the marine turtle populations including, but not limited to, shielding and the use of lighting of appropriate wavelength and intensity on all marine infrastructure. • A quantitative monitoring program be implemented to identify light emissions from the project for each phase of the development and to detect adverse impacts on nesting females and hatchlings under the range of ambient conditions throughout the year. • Contingency and remedial measures be applied in the event that monitoring indicates adverse impacts on the Bells Beach, Cooling Water Beach and island rookeries. • Regular auditing be undertaken to review the effectiveness of light mitigation	The Proponent maintains that light spill from the stockyard can be adequately managed in its proposed location as depicted in the PER. There is no proposal to re-locate the stockyard at this time of the feasibility studies that are being undertaken. The Proponent is confident that the proposed management strategies presented in Table 9-9 in Section 9.2.3 of the PER will be sufficient to manage light spill and its effect on turtles. Based on the modelling of light spill conducted by Bassett , 95% of Bells Beach will not receive direct light and the area that will get direct light spill has not received nesting turtles (refer Figure 9-9 of the PER).

			measures and demonstrate that conditions are continuously being achieved. • The dune system separating Bells Beach from the stockyard facility not be disturbed.	
1.4.3		DEC - Environmental Management Branch	Based on an analysis of the risks to marine turtles during construction and operational phases, additional artificial lighting, noise emissions (largely from pile driving, drill and blasting activities) and increased vessel activity (including dredging) are likely to be the key risks to marine fauna from the Port B development. It is noted that the Proponent has undertaken a lighting study to predict the vertical and horizontal luminance from additional infrastructure (Appendix A8). This study has indicated that the majority of Cooling Water Beach will be affected by direct light from adjacent conveyors, transfer stations and the access jetty with values being up to two orders of magnitude greater than existing light values. The study confirms that this level change in lighting is likely to affect turtle hatchlings (Page 15 Appendix A8). The PER indicates that modelling predicts that 95% of Bells Beach will not receive direct light spill from the proposed new infrastructure and predicts that light glow to Bells Beach will be an order of magnitude below light glow expected from a full moonlit sky. However, light glow from infrastructure is likely to impact on marine turtles when near the water's edge as the shielding angles of dunes are less effective. During the emergence phase of nesting, turtles are prone to disturbances and this additional light glow has the potential to affect nesting female turtles and potentially decrease nesting success. Light spill and glow from the wharf and service jetty have the potential to have an attraction/aggregation impact on turtle hatchlings, thus exposing them to increased risk of predation. Whilst it is noted that there will not be direct light spill impacts on nearby turtle nesting islands, there is potential for light glow to disorientate hatchlings depending on the orientation of nesting beaches. This is more likely to affect hatchlings on the western and northern facing nesting beaches. This potential impact is acknowledged in the technical report (Appendix A8) but the extent of impact is uncertain. It is noted that there is a planned staged approach to the development of the stockyard (located directly adjacent to the dune system of Bells Beach) which will be paced with the demand for iron ore. It is therefore recommended that the stockyard area closest to the railway and furthest from Bells Beach be developed in the first stage to reduce the impact on marine turtles in the early years of the project and provide for monitoring of effects and adaptation of design and management measures over progressive expansion stages towards Bells Beach. DEC recommends efforts to avoid and mitigate impacts on Bells Beach, Cooling Water Beach and habitats located on islands potentially affected by this proposal. Controls on the ongoing management of the project that limit light spill, minimise light glow and include a monitoring and contingency management framework are recommended.	Refer to the Proponent response to Issue 1.4.2.
			1.5 Waste water management/surface water discharges	
1.5.1	Waste water	Department of Health	The PER contains no great detail on the extent of the waste water disposal. Should a separate and new system be required, in addition to the existing Cape Lambert Port A upgraded system, appropriate approvals must be obtained from the Department of Health (DoH) and Local Government before a permit to use can be issued. All waste water disposal systems must utilise DoH approved products, and have current approvals to install.	Wastewater from new infrastructure associated with the Port B development will primarily be from two sources: • the construction accommodation village/s (construction phase only) – this is outside the scope of the PER • additional operations/maintenance activities, with sources from new workshops, offices and maintenance areas (operations phase).

				In the case of the construction accommodation village (outside scope of the PER), an additional wastewater plant will be used to accommodate new personnel. This plant will be a packaged wastewater system similar to the existing system at the construction village. The Proponent has already had discussions with the DEC on the additional wastewater system for the construction accommodation village. The onsite wastewater management during the operations phase will be through a combination of tie ins to existing plant systems and new stand alone package plants. The current wastewater treatment at the Cape Lambert operation is disposal via a septic system pumped to leach drains. All new package wastewater systems will be designed in accordance with the relevant standards and comply with DoH requirements. DoH approval (Permit to Use Apparatus) will be sought prior to construction of any new wastewater system. Part V licensing/Works Approval conditions will also be expected to include environmental requirements for the design, installation and operation of waste water disposal systems.
1.5.2	Condition setting	DEC – Industry Regulation - Pilbara Region	The Proponent intends to discharge stormwater and potentially additional dewatering water from site to the ocean via an existing outlet at Sam's Creek and a proposed new outlet to be installed west of the quarry. DEC IR notes that the exact location of this new outfall and monitoring sites has not been clearly identified in the PER. Discharges such as these are assessed and regulated in works approvals and licences. The Proponent will need to provide details of the locations and proposed monitoring. The impact of surface water discharge to the marine environment, including impacts on water and sediment quality, and marine ecosystems will need to be documented by the Proponent and provided in these applications. The Proponent will be required to include information about site drainage and discharge in their works approval and license applications. These will require a clear inventory of all marine discharge locations, the quality of the discharge and all pollution control measures. It will have to be demonstrated that these discharges meet the ANZECC water quality guidelines for marine water and that there are no significant impacts on the marine ecosystem.	Environmental issues relating to stormwater drainage from the Port B development are described in Section 9.3.4 of the PER. Section 9.3.4 includes a description of the discharge location, predicted impacts and proposed mitigation measures. As described in the PER, stormwater drainage from the development site is likely to be periodic, and occur only during major rainfall events associated with cyclones. The stormwater drains will generally only flow in storm surge events as there are large retention capacities on site. Surface water runoff and wash down water will be channelled through a series of open drains to either the northern retention basin or the southern retention basin where sediment will settle and supernatant water allowed to evaporate. In areas of heavy sediment, such as dust extraction systems, individual collection sumps will be established (eg around the Car Dumper and Screen house facilities). Due to the planned large retention capacities being incorporated into the Port B development, discharges off-site will generally only occur during severe storm or cyclonic events when significant volumes of rainfall cannot be fully controlled on-site and will therefore need to be released through the proposed discharge points; there will be no continuous discharge from the Port B development. The location and nature of surface water discharges will be finalised prior to the commencement of construction and will be outlined in the Works Approval application (and subsequent Licence application) to be submitted to the DEC under Part V of the *Environmental Protection Act 1986*. The Works Approval application will outline the locations of the discharge points, the expected quality of discharges and the proposed control measures to minimise impacts on the marine ecosystem. The Proponent will liaise with the DEC on proposed conditions associated with any Works Approvals or Licence.

1.5.3	Surface water discharges	DEC – Industry Regulation - Pilbara Region	DEC IR notes that the Proponent will update the existing Cape Lambert Water Management Plan to include the new discharge and monitoring points. The revision will need to include commitments/ procedures of proposed mitigation, management and monitoring programme.	The Proponent confirms that the Cape Lambert Water Management Plan will be updated to include new discharge points and monitoring locations associated with the Port B development. This is stated in the Table ES 1-3 of the Executive Summary under the 'Surface and groundwater' environmental factor. This will also include approaches for proposed mitigation, management and monitoring for these new discharge points.
1.5.4	Works Approval conditions	DEC – Industry Regulation - Pilbara Region	Information regarding marine discharges will also be assessed when the Proponent applies for a works approval. It is likely that DEC IR will set conditions on surface water discharges in the works approval.	Refer also to the Proponent response to Issue 1.5.2 for the broad approach to managing on-site surface water runoff and wash-down waters and the use of large capacity retention basins. The location and nature of any surface water discharges will be outlined in the Works Approval application to be submitted to the DEC under Part V of the *Environmental Protection Act 1986*. The Proponent will liaise with the DEC on proposed conditions associated with any Works Approvals or Licence.
1.5.5	Licence conditions	DEC – Industry Regulation - Pilbara Region	DEC IR will set license conditions regarding monitoring, comparison with guideline values (background taken into consideration) and reporting of these results. Other conditions will be determined once a full assessment has been carried out. DEC IR will request advice from specialty branches such as the DEC Marine Ecosystems Branch and the DEC Environmental Management Branch where necessary.	Surface water discharges (off-site discharge points) will be addressed in the Works Approval application to be submitted to the DEC under Part V of the *Environmental Protection Act 1986*. The Proponent will liaise with the DEC on proposed conditions associated with any Works Approvals or Licence. The Proponent acknowledges the importance of a collaborative approach to set licence conditions by the DEC IR and welcomes the opportunity to discuss licence conditions with the DEC IR. The Proponent accepts that the DEC IR may consult with other DEC branches and others in the condition setting process.
			PART 2: BIODIVERSITY	
			2.1 Invertebrates/Short Range Endemics	
2.1.1	Short Range Endemics - sampling methodology	Western Australian Museum	Section 5.4.6 Terrestrial Fauna of Environmental Significance Only one species of land snail, *Rhagada convicta*, was recorded by Biota (2008) in the results of the "Targeted SRE surveys…part of the baseline fauna surveys". Assuming that the identification of the collected specimens is correct, this species is correctly described as "of no special conservation status", having an extensive coastal distribution extending outside the study area. No comment is available in that Section or in Section 8 on the methods used to survey the land snail fauna.	The view expressed in the submission is consistent with the assessment in respect of *Rhagada convicta* recorded during the survey of the Port B development (refer Appendix A3 of the PER) – that it is not a Short Range Endemic (SRE) and of no special conservation significance. Specific search methods and effort targeting land snails were undertaken during the fauna survey. A preliminary search and habitat assessment was conducted in the vicinity of all of the systematic fauna trapping grids and at additional opportunistic locations within the study area to check for sign of SREs and to determine the likelihood that SREs were present. Potential snail habitat was initially examined for the presence of snail shells by searching the ground, and light excavation of vegetation and leaf litter was undertaken. The presence of dead shells is often an indication that live snails are also present. Where snail shells were observed, more comprehensive searching was conducted by digging under spinifex hummocks, under bushes and by raking leaf litter. This was carried out by four zoologists, all of which were experienced in collecting SRE fauna. The work was undertaken at a total of 16 sampling sites within the study area.

2.1.2	Short Range Endemics (SREs) - sampling methodology	Western Australian Museum	Appendix A3 No specific information was given on the sampling methods used, apart from indicating that "systematic and non-systematic collections" were made of "Pulmonata (Land snails)" - the general comment on sampling methods indicating that the non-systematic activities comprised: "Habitat specific searches for Schedule and Priority listed fauna species, Opportunistic sightings and records, Identification of road kills and other animal remains, and Recording and identification of secondary signs (where possible) including tracks, scats and diggings"	Refer to the Proponent response to Issue 2.1.1 for a description of the sampling methodology applied for the land snails.
2.1.3	Short Range Endemics - Family Camaenidae	Western Australian Museum	Appendix A3, Results, Section 4.6.2 It was stated that "Dead *Rhagada convicta* land snails were observed at sites CLP01 and CLP02, however live snails were not observed during either survey phase….*Rhagada convicta* has an extensive coastal distribution….(and) does not qualify as a short-range endemic species" Such comments concerning the low likelihood of short range endemism of *Rhagada convicta* are warranted, being consistent with current knowledge of the taxon – at least at the species level. Certainly, *Rhagada convicta* is the largest of the pulmonate land snails species recorded form this area of the Pilbara, with a mean diameter of 20.15 mm in diameter (Solem 1997). When alive, snails of this species lie buried, mainly under spinifex clumps, and the presence of living representatives is not apparent except in wet conditions when they emerge to feed/mate/lay eggs. When dead, the robust mature shells of this species are easily seen, even by a casual observer, because of their sixe and because the white colour of the long-lasting well calcified shells contrasts well with the soil surface. In the absence of living snails having been "observed" under the dry weather conditions prevailing at the time of the surveys, there is no evidence given in the report that any effort (such as digging under spinifex, shrubs, accumulated litter etc) was attempted – other than opportunistic sightings – in an effort to find living snails or freshly dead juveniles. Therefore there is no evidence given in the report on the existence of a living population of this species in the targeted area.	The Proponent understands that if the species does not qualify as an SRE (as documented in Appendix A3 of the PER), and an assessment that has been agreed with by the Western Australian Museum (refer to the Proponent response to Issue 2.1.1), then there would be no requirement to document live populations in an SRE report. As outlined in the Proponent response to Issue 2.1.1, targeted effort was spent in digging beneath spinifex hummocks at 16 sample sites, but no live snails were collected despite this effort. Hence, there is no evidence of the existence of living populations in this area.
2.1.4	Short Range Endemics - Non-camaenid Terrestrial Molluscs	Western Australian Museum	No mention has been made of the presence of any other land snail species in the survey area. Species of non-camaenid terrestrial pulmonate families, such as Pupillidae, Subulinidae and Succineidae, are known to be relatively common from other surveys that have been carried out in this general area. All of the species in these families are small – some less than 2mm in length/diameter – and so their presence, in general, would not be detected except through searching through litter/soil samples under a microscope. There is no mention of such samples having been searched for, collected or processed in this report.	Based on current taxonomy, species of non-camaenid microsnails from this area are not considered to be SREs and as such are not relevant to this section. They were therefore not targeted during the survey or addressed in the report (Appendix A3 of the PER).
2.1.5	Recommendation for Short Range Endemic invertebrate fauna	DEC - Environmental Management Branch	It is recommended that: • The Proponent consults with DEC and discusses the need for surveying additional areas outside the fauna survey area. The objective is to confirm the presence/absence of the identified mygalomorph species outside the project footprint and assist in providing a better understanding of the conservation	Refer to the Proponent response to Issue 2.1.6.

			significance of these taxa.	
2.1.6	Use of habitat types as a surrogate for inferring species distributional boundaries	DEC - Environmental Management Branch	Targeted surveys revealed that there were three mygalomorph spider species belonging to the *Nemesiidae* and *Idiopidae* families within the Port B fauna surveys area (Appendix A3). All three specimens collected have the potential to be either geographically restricted or SRE species and the conservation significance of these species is currently unknown. Although these species have not been collected outside the project impact area, a habitat analysis using habitat values as a surrogate for potential species distribution has been carried out, leading to the conclusion that these species are likely to exist outside the fauna survey area. As indicated in EPA Guidance Statement 20, the use of habitat types as a surrogate for inferring species distributional boundaries is potentially useful under certain circumstances where the value and utility of undertaking further surveys is likely to be minimal and there is adequate information on the habitat preferences of the particular species or group. Unless substantiation can be provided that the capture locations of mygalomorph species in the previous survey can be used to reliably predict species distribution, further surveys are warranted. EPA Guidance Statement 20 states that Proponents are expected to seek advice from both the WA Museum and DEC in relation to a decision not to initiate survey beyond project impact areas and in preparing risk-based assessments. DEC has not been consulted in relation to this issue despite specifically requesting that this occur.	Three mygalomorph spider taxa were collected by the Proponent from the Port B development area during the field surveys. One of these taxa (*Aname* sp. B) represents an *Aname* morphotype which is relatively commonly collected from clay substrates in the region and is unlikely to be restricted to the Cape Lambert area. This can be demonstrated without the need for further field survey by direct comparisons with existing collections from outside of the Port B development area. The second, *Aname* sp. A, occurred in primary dune habitat and burrows of this species were relatively easy to locate. As discussed (Appendix A3 of the PER), this habitat type is not restricted in the locality, with 293 ha of this habitat between Cape Lambert and Karratha (about 30 ha occurs within the Port B development area). Further targeted survey effort in similar dune habitat could be undertaken to demonstrate that this taxon occurs outside of the site; however, the Proponent questions the value of this additional effort. It will be difficult to collect further specimens of the final spider taxon, Idiopidae sp. A. This taxon was only recorded from a single specimen in a pitfall trap on one occasion out of the 1,200 pit trap nights completed for the field survey. This illustrates the low probability of trapping further specimens. The burrows of this species are also cryptic and are very difficult to locate in the field. Considering both aspects, it appears to be a case that "the value and utility of undertaking further surveys is likely to be minimal" as cited in the submission. The risk-based assessment report (Appendix A3 of the PER) should therefore be followed, whereby the smallest mapped habitat unit is used as a surrogate for species distribution. As outlined in the PER (and Appendix A3 of the PER), the field fauna surveys for the Port B development area were conducted in October 2007 and March 2008. This is more than one year before the EPA Guidance Statement No. 20 was released. It is inappropriate to retrospectively apply the requirements of this Guidance Statement as a criticism of surveys conducted before the document was published. Contrary to the comments in this submission, the Proponent is unaware of any record of a specific request from the DEC to be consulted on the approach to the SRE survey component for the Port B development when this work was being scoped (in September 2007).
			2.2 *Lerista nevinae* skink	
2.2.1	Recommendation for *Lerista nevinae* management	DEC - Environmental Management Branch	It is recommended that: Prior to the completion of this assessment, the following actions are undertaken in consultation with the DEC: • Further investigations to confirm the characteristics and distribution of suitable habitat and occurrence of *Lerista nevinae* outside the project footprint to establish the size and wider distribution of habitat and population/s. • An analysis of the value/importance of habitat within the project footprint relative to habitat areas outside the project footprint. • An assessment of the potential longer term impacts of proposed development on the viability of the adjacent *Lerista nevinae* populations. In the event that impacts and risks to *Lerista nevinae* are acceptable, approval for the project includes a requirement for the following measures being undertaken to the satisfaction of DEC:	With reference to the request for confirmation of habitat characteristics, the Proponent believes that it is fairly well established that the habitat preference of *Lerista nevinae* is pale coastal dune sands in the Cape Lambert locality. Trapping and searching in other habitat types in the area has failed to yield this species and instead reliably yielded other members of the *Lerista 'muelleri'* complex; suggesting ecologically equivalent taxon replacements (Appendix A4 of the PER). Further targeted survey work completed since thatstudy has now demonstrated that the species also occurs on Dixon Island, extending its distributional extent. This reduces the percentage habitat loss presented in the PER to less than 9%. Further targeted surveys for *Lerista nevinae* will be undertaken by the

			• Development and implementation of a long-term monitoring program with the aim of determining whether this and other developments in the area are having an adverse impact on *Lerista nevinae*. This monitoring program should be linked to remedial management measures in the event that impacts are detected and should cover construction and operational phases of the project. • Further research on the conservation status and ecological requirements of *Lerista nevinae*. • Commitments to undertake measures to enhance the protection of remaining *Lerista nevinae* habitat identified through monitoring and research.	Proponent (beyond those surveys already completed and reported in the PER) in consultation with the DEC. The Proponent will implement the management measures outlined in Table 8.2 in Section 8.3.2 of the PER. Management of areas containing *L. nevi*nae habitat that will remain undisturbed by the Port B development and that remain within its control will be undertaken by the Proponent. It must be noted however that the Proponent cannot exercise management authority over the portions of the species distribution that fall outside of its leases. The establishment of any buffer zone between the Cape Lambert operation and Point Samson will effectively assist the retention of coastal dune habitat that has been shown to support *Lerista nevinae* (refer to the Proponent response to Issue 5.2.1 and Issue 5.2.3). It is unlikely that a statistically valid monitoring programme can be developed to meet the requirement for management measures to be linked to detection of impacts. Statistical power issues often mean that there is low confidence in any differentiation of project impacts from natural variation and sampling effects. The Proponent is not responsible for remediating adverse impacts from 'other developments' on this species as suggested.
2.2.2	Status and distribution of *Lerista nevinae*	DEC - Environmental Management Branch	*Lerista nevinae* (a recently described skink species with very restricted known distribution), has been found within and adjacent to the proposed footprint for the Port B development in sand dune habitat. This habitat type is currently very poorly represented in reserves in the Pilbara and subject to a high level of threats from coastal development including a current proposal for port development near Dixon Island. Based on currently available information, this species is considered likely to be of conservation significance as it appears to have highly specific habitat requirements and be restricted to a 14 km stretch of the coastal dunes of the Cape Lambert area. According to the PER, the species has recently been collected from Dixon Island, however, at this stage the Cape Lambert population is the only known mainland population. *Lerista nevinae* is not a listed threatened species due to its recent (2007) discovery and the lack of data in relation to its distribution and abundance. The area of suitable habitat for the only known mainland population of *Lerista nevinae* in the Cape Lambert – Dixon Headland area has been estimated to be approximately 360 ha, of which 32 ha (9%) will be directly impacted by the project footprint. However, this estimate does not take into account potential limitations in predicting the suitable habitat for this species or the potential long-term indirect impacts of the Port B development, such as those that may be associated with increased human and vehicular activity, altered hydrology, dust, noise, vibration, lighting and low level emissions such as hydrocarbons in stormwater. Indirect impacts of this nature have the potential to impact on habitat quality, behaviour and reproductive success over an area greater that the estimated direct project footprint.	It is accepted that *Lerista nevinae* is of very restricted distribution and has specific habitat requirements. As a result of the surveys funded by the Proponent, the species current distribution and status is better understood. Reservation of habitat for the species in the conservation estate is a matter for DEC to address and the impacts of other proposals on *Lerista nevinae* less relevant to the Port B development. With regard to off-footprint impacts, the Proponent believes that these will be minimal and will be effectively managed through EMPs. The primary impact to be assessed in relation to the Port B development is direct habitat removal (less than 9% of the species' distribution). The Port B development will not result in increased human and vehicle movements in intact dune habitat outside of the operational area; this will be controlled through the security fencing to be erected between the outside perimeter of the port facilities and employee education through site inductions (refer Table 8-2 in Section 8.3.2 of the PER). Drainage, particularly if this may contain hydrocarbons, will be managed on-site via standard drainage control treatments (refer to the Proponent response to Issues 1.5.1 through to Issue 1.5.5). It is very difficult to determine how vibration and air-bore noise are likely to significantly impact a fossorial skink. The vegetation criterion of 7 g/m^2 (Section 8.3.4 of the PER) is potentially only exceeded in a very small area along the western boundary of the Port B infrastructure. There is no evidence to suggest significant impacts will occur as a result of these deposition levels. The Pilbara is a naturally dusty environment with flora and fauna adapted to elevated dust levels from a variety of sources. In summary, the impacts from the Port B development will be effectively confined to the development footprint and are therefore spatially encompassed by the predicted clearing extent. Refer also to the Proponent response to Issue 2.2.3 for related matters.

2.2.3	Significance of predicted impact on *Lerista nevinae*	DEC - Environmental Management Branch	The Proponent is of the view that this development will not significantly impact on the local population as only 9% of the estimated area of suitable habitat will be directly disturbed. This can be questioned, however, on the following grounds: • The proposed development will be adjacent to and partially within approximately 50% of the linear extent of predicted suitable habitat areas for *Lerista nevinae* and will form a major barrier to habitat connectivity and fauna movement between the primary dunes and the coastal hinterland (refer Figure 2.1, page 12 of Appendix A4). This is likely to cause significant habitat fragmentation. • The impacts resulting from altered surface hydrology, noise, lighting, vibration, increased traffic and human presence, and other potential development-related disturbances during both construction and operation, are difficult to predict. • The relative significance/importance of the area of habitat within and adjacent to the project footprint compared to areas outside the footprint is not fully understood and has not been evaluated in the PER but may be high. For example, a high proportion of the 25 specimens collected to date appear to have been from within the Port B development area and an unknown number (referred to in PER Appendix A4 as 'several') have been collected in subsequent surveys of remaining suitable habitat areas. • Given the potential for the Cape Lambert – Dixon Headland to be the only extant mainland population of *Lerista nevinae* and uncertainties in relation to the prediction and distribution of suitable habitat, the removal of approximately 9% of habitat and the fragmentation of remaining habitat could affect the conservation status of this species.	Refer to the Proponent response to Issue 2.2.2 for many of the points raised here. The proposed infrastructure will parallel a section of the species habitat adjacent to Bells Beach, but it will not divide any areas of currently contiguous habitat as this is currently understood. It is also noted that the distribution and habitat of this species is naturally 'fragmented'; on current knowledge it occurs in at least four discrete habitat units (shown in Figure 2.1 of Appendix A4 of the PER) and at Dixon Island. The Port B development will not increase this existing level of fragmentation; direct habitat removal within the footprint is the principal impact to be considered. The relative number of specimens of *Lerista nevinae* from the Port B area cannot be interpreted as indicating relative habitat 'value' for this species. This is clearly a function of sampling effort, as this area is the only portion of the species range where systematic trapping has been conducted. The *Lerista nevinae* work (Appendix A4 of the PER) was to detect whether the species was present in other locations and cannot be interpreted as relative abundance measure as implied in the submission. Further survey work and other studies to clarify the ecological requirements and habitat use will be undertaken by the Proponent (refer to the Proponent response to Issue 2.2.1).
			2.3 Marine fauna (turtles/whales)	
2.3.1	Cetacean Management Plan	Centre for Whale Research (WA) Inc	There is no Cetacean Management Plan for this project despite surrounding sites such as the Port Hedland Harbour expansion and the Wheatstone/Onslow Harbour proposal considering cetacean mitigation issues a priority.	The Proponent also considers cetacean mitigation to be an important issue. Management actions for cetaceans have been included within the marine fauna management plan which forms a part of the DSDMP. This is a similar approach to that undertaken or proposed by other developments in the region. Section 3.12 of the DSDMP includes a list of detailed management actions. However to ensure that cetacean management remains a priority, the Proponent has developed a Cetacean Management Plan (**Attachment 3**) to cover the construction phase (incorporating dredging and pile driving) of the Port B development.
2.3.2	Underwater Noise effects on whales	Centre for Whale Research (WA) Inc	In the executive summary of the Underwater Noise Assessment appendix by SVT, it is inaccurately, and misleadingly stated that "humpback whales seem to show high levels of tolerance to man-made noise and it is therefore expected that pile driving operations will have little effects on the whales". There is no basis for this conclusion as demonstrated in the lack of information regarding humpback whale hearing. This fact is more correctly reported later in that appendix in Section 5.7.1.	This comment is acknowledged. The Underwater Noise Assessment report (Appendix A21 of the PER) was subject to a peer review by Curtin University in parallel with the public release of the PER. The Underwater Noise Assessment has since been amended to reflect comments arising from the peer review and comments from the EPA/DEC (**Attachment 4**). The Executive Summary has been amended in the updated report where Southall et al (2007) has been incorporated, as has EPA seismic survey guidelines.
2.3.3	Underwater Noise effects on whales	Centre for Whale Research (WA) Inc	Given that no real conclusions can be made regarding the potential for hearing damage in an animal with unknown auditory properties, Sections 5.7.2 and 5.7.3 are largely irrelevant.	Refer to the Proponent response to Issue 2.3.2.
2.3.4	Humpback whale migration path	Centre for Whale Research (WA) Inc	The potential for masking and behavioural change (Section 5.7.4) are in my opinion likely to be significant issues for long term pile driving activities. The authors make "generalised" statements for which there are little or no basis in this section. The authors state that the migration route is at the closest 28 km from the pile driving activities. This statement, at best, indicates a lack of understanding of humpback whale migration patterns and the suggestion that all whales migrate along the lines shown on the map in Figure 5-3 is either naïve or deliberately misleading. The southbound	The Proponent acknowledges that the humpback whale migration patterns off Cape Lambert are not known in detail, as stated by Jenner et al. (2001). The whale migration data provided in the PER was the most current available information from the DEC. A summary of more detailed information on humpback migration off the Pilbara coast (based on Jenner et al 2001) is provided below:

			humpback whale migration along the areas of Western Australian coast that have been studied indicate that the migration path is up to 50 km wide (Jenner et al 2001) and that humpback whales have been sighted off Cape Lambert on the northern migration (Figure 15 Jenner et al 2001).	The humpback whale northern and southern migration routes pass off the coast of Cape Lambert and can stretch up to 50km wide (Jenner et al. 2001). Some humpback whales, during their seasonal migration along the Pilbara coastline, are spotted close to the mainland near Cape Lambert. The Humpback whale migration patterns off Cape Lambert are not known in detail (Jenner et al. 2001), however whale numbers may have increased significantly since the last studies were carried out. The northern migration off the coast of Cape Lambert peaks at the end of July and early August (Jenner et al. 2001). The peak south bound migration in the region occurs at the end of August and early September. The exact time that the peak density of the migratory body passes a given point on the coast can vary by as much as three weeks from year to year (Jenner et al. 2001). The distances labelled in Figure 9-13 of the PER were placed to represent indicative distances to the suggested routes only. Section 6.5.7 of the PER states that humpback whales have been recorded closer to Cape Lambert than the suggested migration routes, with some individuals being visible from the shore at Cape Lambert. In light of this, the Proponent commissioned SVT to undertake a study to predict the potential zones of influence and impact associated with underwater noise during the construction phase (**Attachment 4**). In addition to this, a Cetacean Management Plan (**Attachment 3**) has also been prepared and will be applied during the construction phase of the Port B development. It is unlikely that a dedicated survey aimed at confirming the humpback migration period off Cape Lambert would facilitate better management to mitigate noise impacts to whales during the construction of the Port B development. Such a survey might provide a more precise estimate of the migration period, but the Proponent is committed to the management of humpback whales inside and outside the migration period. Further, and more importantly, the proposed management actions (e.g. fauna observer, soft-start up procedures for piling, establishing a zone of exclusion during piling etc) will function effectively irrespective of the migration or the number of whales observed in the project area. For example, to reduce stress or injury to whales or other mammal species, piling will not commence when an animal enters a 500 m exclusion zone and only resume after they leave. Pile driving will be suspended if the animal approaches within 100 m of pile driving. An observation zone of 2.5 km will be maintained. This is based on the assumption that whales and other mammals, beyond 2.5 km of piling, are unlikely to experience permanent or temporary auditory loss or other injuries (SVT 2009). Soft-start piling will minimise the risk of startle-behaviour (**Attachment 3**). Overall, the Proponent has adopted a precautionary approach by assuming whales will pass close to Cape Lambert during piling and dredging and has proposed management actions to prevent stress and injury to humpback whales and other mammal species during this period.
2.3.5	Humpback whale migration data	Centre for Whale Research (WA) Inc	It should be noted that the only systematically collected humpback whale migration data from anywhere near the Cape Lambert site is from the Dampier Archipelago, approximately 50 km to the west. This data was collected during the period from 1990 to 1994 by the Centre for Whale Research and represents the timing and migratory	The Proponent acknowledges the migration paths are only indicative. It is known that whales are seen closer to the wharf, and this has been noted in Section 6.5.7 of the PER. Refer also to the Proponent response to Issue 2.3.4.

			paths of a recovering population of approximately 3,800 whales (Jenner and Jenner, 1994). Today the population is likely to number close to 20,000 individuals (Bannister and Hedley, 2008) and it is quite likely that both the temporal and spatial bounds of the migration has expanded from that reported in Jenner et al 2001. No surveys of whale distribution and timing have ever been conducted for the Cape Lambert area and in light of the demonstrated increase in population since the early 1990's it is not possible to say where the migration path(s) lies in relation to Cape Lambert. However, it is known from other areas on the WA coast that cow/calf pods migrate south in shallow waters (<20 m, Jenner et al 2001). Recent anecdotal reports from prawn fishers suggest that cow/calf pairs use Nickol Bay (20 km west) as a resting or nursing area, and although this claim is unsubstantiated at this time, it is representative of the lack of accurate data to lend support to any argument about humpback whale distribution in this area.	
2.3.6	Surveys for whales, dolphins, dugongs and turtles	Centre for Whale Research (WA) Inc	It is recommended that dedicated surveys be conducted prior to pile driving activities being undertaken that take into account the full migratory cycle of humpback whales at this location. Baseline distribution and abundance surveys of whales, dolphins, dugongs and turtles, in keeping with similar coastal infrastructure projects such as Port Hedland, James Price Point, Onslow/Wheatstone and Oakjee should be considered. These surveys should then be used to guide thorough mitigation processes, where necessary, to minimise impacts on threatened or endangered species.	The Proponent will undertake opportunistic surveys to collect whale, dolphin, dugong, and turtle data as part of the baseline environmental monitoring program proposed to commence prior to dredging (and pile driving). The survey template for these opportunistic surveys is included as part of the Cetacean Management Plan provided in **Attachment 3**. Turtle surveys of the area have been undertaken on behalf of the Proponent (Appendix A5 of the PER). The report on the most recent turtle monitoring at Bells Beach and other rookeries of the Dampier Archipelago during the 2008-2009 season is provided in **Attachment 5**. Further turtle surveys are scheduled to be undertaken by the Proponent over the 2009-2010 turtle season.
2.3.7	Cetacean Management Plan	Centre for Whale Research (WA) Inc	A Cetacean Management Plan needs to be formulated and implemented prior to construction at this site.	The proposed management of cetaceans is outlined in Section 3.12 of the DSDMP (Appendix B1 of the PER) under the Marine Mammals and Turtles Management section. The Proponent has acknowledged the request by the CWR and others and provides a Cetacean Management Plan (**Attachment 3**) that will be implemented prior to and during the construction phase for the Port B development as a stand alone document.
2.3.8	Turtle Management Plan	Point Samson Community Association	It has now become very obvious to previously uninterested parties that marine turtle populations in the islands adjacent to Cape Lambert are extremely significant. Regrettably, the recent studies undertaken by Biota are probably the first substantive work ever done in this area (even though the port was built in the early 1970's) and their findings confirm the views held by many of our boating members, that these turtle rookeries are very important on a local and global scale. The PSCA are very disappointed that the Proponent continues to attempt to restrict the focus and jurisdiction of the proposed Marine Turtle Management Plan to primarily mainland beaches with a very minimal research window while at the same time being entirely ignorant of important turtle data. The proposed two week window may not cover the spread of the three main turtle species activities. In short, the PSCA disputes the validity and the intent of such a restricted and deliberately short sighted approach to turtle research in the vicinity of Cape Lambert. The PSCA is firmly of the view that the current operation at Cape Lambert and obviously the expanded plant, coupled with the very large scale marine activities (both operational and during construction) have the potential to have a significant impact on these important turtle populations. We are also aware that no meaningful and appropriately structured research programme has ever been undertaken in this area and that it would currently be impossible for the Proponent to demonstrate a negligible	The Proponent supports the observation made in the submission that the offshore islands support significant rookeries. This demonstrates, in part, the improvement in knowledge that has arisen from the turtle surveys already completed on behalf of the Proponent. The primary focus of the monitoring surveys has, logically, been on the beaches that may be affected by the Port B development. It is also noted that there are actually two separate, two-week sampling intervals, and it has been demonstrated on other marine programs that this captures the majority of the nesting activity in a season if appropriately timed. The submission also refers to "three main turtle species". Bells Beach and Cooling Water Beach are the two sites that may be affected by the Cape Lambert Port B development, and these two beaches are, to a very large extent, only Flatback turtle rookeries. It is uncertain which important turtle populations are being referred to in the submission. The submission implies this refers to the island rookeries, which are acknowledged as important, but the available data indicates that the Port B development will not have a significant impact on these sites. The issue with lighting will be managed through the Marine Turtle Management Plan (Appendix B2 in the PER) and during

			threat to these rookeries from their existing and proposed operation. For example, the PSCA is aware of anecdotal evidence relating to hatchlings massing around floodlit bulk carriers at anchorage in the port. (Ship's crews often use large floodlights to attract fish and squid at night). It is very likely that these hatchlings have emerged on the adjacent islands. To fully comply with the precautionary principal it is imperative that an independently scoped and approved scientifically structured long term research programme be initiated as a matter of urgency to ascertain threats/potential threats emanating from this facility and from visiting ships to these endangered species in both the short and longer term. The PSCA categorically dispute the statement in Item1 of Table 11-1 on page 11-2 which says 'investigations and specialist studies have been carried out to provide sufficient information to address potential environmental impacts'. This is clearly and obviously not the case. In our view the above obligation to substantially broaden the scope of turtle research in the Cape Lambert precinct demands to be addressed in the Ministerial Conditions.	dredging through the DSDMP (Appendix B1 in the PER) and the Cetacean Management Plan (**Attachment 3**). An ongoing turtle research program has already been developed in association with independent experts (e.g. Dr Michael Guinea of Charles Darwin University), and the development and implementation of such ongoing turtle research has already been committed to in the PER/Port B Marine Turtle Management Plan (Appendix B2 of the PER).
2.3.9	Whale data	Point Samson Community Association	Humpback Migration Route and Resting Areas page 9-60 and Figure 9-13. The southward migration routes depicted in Figure 9-13 are simply incorrect. In recent years large numbers of humpback whales have tracked into Point Samson, many going as far as Honeymoon Cove then passing close to the jetty (Port A), mostly passing north of Bezout Island and then continuing south of Delambre Island, often lingering for lengthy periods in Nickol Bay. Daily whale numbers observed by locals and professional fishermen south of Delambre Island often exceed thirty plus adults. The fact that the Proponent has presented old, inaccurate and unrepresentative data clearly shows no meaningful understanding or interest in the reality of whale migration in the Cape Lambert port precinct and casts very real doubt on the integrity and veracity of this section. Predictions relating to the potential effects of pile driving and blasting and other marine activities do not take into account the many whales which are much closer to the construction site. In the absence of any specialist studies or recent investigations into migrating whale behaviour in this area and in consideration of the precautionary principle, it is the PSCA's view that construction activities, particularly pile driving and underwater blasting, must be forbidden during the southern migration period. Such a restriction should be reflected in the Ministerial Conditions.	Refer to the Proponent responses to Issue 2.3.4 and Issue 2.3.5.
2.3.10	Importance of marine turtle habitat in proposal area	DEC - Environmental Management Branch	It is recommended that: • In evaluating marine turtle impacts, the Proponent recognises the significance of Bells Beach and Cooling Water Beach as mainland nesting habitats. • The Proponent considers the residual impacts of this development on marine turtle habitats and the need for provision of marine turtle conservation mitigation and/or offsets for these impacts.	The Proponent recognises that Bells Beach has value as a mainland Flatback turtle rookery; it is for this reason that a specific marine turtle monitoring and management program has been developed and will be implemented. The potential unmitigated impact of the Port B development on marine turtles at this rookery was well recognised by the Proponent and relevant aspects of project design (such as lighting) were modified during the design process in recognition of this. The residual impacts of the proposal will be mitigated by the development and implementation of the project design and environmental management measures outlined in the Port B Marine Turtle Management Plan (Appendix B2 of the PER). The Proponent does not agree that the same level of significance applies to Cooling Water Beach. As shown in **Attachment 4**, only

				recorded four individual turtles utilising this beach over the two separate two-week peak nesting periods (25 evenings) in 2008-09. Track counts in previous years at Cooling Water Beach have been consistent with this low level of use, even relative to other mainland Flatback rookeries (Appendix A5 of the PER). The number of individuals at Cooling Water Beach is insignificant compared to nearby island rookeries, with 873 Flatbacks recorded at Delambre and Legendre Islands during the same timeframe (**Attachment 4**). Even if the view is accepted that differential sex ratios arise from mainland nest sites, the very minor contribution from Cooling Water Beach to the Northwest Shelf Flatback population would have little relevance to long term population demography or viability.
2.3.11	Importance of Bells Beach and Cooling Water Beaches as turtle nesting areas	DEC - Environmental Management Branch	Marine turtles, in particular Flatback turtles, nest on Bells Beach and Cooling Water Beach adjacent to the proposed development. Behavioural effects from artificial lighting from the new access jetty, wharf and associated infrastructure, in conjunction with potential noise impacts during pile driving and vessel movements, are likely to lead to an increase in the level of stress on these marine turtle rookeries. It is evident from statements made throughout the PER that the Proponent has taken the view that Cooling Water Beach and Bells Beach are not significant for turtle nesting on a regional and international scale (for example page 6-48 of PER). This view appears to be based on a comparative study that indicated that Bells Beach and Cooling Water Beach are less important relative to other habitats (predominantly islands including Barrow Island) within the broader Dampier Archipelago region (Appendix A5). Flatback turtle nesting on mainland Western Australia is characterised by low density nesting across a large area. Nesting sites on the mainland cannot be directly compared to high density nesting sites on islands such as Barrow Island. In this context, the presence of 200 nesting females on one beach on the mainland is regionally significant. For example, approximately 60,000 eggs will be laid on Bells Beach each year. The relationship between beach temperature and the sex ration of turtle hatchlings may also affect the importance of specific mainland beaches for species conservation. In addition to this, other important habitat for flatback turtles is currently subject to threats (eg Barrow Island). It is DEC's view that all remaining turtle habitats warrant protection and management to avoid and minimise impacts. As such, DEC recommends that management and mitigation measures be applied to this project to ensure that actions to avoid and mitigate impacts to turtles are taken.	Data collected for the Proponent during the 2008-2009 turtle season (**Attachment 4**) provide the first quantification of the beach temperature. The data collected from temperature loggers suggest that the target mainland beaches are consistently 2 – 3°C warmer at a depth of 50 cm than the target island beaches throughout the season. On 1 December 2008, all loggers from mainland beaches yielded temperatures in excess of 29.5°C: the quoted pivotal temperature for sex determination in Flatback Turtles (James 2004). In contrast, all loggers from island beaches yielded temperatures 1°C to 2°C below this pivotal temperature at the beginning of the season. However by 7 January 2009, all loggers at both island and mainland beaches had exceeded 29.5°C by at least 1°C. This suggests that hatchlings of both sexes will be produced at island rookeries at different times of the season, but that the mainland sites are likely to be female biased. While very preliminary, these data still indicate that the Delambre and Legendre rookeries are likely to shift toward female hatchlings during the second half of the season; a period when more than 436 turtles were recorded in a 10-night period (**Attachment 4**). A total of 31 nesting turtles was recorded at Bells Beach in the same period. The Proponent also questions the use of the number of eggs laid per year as a measure of significance when the: • literature suggests an average of 50 eggs per clutch for Flatback turtles (Schauble et al 2006) – for 200 nesting females this equals 10,000 eggs; even with multiple nest events for every female in the season, it is difficult to see how the figure of 60,000 has been reached for Bells Beach; and • same approach and numbers (300 eggs per female per season) could be used to justify estimates in excess of 600,000 eggs on nearby Delambre and Legendre Islands; neither of which is threatened by development. The Proponent recognises that Bells Beach is of significance as a mainland nesting site for marine turtles (refer the Proponent response to Issue 2.3.10). Consistent with the request in this submission, the Proponent will develop and implement management and mitigation measures to avoid and reduce impacts to marine turtles as stated in the Proponent response to Issue 2.3.10.
			PART 3: DREDGING/SPOIL GROUNDS	
3.1	Dredging	Environmental	The PER states that the current proposal incorporates additional dredging to allow for	Refer to the Proponent response to Issue 10.2.1 with regard to

	footprints - current and future proposals	Protection Authority	future development to proceed with less environmental and technical delays. What dredging footprint is required for the current proposal and how much is required for future expansions?	incorporating dredging for any possible future dredging program in the initial phase.
3.2	Calculation of dredge volumes and bulking factor	Dampier Port Authority	The proposal indicates dredging and disposal of some 16 Mm^3 of material. This will be placed in three existing offshore spoil disposal sites. The PER documentation indicates that these sites have the capacity to accept this material, with an upper placement depth of -12 mCD (Section 3.3, Table 3.2). The volumes calculated do not take into account a bulking factor as they are calculated as *in situ* volumes. Table 3.2 should be re-calculated with this bulking factor taken into consideration.	Extensive experience of dredging adjacent to the proposed area and in other areas in the vicinity of Cape Lambert has indicated a relatively low bulking factor when other dredging process losses are taken into account. Bulking has also been incorporated to some degree by increasing the bulk cubic metre calculation by a factor of 1.1. As such the volumes do not require adjustment.
3.3	Remobilisation of dredged material	Dampier Port Authority	The PER does not provide information on the potential remobilisation of dredged material from the spoil grounds during either ambient conditions (tides) or during cyclonic events post disposal.	Dispersion modelling of sediment arising from spoil disposal was undertaken by Global Environmental Modelling Systems (GEMS) and reported in Section 9.2.2 of the PER. The risk of sediment re-suspension at the study site, including spoil grounds, was factored into the modelling process. A study by SKM (2009a) investigated the stability of Spoil Ground 2 in terms of its capacity to store tributyltin (TBT) contaminated sediments (that had been placed in Spoil Ground 2 during the earlier Cape Lambert dredging program) and prevent its release into the surrounding environment. TBT was not detected at any of the sampling sites during the 12 month post disposal survey (SKM 2009a). This indicated that the burying of the TBT affected material was successful and provided evidence that the clean spoil above the buried contaminated sediment has remained intact and has not remobilised. This supports the view that there is limited remobilisation of dredge material from the spoil grounds in the Cape Lambert area.
3.4	Rate of sedimentation	Dampier Port Authority	The PER does not provide an indication of the expected sedimentation within the new facilities (berth pockets and channels) and/or the potential impacts the proposed development will make to the existing facilities. As such, no indication is given as to the expected maintenance dredging requirements of the facility.	Since original construction of the existing port facilities at Cape Lambert in the early 1970's, no maintenance dredging of any material quantity has been carried out. Based on that historical record, and because prevalent metocean conditions around Cape Lambert have demonstrated siltation is not significant in this area (SKM 2009b), the Proponent is confident that a similar regime of negligible sedimentation and littoral drift will prevail at the Port B site. Notwithstanding that expectation, the Proponent is currently progressing with an application to the Commonwealth DEWHA for a long-term dredging permit to cover potential future maintenance dredging requirements at Dampier and Cape Lambert for the next 10 year period. Any future maintenance dredging will be undertaken in accordance with approval conditions associated with the long term dredging permit. There is adequate capacity within the spoil grounds to support the current capital dredging volume and future additional maintenance work dredging for either the existing Cape Lambert operation or the Port B development areas.
3.5	Capacity of existing spoil grounds	Dampier Port Authority	This above point directly relates to the capacity of the existing spoil grounds, and their capacity to contain the maintenance dredge material should this be required. This consideration should take into account the potential finer grain size of maintenance dredging material and hence greater potential for remobilisation at the spoil ground.	Refer to the Proponent response to Issue 3.3 which outlines the potential for remobilisation of sediment from the spoil grounds. Section 4.3.1 of the PER provides a description of the location of three proposed spoil grounds and the volumes of spoil to be disposed.
3.6	Dredging Environmental	Dampier Port Authority	Appendix B1, Section 1.11 The DSDMP indicates the formation of a Dredging Environmental Advisory Group	The Proponent planned to incorporate a DEAG into the management of the dredging program for the Port B development and proposed to invite

	Advisory Group learnings		(DEAG). The DPA currently has representation on the similar body established for the Pluto project, and would see value in being part of the Port B DEAG, especially where this can assist cross-fertilisation of learnings between the forums.	representatives from the DPA and DEC and others. The Proponent acknowledges the benefits of using the expertise of those organisations and people that have been involved in previous DEAGs for recent Dampier and Cape Lambert dredging programs that have been arranged by the Proponent.
3.7	Coral spawning assessments	Dampier Port Authority	Appendix B (DSDMP, Section 3.1) The Proponent indicates that it will undertake coral spawning assessments to provide shut-down windows for dredging works. The Pluto DEMG has established significant volumes of data on spawning windows in the area, and has developed a standard management approach for the autumn spawning event now without the need for reactive monitoring. There would be value in both adopting these learnings and applying a similar management approach as a standard across all dredging operations in the Dampier area.	Section 3.11 of the DSDMP describes the approach to monitor and mitigate dredging related impacts to corals during predicted mass coral spawning periods. The approach adopted by the Proponent is consistent with methods used during the recent Cape Lambert dredging program and approved by DEC. However, the Proponent agrees that lessons learned during the current Pluto Project should be assessed and adopted where applicable. Advice on this issue has been sought by the Proponent. The coral spawning methodology will be incorporated into the final DSDMP.
3.8	Condition setting	DEC – Industry Regulation - Pilbara Region	Dredging will be required for the berth pockets, departure channel, tug harbour/Service Wharf B and turning basins. The direct impacts of dredging are typically managed under Pat IV Ministerial Conditions with advice from the DEC Marine Ecosystems Branch and Environmental Management Branch. This may be more appropriately dealt with under dredging provisions in the Ministerial Statement if deemed necessary due to the potential conservation and biodiversity impacts. However, disposal of acid sulphate soils and any discharges to the environment could be regulated under works approval or licence if necessary.	Samples recovered from the dredge footprint were tested to determine if acid sulphate soils were present (Oceanica 2008). All samples from all depths were below the DoE (2006) action criteria (Appendix A1 of the PER). The dredge material is unlikely to pose a risk of actual and /or potential acid sulphate soil when disturbed from its original state. It should be re-iterated that no dredge spoil is planned to be brought ashore and that placement of dredge spoil in spoil grounds is also subject to assessment and condition setting by the Commonwealth DEWHA.
3.9	Dredging monitoring and management and trigger values	DEC – Marine Ecosystems Branch	This proposal involves a significant dredging campaign that will utilise a number of dredges (2 trailer suction hopper dredges, 1 cutter suction dredge, 1 back hoe dredge and possibly a drilling and blasting unit) over a period of approximately a year. Generally, the assessment of marine impacts is comprehensive and the dredging monitoring and management plan is appropriate and has been informed by past dredging programs in the area. However the most significant matter still outstanding is that the dredging monitoring and management plan is currently incomplete because trigger values need to be set. With respect to the trigger values, MEB recommends that the data collected in previous dredging programs, over the same sites as are proposed to be used in the current monitoring programme, should be analysed, and where possible, be used to help inform the development of site specific trigger values.	Agreed. As stated in the DSDMP, the trigger values could not be calculated until the finalisation of the baseline monitoring data collection. The baseline monitoring program was completed in May 2009 and the site specific trigger values are being developed for inclusion in the DSDMP. Trigger values together with exceedence time frames will be further developed in consultation with the DEC and incorporated into the final DSDMP. Previous data has been analysed and will be incorporated where appropriate.
3.10	Further analysis of issues	DEC – Marine Ecosystems Branch	The PER is comprehensive, addresses all the significant marine issues and includes Appendices that provide detailed and relevant data and analysis. In a letter dated 9 December 2008, Colin Murray wrote to Peter Royce (representative of the Proponent) and advised him of a range of issues that should be covered in the PER. At items 15, 16 and 17 of the letter, the following marine issues were brought to the attention of the Proponent, as being required in the PER; • references and analysis of the results of the monitoring of previous dredging campaigns in the area, • justification of the management units adopted in the PER, • habitat mapping to include hard substrate BPPH. The Proponent was also advised of the need for an examination of the issue of marine noise. Generally speaking all of the above issues have been addressed in the PER. The results of previous dredging have been discussed at 9.1.2 and in the Appendix A20.	No response required. Refer to the Proponent response to Issue 3.9 regarding the reliability of the previous data. Previous data and 12 months baseline are being used to determine site specific trigger values.

			However this data could be further analysed to assist with establishing site specific trigger values – which are required as part of the finalization of the dredge management plan.	
3.11	Management units for GS29 (BPPH)	DEC – Marine Ecosystems Branch	The management units developed to meet the requirements of GS 29 (Benthic Primary Producer Habitat – BPPH) take into consideration the extent of the dredge plume zone of influence (as modeled), the different BPPH as defined by physical and biotic factors (for instance, seaward boundary of sea grass area is defined by depth) and also takes into consideration cadastral boundaries (for example, proposed marine park boundaries). With regard to the last point, given that the marine park boundaries have not been formalized and may change from those originally proposed, the management units that are based on the proposed boundaries at the time the plan was developed can be seen as conservative and precautionary. In summary, then, these boundaries and the scheme proposed in the management plan is consistent with the process outlined in GS 29.	No response is required, except that that the Proponent agrees with the comment that the management unit boundaries and the scheme proposed in the management plan is consistent with the process outlined in Guidance Statement Number 29 and is precautionary in terms of the proposed marine park boundaries.
3.12	Hydrodynamic modelling	DEC – Marine Ecosystems Branch	The GEMS hydrodynamic modelling of dredge turbidity was informed by detailed studies of the sediments present in the dredging footprint and the predictions of the behavior of the material when suspended in water. In addition the modelling was reviewed by CSIRO. Mark Hemmer of CSIRO Marine and Atmospheric Research provide advice on the adequacy of the data used by GEMS to inform the modelling. The review concluded that the data meet the minimum requirements but that in some cases longer data sets would be beneficial. In particular there was concern about Acoustic Doppler Current Profiler (ADCP) data from an instrument under the Port A jetty which was compromised from shipping movements. GEMS responded in June 2008, to the comments and indicated that more data would be collected and incorporated into the model. The report on the modelling states that this was done and that 9 months of data from a new station has been used to validate the model. The PER has included, as an Appendix, the independent CSIRO review of the data used for dredge modelling and GEMS response to the issues raised, and this enhances the usefulness of the hydrodynamic modelling for EIA. However, to complete the process MEB would like to see the reviewers comments on the GEMS response to see whether the reviewer is satisfied that the concerns raised have been adequately addressed. Not with standing the issue discussed above, on balance it appears that the modelling is adequately set up and that the predictions of the physical pressure fields (turbidity and sediment deposition) are based on appropriate data.	The Proponent commissioned an independent review of the GEMS work ('Review of Data Requirements and Availability for Cape Lambert Dredge Modelling' and was presented as Appendix A14 of the PER). The review concluded that the data met the minimum requirements of the project.
3.13	Dredging Environmental Advisory Group	DEC – Marine Ecosystems Branch	Section 1.11 of the Dredging and Spoil Disposal Program (Rev H, September 2008) The Proponent proposes to establish an expert panel/advisory group which is to include, amongst others, members of government Departments, including DEC. It is recommended that this should not be included as a Ministerial Condition. It may also be argued that reference to a DEAG should not be included in an approved DSDMP. If the EPA approves a DSDMP which specifies the formation of a DEAG, then the question arises as to the legal status and authority of the panel. Further the benefit of a DEAG to the DEC Audit Branch should be questioned. If the Ministerial Conditions and associated DSDMP are well constructed there should be no need for such a group. Finally, Departmental involvement in a DEAG will be resource intensive. If the EPA approves a plan including the reference that the DEAG may consist of representatives from DEC, then it places a resource commitment upon DEC, which may not be the best utilization of staff time.	The DSDMP will include a provision that the Proponent has a responsibility to report exceedence of trigger values to DEC and that DEC will provide advice as to appropriateness of any management response. As stated in the Proponent response to Issue 3.6, the Proponent plans to form a DEAG for the Port B development and will provide the DEC with the opportunity to sit on that Group should it deem it necessary at that time.

			It is recommended that the reference to the DEAG not be included in the recommended Ministerial Conditions and be removed from the approved DSDMP. The DSDMP should be clear that the Proponent has a responsibility to report exceedance of trigger values to DEC and that DEC will provide advice as to appropriateness of any research and /or management response. The Proponent would be free to gain independent advice, including through an Advisory Group if it so chooses, but the group would not have a decision making role.	
3.14	Trigger values	DEC – Marine Ecosystems Branch	Section 3.8 DSDMP It is noted that the DSDMP has not set trigger values and that it is proposed that these will be based on baseline surveys that have yet to be completed. However most of the water quality and coral monitoring sites have been monitored as part of previous dredge management programs and there are data that have been collected for these sites. This, of course, adds to the value of these sites as monitoring locations because there is already a data base on which to establish the natural range of values for the parameters monitored. Therefore it is not clear as to why the trigger values can not be set at this time. In any event, the DSDMP should, on the basis of the currently available data, propose interim values and specify the process by which the baseline survey data will be used to revise the interim values and how these would then be approved. In past meetings with the MEB, the Proponent's consultant (SKM) indicated that existing data could be used to inform determination of site specific trigger values, and if this is the intention then it should be discussed in the DSDMP. The trigger values are of fundamental importance to the DSDMP and will need to be specified in detail prior to any sign off of the DSDMP.	The trigger values could not be set at the time of preparing the PER as the full baseline data set had not been collected. The Proponent now has 12 months of baseline water quality data which is being used to develop preliminary site specific thresholds. The final baseline water quality report is provided as **Attachment 6**. Final site specific trigger values will be included in the final DSDMP. Refer also to the Proponent response to Issue 3.9.
3.15	Post dredging report from CLU80 dredging	DEC – Marine Ecosystems Branch	MEB provided advice to the Environmental Regulation Branch of DEC on a report of marine monitoring results, 12 month post dredging for the previous port expansion. That advice raised three issues with respect to coral monitoring which do not appear to have been fully addressed in the current document; • That coral have only been identified to Genus level and the Proponent has indicated that taxonomic work to identify the common corals to species level would be undertaken – however, the current Port B DSDMP still refers to monitoring of Genus or Species, so it is not clear how much of this work has been done. • That trigger levels had been exceeded in the previous dredging campaign (although these were deemed to not require management action), and MEB recommended that the data acquired could be analyzed further to provide insight into potentially informative, robust and cost-effective indicators that may lend themselves to be applied in future compliance or on-going port environmental monitoring (e.g. particularly sensitive genera, size classes). As mentioned above, trigger levels have not been set and the DSDMP does not discuss how previous data can be incorporated to develop robust indicators for the current monitor program. • That in the "12 month Report", the Proponent asserts that dredging did not cause coral mortality but that such definitive conclusions about causality (or lack thereof) are not necessarily supported by the data. While it is accepted that thermal stress was an important factor in coral mortality, it is not possible to totally discount potential effects of recent dredging at Cape Lambert as also being among the determinants of the observed declines. None the less, the current PER and the DSDMP continue to assert that the dredging made no contribution to coral mortality.	The 60 tagged corals at the monitoring sites were only identified to genus level from the photographs. Further taxonomic work hasn't been done for the earlier Cape Lambert dredging. However additional baseline data collection on coral health has been undertaken as part of the coral monitoring that has been proposed for the DSDMP. This included the corals tagged for the earlier Cape Lambert dredging program, and an additional 7 sites for the Port B development. There will be a commitment to identify these corals to species where possible. Preliminary site specific trigger values (from Analite and Wet Labs loggers) have been developed as part of the final baseline monitoring report (**Attachment 6**). Final values together with exceedance time frames will be developed in consultation with the DEC. Historical water quality data will be used to inform the site specific trigger values where possible. The statement that previous dredging did not cause coral mortality is supported by data from both the coral health surveys during the dredging (SKM 2008), as well as the long term coral monitoring surveys (SKM, 2009c). The coral health surveys during the dredging identified that all of the monitoring sites recorded close to zero mortality during the dredging program. The first post dredging long term coral monitoring survey showed that no significant change in coral cover was observed at all of the three impact sites (SKM, 2008). There was some coral bleaching identified from this survey however it occurred at all of the impact and reference sites, indicating a regional occurrence of bleaching. The 12 month post dredging survey found that the coral cover increased at all 3 impact sites (SKM 2009c).
3.16	Dredge plume modelling	Department for Planning and Infrastructure –	The dredge plume modelling work undertaken by GEMS is consistent with the level of analysis undertaken for similar recent projects (Cape Lambert 2007, Gorgon Barrow Island) to assess the potential overall impacts of dredging (ie over the full duration of	The creation of dredge logs was undertaken by specialist engineering group JFA Consultants using a detailed, spreadsheet based method to replicate the actual activities of the dredging spread through the course

		Coastal Management Group	the project). It is considered that the hydrodynamic modelling is fairly robust, however there are a number of key processes within the overall modelling, for which significant assumptions have been made. These include: • The creation of the "dredge logs" – simulation of the dredging activities, type of dredge, method, duration, etc. It is not possible for these to be accurate, in particular if they have not been developed hand-in-hand with the dredge operator/contractor. • Properties of materials to be dredged – it is unclear how representative the cores collected for the "new wharf" are of the material in the dredge channel. A specific geotechnical assessment of the material to be dredged does not appear to have been undertaken and considered necessary. • The rates of sediment suspension generation from the dredge: cutting action; overflow discharge; dumping; rehandling. These will in turn all be dependent in part on the material being dredged. • The rates of suspended sediment generation from the dredge propeller wash. • The rates of sediment re-suspension. • The relationship between sedimentation, turbidity/light attenuation and coral health and the natural tolerance or susceptibility of the benthic habitat. • No consideration of the natural background turbidity or sedimentation, and in turn no consideration of the compounding impacts of dredging on top of natural occurrences. *(Responses to each of the above bullet points are provided separately in each paragraph in Response column)*	of a job (using hourly time steps), and is considered to provide an accurate representation of an actual dredging program. The dredge logs were assessed again and refined hand-in-hand with the dredging contractor after they were identified. Modifications to the model resulted. A site specific geotechnical assessment was considered warranted and was undertaken. As detailed in Appendix A12 of the PER, a large number of cores of the seabed were extracted by Coffey Geotechnics for work in relation to the new wharf. Particle size distributions (PSD) were determined from 19 of these cores, the locations (Figure 2.1 Appendix A and Table 2.1 in Appendix A1 of PER) being representative of the overall dredged area. For each core, three samples were analysed, representing the overburden, the mid-layer and the bottom-layer. Particle settling velocity values were determined for a range of particle sizes by CSIRO using a sedigraph. In the dredge log, the particle size distributions were defined at every time step based on the core analyses described above. There were seven particle size distributions used in the simulations of the dredging, representing consolidated and unconsolidated material near the surface at mid depth and at the bottom of the dredge footprint. This provides six particle size distributions and the seventh was the distribution assumed to be representative of the material crushed by the CSD and left on the sea bed for collection by a TSHD. Appendix A12 of the PER acknowledges that, for a TSHD, another source of turbidity is the wash from the propellers, particularly when the under keel clearance reduces as the hopper fills. In the modelling, this process was simulated using empirical algorithms developed during the recent Dampier Port Upgrade dredging program from measurements of turbidity in the vicinity of the TSHD propellers. Details of how rates of sediment suspension are calculated are provided in Appendix A12 of the PER. The relationship between sedimentation, turbidity/light attenuation and coral health and the natural tolerance or susceptibility of the benthic habitat were discussed in detail in the BPPH Assessment (Appendix A11 of the PER). A clear relationship between turbidity and light was derived by In situ Marine Optics (IMO) in the field and lab. This relationship was used in the dredge model to predict impacts, details were also provided in Appendix A11 of the PER. The results relating to coral health and turbidity thresholds from the earlier Cape Lambert monitoring program were also incorporated into impact predictions. The BPPH Assessment (Appendix A11 of the PER) provides details on the development of the coral thresholds. Appendix A11 also provides a detailed discussion on the sensitivity of other benthic habitats (including seagrass and algae) and threshold values for impact assessment. Finally, a detailed baseline survey of BPPH has been undertaken by the Proponent to collect additional information on other benthic habitats to better understand the relationship between sedimentation, light and turbidity on them. The results have been incorporated into the DSDMP. Dredge modelling takes onto account this and detailed information is

				provided in the BPPH Assessment (Appendix A11 of the PER) and modelling report.
3.17	Conservatism of modelling	Department for Planning and Infrastructure – Coastal Management Group	The level of conservatism adopted for each of these assumptions is not clear from the documentation provided. On previous projects, this has typically been high, and has led to a conservative estimate of the overall dredging impacts. This is considered a reasonable approach for weighing up the overall project impacts; however it is not considered beneficial for managing the project and may result in: • Inefficient siting of monitoring locations, typically beyond/outside areas of impacts • Development of unnecessarily high thresholds within environmental conditions. For example, allowance for a percentage loss of coral habitat which, due to the conservative nature of the original estimate, is very unlikely to be exceeded	The assumptions of the modelling used to predict zones of dredging impact and influence are consistent with the modelling undertaken and approved for the earlier Cape Lambert dredging program. However, the Proponent acknowledges that there will always be uncertainty associated with such modelling, and therefore has adopted steps to minimise the risk of causing unpredicted impacts. These steps include: • Section 9.2.2 of the PER presents worst-case and best-case impact scenarios based on the modelling. To ensure an over estimate of impacts was not calculated a 'most likely' case was used to calculate impacts and design a monitoring program. • Monitoring sites have been selected in consultation with DEC and include impact and reference sites (outside the zone of influence) as required by them. Logistical surveying considerations were taken into account. • These sites have all been surveyed in the baseline monitoring program and are logistically feasible for a regular monitoring program. • In order to minimise unnecessary monitoring at non –impact sites, only water quality is to be measured at these sites until triggers are exceeded. • The 13 monitoring locations that have been established vary with distance from dredging activity. • Coral health will only be monitored at predicted impact sites unless water quality triggers are exceeded. 'Far' reference sites (well away from the impact and influence zones) will be used to measure change should reference sites closest to the impact zone be exposed to the turbidity plume directly attributed to dredging and spoil disposal activities. • Water quality triggers are lower than the earlier Cape Lambert dredging program and are based on a more robust data set. It is not expected that there will be a large number of trigger exceedances not associated with potential impacts. • Comparing coral health with distance from source of impact will help confirm the zone of impact. Monitoring combined with tiered management will limit the risk of impacts exceeding those predicted and approved. • Monitoring sites have been selected in consultation with DEC and include impact and reference sites. • Monitoring will be used to validate model based predictions • Water quality triggers will be used to provide early warning of potential coral stress resulting from changes in turbidity levels. In relation to the matter of the development of unnecessarily high thresholds, the following actions have been taken to ensure scientifically robust and conservative thresholds are developed: • Thresholds are being based on the principle proposed by McArthur et al. (2002), which considers the intensity, duration and frequency of water quality parameters. This type of approach has been encouraged by the EPA and the DEC. • During the earlier dredging campaign at Cape Lambert, BPPH loss did not exceed those predicted by the model. The same approach

				and experiences are being used to predict BPPH loss during the Port B development. • Monitoring combined with a tiered-management response will be undertaken to ensure that the predicted level of damage is not exceeded during dredging. The proponent is committed to having the lowest loss of coral possible, and not just managing to the allowance. It is acknowledged that the percentage of loss allowed may be an over estimate based on the earlier Cape Lambert dredging, However, the Proponent believes that the predicted impacts are as accurate as possible based on the current information available.
3.18	Application of adaptive management	Department for Planning and Infrastructure – Coastal Management Group	For the management of the dredging activities, it is recommended that a preventative and impact minimisation "adaptive management" approach be adopted. It is suggested that this could be undertaken by continually re-forecasting the impacts of dredging throughout the works and adapting the dredging program to minimise the impacts. It is considered a reasonable forecast could be undertaken up to one week in advance and calibrated against field measurements taking the approach: • Forecast hydrodynamic conditions (utilising the BoM's forecast) • Forecast dredging activities, considering different scenarios • Forecast spatial extent of turbidity/sedimentation and assess potential environmental impact • Modify/adapt dredge activities to minimise impacts • Undertake field measurements for the purpose of model calibration (for example wind, wave, current, turbidity at cutter head/overflow/propeller/plume, sedimentation rates, etc) • Compare model predictions to field observations and calibrate model and • Repeat It is considered that this could be relatively simply undertaken, by utilising the existing plume modelling work. Field measurements also provide the opportunity to review the accuracy of the original model predictions of overall impacts	Section 9.2.2 of the PER describes zones of impact and influence as predicted by the modelling. Uncertainty in the model predictions is considered by presenting best and worst-case scenarios. The Proponent acknowledges the need for an adaptive management approach to minimise impacts to BPPH resulting from the Port B development. However, rather than achieving this through the process of re-forecasting the impact zones, the Proponent will manage adaptively by adopting a tiered-management response scheme that will be used should any defined management trigger be breached. This management approach is described in Section 3.8 of the DSDMP and includes repeated sampling of coral assemblages at sites at varying distances from the predicted impact zone. Further, different levels of management action will be implemented should water quality and coral mortality triggers be breached as a resulting of dredging related activities.
3.19	Contribute to scientific research	Department for Planning and Infrastructure – Coastal Management Group	In addition, it is suggested that the Proponent be required to contribute to scientific research, to improve our general understanding of key elements such as: the relationships between water quality and coral health including coral spawning; the rates of sediment re-suspension; and the natural background conditions. It is also recommended that all collected data and analysis be made publicly available so that our management and understanding continues to improve with subsequent projects.	The Proponent has undertaken over 24 months of baseline monitoring around the Cape Lambert region associated with both the earlier Cape Lambert dredging program and the Port B development. These background studies collected water quality data as well as coral condition at 13 monitoring sites at varying distances and directions from the proposed development. In addition, BPPH baseline monitoring data, including benthic habitats other than coral, was collected for intertidal and subtidal habitats. This has never been studied before at Cape Lambert or for other similar projects. These studies looked into the benthic composition and the correlation observed to the environmental variables recorded. The findings of a number of these studies will be published.
3.20	Recommendation for dredging	DEC - Environmental Management Branch	It is recommended that: Any approval for the project be contingent on the following dredging mitigation measures for marine fauna: • The Proponent using turtle deflector devices on all trailer suction dredges. • Pumps must be switched off when the drag head is lifted from the seabed. • Jet pumps be used to provide mobile water curtains during peak turtle nesting season. • A marine fauna observer to maintain watch during dredging and start-up and shutdown procedures applied should a marine turtle be observed within 50m of the drag head.	Acknowledged. Section 3.12 of the DSDMP states the following: • Turtle observation (incorporating a marine fauna observer) and response procedures including the application of a 300 m exclusion zone will be implemented during dredging and spoil disposal works, with all sightings of turtles to be recorded. • Turtle exclusion devices will be used on the dredge. • A water jetting system will be used to direct turtles away from the drag head to avoid direct contact. The jets will be switched on before the dredge is started and will remain on until the dredge is stopped.

				• The dredge pump will be stopped as soon as possible after the completion of dredging; ie once the line has been cleared of sediment in the dredged slurry and clear water is flowing. The Marine Turtle Management Plan (Appendix B2 of the PER) for the Port B development states that dredging equipment will utilise turtle exclusion devises. This has normally been a condition in recent sea dumping permits issued by the DEWHA for dredging/spoil disposal projects in the Pilbara.
3.21	Dredge selection for minimising harm to turtles	DEC - Environmental Management Branch	The PER does not propose best practice measures to reduce the potential impacts on marine fauna, in particular marine turtles, from dredging and spoil disposal. The Proponent intends to use a medium to large trailer suction hopper dredge. The type of drag head will influence the effect dredging can have on marine turtles. The results of investigations by the US Army Corps of Engineers into dredging and marine turtle interactions indicated that incidental take of turtles is greatest for trailer suction dredges that have a trailing suction drag head. In comparison, incidental take from cutter suction dredges or back hoes appeared minimal.	A trailer suction hopper is required to undertake the work for the Port B development as it is the principal means by which loose sediment material will be removed off the sea bed during the initial dredging, as well as removing cut material placed by the cutter suction dredge. As well as the management outlined in the Proponent response to Issue 3.20, the Proponent will train all crew on the procedures to be followed in the event of a turtle sighting prior to the commencement of dredging activities by a qualified person. The type of dredge proposed and the exclusion devices to be fitted will be of a similar type to that used commonly during dredging projects in Pilbara waters. The management outlined aim to reduce any impacts to turtles.
3.22	Recommendations for protection of benthic primary producers habitat values	DEC - Environmental Management Branch	It is recommended that: • Prior to the commencement of seabed disturbing activities such as dredging, the Proponent undertakes benthic producer/habitat type mapping within areas currently broadly defined in mapping as 'benthic habitat' to a level that allows for monitoring of changes to/loss of sensitive benthic primary producers such as coral. This level of mapping is required to provide for meaningful comparison of monitoring results against EPA requirements and as a minimum this should occur within the predicted zones of impact and zones of influence and reference sites. • Prior to the commencement of seabed disturbing activities, the Proponent develops a DSDMP to the requirements of DEC. • The proponent agrees to demonstrate that the following outcomes are being achieved through regular reporting for the duration of the dredging operation and six months following completion of dredging and disposal operations: o Net mortality of coral not to exceed 0% within management units 1a and 1b (Zones of No Impact) o Net mortality of coral not to exceed 10% in management units 2, 3 and 4. o Net mortality of coral not to exceed 0% within the predicted zones of influence of management units 2, 3 and 4 o Net mortality of mangroves not to exceed 2% within management unit 5. • In addition to the above prescribed limits of acceptable loss, indicators of sub-lethal stress and water quality parameters should be applied to provide triggers for management responses to reduce the risk that coral health criteria are exceeded. Possible management responses should be specified in the DSDMP. • The proposed DSDMP includes methods to identify and predict significant mass coral spawning periods that could occur during the dredging program. • Dredge and spoil disposal activities are suspended five days prior to the predicted commencement of mass coral spawning or as soon as coral spawning is detected if prior to that predicted time, and recommence seven days after the commencement of spawning. • The option of disposing increased spoil volumes at Spoil Ground 3 as a partial or	Section 6.5 of the PER presents habitat maps for each of the following BPP: coral, macroalgae, turf algae and seagrass. Monitoring sites for each habitat type have been established and 12 months of baseline data have been collected and analysed for hard corals, macroalgae and turf algae. Detailed descriptions of the baseline data are contained in the following reports: • Port B BPPH Monitoring Report (**Attachment 7**) • Intertidal Report (**Attachment 8**) • Abundance and Distribution of Inter and Subtidal Benthic Habitats in the Cape Lambert Area: 2008 Survey (Appendix A10 of the PER) Thus, the Proponent has 12 month of quantitative data relating to coral, macroalgae and turf algae assemblages (abundance and assemblage structure) from which to assess the potential effects of dredging and spoil disposal during the Port B development. The draft DSDMP for the Port B development is being finalised and will describe the methods to monitor coral health, coral spawning and water quality during the Port B development. The DSDMP will contain the proposed coral-health triggers to instigate management should dredging related coral mortality be reported within any of the designated management units. The Proponent will submit the DSDMP to DEC for review. The draft DSDMP was provided in Appendix B1 to the PER. The DSDMP will include: • Net mortality of coral not to exceed 0% within management

			full alternative to other spoil grounds is considered as a means to further mitigate impacts on BPPH of Cape Lambert and to further distance re-suspension impacts from the coral assemblages of Delambre Island.	units 1a and 1b (Zones of No Impact) • Net mortality of coral not to exceed 10% in management units 2, 3 and 4. • Net mortality of coral not to exceed 0% within the predicted zones of influence of management units 2, 3 and 4 • Net mortality of mangroves not to exceed 2% within management unit 5. Coral spawning methods are yet to be finalised. These will be incorporated into the final DSDMP, which is to be finalised subsequent to these responses to submissions. Section 9.2.2 of the PER describes in detail the modelling results used to predict zones of influence and impact resulting from dredging and spoil disposal. To reduce the level of uncertainty, best and worst case impact scenarios were modelled. Even under the worst-case scenario, corals at Delambre Island are not predicted to be impacted by dredging activity (Figures 9-3 and 9-5). For this reason, increasing the volume of spoil at Spoil Ground 3 is not considered a necessary up-front management strategy; however, increased utilisation of Spoil Ground 3 remains an option should existing management strategies prove less effective than anticipated.
3.23	Protection of benthic primary producers habitat values	DEC - Environmental Management Branch	This proposal includes the dredging and ocean disposal of up to 16 Mm^3 at three spoil grounds to the north and north-east of Cape Lambert. The Proponent has undertaken dredge plume dispersion modelling. This model was used during the development of Port A and was subsequently validated. The Proponent has not undertaken mapping of specific BPPH types, but rather, mapped BPPH generically as hard substrate occupied by mosaic coral, turf and macro-algae (section 6.5.2). The cumulative loss analysis with reference to EPA Guidance 29 has then been undertaken using the areas of this combined habitat type within five defined management units (Figure 9-2). Table 9-4 provides a summary of this cumulative loss analysis indicating that predicted BPPH losses are consistent with the categories A or E (of EPA Guidance 29) appropriate to each management unit. However, the application of this analysis to implementation of the project will be problematic as it will not be possible, based on current mapping and classification, to effectively monitor and determine the level of loss of each specific habitat type (such as coral) within the overall 'BPPH' category in each management unit. Given the relatively high sensitivity of specific benthic primary producers such as coral, any approval of this proposal should be contingent on the assignment of appropriate limits to loss of specific benthic habitat types (eg coral). This will require the Proponent to undertake fine scale habitat mapping (particularly of the zones of impact and influence) prior to seabed disturbing activities. The limits outlined in Recommendation (refer Item 3.22 above in this Table) are consistent with the figures modelled by the Proponent, the predictions in the PER and targets outlined in EPA Guidance Statement 29. The Proponent proposes to use water quality monitoring results as an early warning indicator system to advise on whether there is risk of breaching/exceeding the limits of coral loss. The comparison of median values of impact sites with the appropriate upper percentiles of reference sites is recommended in the event that adequate seasonal data on background levels for each site are not available. Further to this, triggers for sub-lethal stress (such as percentage cover of bleached coral) are also required as early warning indicators to trigger management responses and prevent coral health criteria being exceeded.	The statement that "*The Proponent has not undertaken mapping of specific BPPH types* ....." is incorrect. Section 6.5.2 of the PER shows individual benthic habitat maps for mangroves (Figure 6-11), hard corals (Figure 6-12), seagrasses (Figure 6-13), macroalgae (Figure 6-14) and turf algae (Figure 6-15). Baseline data for all BPP types, with the exception of mangroves, have been collected and analysed. Although 0.3 ha of mangroves will be directly impacted by construction activity, no regionally important mangroves will be impacted nor will dredging and spoil disposal activities impact these BPP (refer Plate 6-7 and Section 9.2.2 of the PER). Baseline data and impact predictions for corals, macroalgae and turf algae at Cape Lambert are comprehensively described in: • Port B BPPH Monitoring Report (**Attachment 7**) • Intertidal Report (**Attachment 8**) • Abundance and Distribution of Inter and Subtidal Benthic Habitats in the Cape Lambert Area: 2008 Survey (Appendix A10 of the PER) • BPPH Assessment (Appendix A11 of the PER) In the event of an impact, baseline data will provide a basis to separate natural variation in the abundance of BPP from potential variation associated with the Port B development. The Port B development BPPH Baseline Report describes comprehensive data that encompasses the natural (spatial and temporal) variability in BPPH (algae and coral cover) and coral health in the Cape Lambert region for a one-year period. Section 3.10 of the draft DSDMP provides details relating specifically to the coral health monitoring program. It includes a description of the monitoring objectives, methods to achieve objectives and potential management actions. Coral has been mapped and qualified at 13 monitoring locations and data collected over a 12 month

			Spoil Ground 3 is located the furthest from the sensitive benthic communities of Delambre Island (Figure 4-3). It is noted that Spoil Grounds 1 and 2 will be used to full capacity, however Spoil Ground 3 will not be used to full capacity (Table 3-2). It is therefore recommended, subject to consideration of weather and other conditions, that Spoil Ground 3 is utilised to its full capacity first in preference to the other spoil grounds with the aim of minimising impacts on sensitive receptors at Delambre Island and reducing the overall risk of exceeding coral mortality limits. To provide some degree of confidence that the limits of loss for BPPH and their habitat will not be exceeded, the Proponents' proposed DSDMP should be subject to DEC review. This will ensure that suitable impact and reference monitoring sites are selected and that appropriate methodologies are applied to record impacts on benthic primary producers during the dredging program.	period. These sites were selected in consultation with DEC. Sections 3.8.2 and 3.10 of the DSDMP state that the Proponent will use water quality monitoring as an early warning of potential coral stress. If water quality triggers are breached due to dredging activity, divers will assess corals for signs of stress and mortality. Evidence of coral mortality will trigger management action to mitigate further impact. Section 9.2.2 of the PER describes in detail the modelling results used to predict zones of influence and impact resulting from dredging and spoil disposal. To reduce the level of uncertainty, best and worst case scenarios were modelled. Even under the worst-case scenario, corals at Delambre Island are not predicted to be impacted by dredging activity (Figures 9-3 and 9-5 of the PER). For this reason, increasing the volume of spoil that should report to Spoil Ground 3 is not considered a necessary up-front management strategy; however, increased utilisation of Spoil Ground 3 remains an option should existing management strategies prove less effective than anticipated. This option will come with a significant economic cost to the Proponent due to the additional travel time/distance. The Proponent expects and welcomes a review by DEC of the DSDMP and the coral health monitoring program contained within it.
			PART 4: WATER SUPPLY AND WATER EFFICIENCY	
			4.1 Water supply	
4.1.1	Separate approval for water requirements	Department of Water	The use of water in coastal areas of the Pilbara is a major issue for the DoW. The ability of current water supplies to meet future demand is of some concern due to the current infrastructure, reliance on cyclonic recharge and the ability to maintain environmental and cultural values associated with water sources. Potable water currently used at Port A and the Town of Wickham is provided by the Water Corporation (Corporation) and is sourced from the West Pilbara Water Supply Scheme (WPWSS) that is Harding Dam and the Millstream Aquifer. The PER states that construction water will be met by this scheme water and any shortfalls will be met by temporary water sources. The WPWSS is close to full capacity and potentially does not have the licensed capacity to deliver the stated volumes. The scheme is also operating above sustainable yield of the Millstream Aquifer, and although it is not a primary source, should it be required for unforeseen reasons, there could be considerable stress placed on the system. The PER fails to outline any contingency strategies, and clearly identify how they intend to meet temporary water supply demands, as well as show strategic consideration of how water supply will be delivered in the medium to long term. The PER states that a Pre-Feasibility Study has been conducted, and indicates that a borefield at Bungaroo, connected to the existing WPWSS is a preferred option to augment water supply. The DoW strongly supports this concept but there is not enough information provided to properly assess the borefield and delivery infrastructure as a viable option. The Proponent states that the environmental assessment of this source will not be submitted to the EPA until 2009/2010 – separately from the Cape Lambert Port B Development PER. Considering that water supply is a crucial component of the project, it would be	Based on the existing abstraction licences, the Proponent believes it has sufficient entitlements to meet its expected coastal demand for water. However, recognising the increasing demand on the WPWSS and potential changes to abstraction licences, the Proponent is jointly working with the Water Corporation to identify and develop WPWSS augmentation options, including the development of a desalination plant on the Burrup and/or additional inland bore field in the Bungaroo Valley, to ensure adequate supply of water to meet current and future demand. The Proponent is progressing its investigations into the development of the Bungaroo Valley independently of other expansion activities. The Proponent anticipates referring the Bungaroo bore field option to the EPA in September 2009. There have already been a number of environmental surveys undertaken within the valley. This information will be utilised in preparation of the referral and supporting document. Additional baseline studies (flora, vegetation, fauna and subterranean fauna) are scheduled for the latter half of 2009. In addition, a number of other technical studies (including hydrogeological studies) are currently underway to support the environmental and other regulatory approvals for the proposal. This proposal will be submitted separately as the proposed water supply is designed to supplement a range of areas, not just the Port B development. The Water Corporation is continuing to investigate the desalination option.

			preferable to assess the water requirements together. The DoW considers that water supply requirements for the proposal should be assessed either as part of the overall project proposal or parallel to it. To separate the assessments spatially could place considerable pressure on the DoW and Corporation should the port proposal be approved before water requirements have been assessed. In summary, the DoW does not have enough information to appropriately assess this project from a water resource management perspective. It is imperative that water requirements be assessed as part of, or in parallel to this proposal, and this requires the stated additional information.	The decision for the final WPWSS upgrade will involve the best solution to meet the demand from the two studies, or a combination of the two concepts. The water demand of the operational phase of the Port B development is included in the demand calculations for this study of supply options.
4.1.2	Water source	Department of Health	Although the existing scheme by the Water Corporation should suffice as the water source for this proposal, a secondary source has been identified to improve supply reliability. The most favourable secondary source of drinking water is from the Bungaroo bore field. Limited detail has been provided as to the level of disinfection for the potable proportion of this source's input to existing scheme supplies. Once this source has been fully evaluated, its use would need to comply with the Australian Drinking Water Guidelines (ADWG).	Preliminary results from water quality sampling and testing indicate the water from the aquifer in the Bungaroo Valley complies with the Australian Drinking Water Guidelines (ADWG). The Proponent will continue to collect and analyse samples throughout the development of the Bungaroo borefield to ensure compliance. This proposal will be subject to a separate environmental approvals process. The need for water treatment facilities to meet ADWG is included in the study of options for the Bungaroo and desalination studies currently in progress.
4.1.3	Access to Bungaroo	DEC – Industry Regulation - Pilbara Region	Water supply for the Cape Lambert Operation is currently sourced from the West Pilbara Water Supply Scheme (WPWSS). The PER states that the water supply requirements for the Port B development will be ~2.6 GL annually. Given that the WPWSS is currently above its sustainable yield, serious consideration needs to be given to alternative water sources. The Proponent has identified a preferred option of using water from the Bungaroo Mine. It should be noted that this mine has not yet been approved by the EPA and in reality is some distance off. Although the DEC supports the reuse of mine water, there may also be some significant issues with the dewatering of the Bungaroo aquifer, in particular stygofauna and/or troglofauna.	Any inland borefields developed by the Proponent and/or Water Corporation will comply with DoW requirements. The proposal to develop a water supply from a borefield located at Bungaroo Valley is unrelated to any Bungaroo mine development at this point in time. The water from the borefield will be abstracted via a series of bores spaced along the valley providing flexibility in operation. Should mining of Bungaroo Valley occur at some time in the future, the operation of the borefield will be reviewed to take into account the presence and operation of a mine site in proximity to the borefield.
4.1.4	Additional investigations required	DEC – Industry Regulation - Pilbara Region	More investigations into a secure water supply needs to be conducted. The Proponent may not be able to rely on the approval of dewatering at Bungaroo at such an early stage.	Refer to the Proponent response to Issue 4.1.1 and Issue 4.1.3. It should be noted that any proposal to develop a water supply from a borefield located in the Bungaroo Valley is unrelated to the possible future Bungaroo mine development at this point in time. Water supply from the Bungaroo Valley for coastal water use will not be reliant on mine dewatering operations. Provision of water supply under the WPWSS remains the responsibility of Water Corporation, and other options (including desalination) are being evaluated by that agency.
4.1.5	Timing for confirmation of temporary and permanent water supplies	Environmental Protection Authority	The PER includes a statement that the preferred option of a bore field at Bungaroo will be referred to the EPA in 2009/2010. A temporary desalination plant is also referred to in the PER. In relation to the environmental assessment time frames for the Cape Lambert Port B proposal, when will the Proponent be in a position to confirm both temporary and long term water sources for the port development?	As stated in the Proponent response to Issue 4.1.1, the Proponent anticipates referring the Bungaroo borefield option to the EPA in September 2009. This proposal, and any subsequent assessment process related to it, is being submitted separately as the proposed water supply is designed to supplement a range of areas, not just the Port B development. The temporary water supply source for the construction phase (including the desalination plant option stated in the PER) will be confirmed around Q1 2010. Any option that requires environmental assessment or licensing will be progressed at that time, outside the Port B development approval process.
			4.2 Water efficiency	
4.2.1	Water efficiency	Department of Water	The Proponent has acknowledged the critical nature of water in the Pilbara and has committed to water-use efficiency measures. The DoW supports the application of the Port Water Management Plan and recognises the significant commitment the	Comment noted. No specific response required from the Proponent.

			Proponent has made to managing their water assets effectively. As a result, the DoW has confidence in the approach specified.	
4.2.2	Water Management Plan	DEC – Industry Regulation - Pilbara Region	The existing Water Management Plan for Cape Lambert needs to be updated to include the Port B Development.	A commitment has been made that the existing Water Management Plan (WMP) will be updated to incorporate the Port B development (Section 8.3.3 of the PER). This will take place prior to commencement of operation of the Port B development. A separate Water Management Procedure has been prepared to cover construction activities; this forms part of the CEMP (EMP 013 of Appendix B3 in the PER).
			4.3 Dewatering	
4.3.1	Determination of groundwater quality	DEC – Industry Regulation - Pilbara Region	The Proponent will undertake dewatering at the car dumpers using sump wells. During construction the Proponent predicts that this will be up to 250 ML/a. Ongoing dewatering will require disposal/use of up to 200 kL/a. The excess water is proposed to be used for dust suppression however the Proponent has identified that this is dependent upon the water quality parameters (may be brackish to seawater). DEC recommends that the Proponent needs to determine the quality of the groundwater in these areas, and depending on the quality outline their proposals for discharge of this water. In the case of fresh water then the use of the water around the site for dust suppression or other proposes is favoured. If the water quality is more saline then discharge to the ocean, through the power station outfall or other discharge options need to be considered. It is also worth noting at this stage that if the project is given Ministerial approval, that discharge of excess water (depending on end disposal and volume) will be regulated via Part V works approval and/or licence conditions relating to water quality targets based on ANZECC quality guidelines or background levels and reporting to the DEC.	Groundwater monitoring around Cape Lambert shows that the TDS in existing bores ranges between 1500 and >4,000 mg/L, indicating that groundwater is expected to be brackish to saline. This water can be used for dust suppression; however it will be limited to unsealed roads and areas of the plant away from any iron ore deposits (as it is detrimental to ore quality). If water is to be discharged offsite it will be required to be tested as per Part V of the EP Act as was done for Cape Lambert Car Dumper 1 dewatering which currently discharges to Sam's Creek to the east of the Cape Lambert site.
			PART 5: PLANNING/COASTAL PROCESSES	
			5.1 State Planning Policy 2.6 State Coastal Planning Policy	
5.1.1	Planning for climate change	Department for Planning and Infrastructure	It does not appear that the impacts of climate change have been taken into account in the planning of the Cape Lambert Port B facility. It is noted that the study area is largely made up of low lying, flat coastal plains, including saline drainage which is currently periodically inundated during high tide. Therefore it is vital that the increasing risk related to sea level rise and climate change is considered in the design of the development and intended lifetime of the facility. It is recommended that climate change impact assessment be undertaken by the Proponent. It is important that the siting and design of the facility take into consideration, in accordance with SPP2.6 (Western Australian Planning Commission's State Planning Policy No. 2.6: State Coastal Planning Policy), the potential impacts of climate change over the next 100 years.	Climate change and the risk of sea level rise were taken into account in the design and intended lifetime of the facility. With reference to SCPP 2.6, the design and citing of the proposed Port development site has taken into consideration the impacts of climate change by addressing the following issues: • Ensuring the port and major infrastructure are sufficiently setback from the coastline to provide protection from coastal processes; and • Ensuring the port and major infrastructure are located above a flood level which takes into consideration the joint probability of concurrent increased ocean levels, significant ocean wave height and the impacts of freshwater flooding. It should be noted that the proposed development is approximately 100m from the assumed horizontal setback datum which is positioned to avoid risk of damage from coastal processes to major plant and key infrastructure. In the majority of areas, the Port B development is further setback as a result of other requirements. The Proponent also refers to 'Schedule One – Section G" which provides an exemption (subject to approval by WAPC and relevant agencies) to coastal processes setbacks on the grounds that the

				development is a port facility which is reliant on it being optimally positioned with minimal impacts to the environment and community and closest proximity to the wharf. A detailed flood and drainage assessment was undertaken by a specialist hydrology consultant to determine the stockyard design level to provide protection from flooding impacts associated with a 1 in 100 year annual recurrence interval (ARI) immunity for the stockyard and surrounding infrastructure. The assessment considered the impacts of freshwater flooding, storm surge and the inclusion of flood protection bunds. Recent storm surge data was collected as part of works undertaken for the Shire of Roebourne and updated into an existing model for the investigation area. The storm surge levels considered the joint probability of concurrent increased ocean levels and significant ocean wave height to ensure storm immunity of the Port B development facility. Furthermore, the design of the wharf structure has allowed for additional requirements of around 0.5 m (for dolphins) and 0.2 m (for the actual wharf and jetty structure) to accommodate any rise in sea levels.
5.1.2	Coastal setback requirements	Department for Planning and Infrastructure	With respect to the setback requirements for physical processes under SPP2.6 (Section 5.1[xxii] and [xxiii]), Schedule One prescribes the guidelines for the siting of development. The specific objective is to allow for the fluctuation of natural coastal processes and to provide a setback that protects development from coastal processes and to provide a setback that protects development from coastal processes by absorbing the impact of severe storm sequence; allowing shoreline movement (chronic erosion and accretion) and allowing for global sea level rise. The coastal processes setback is applied to all coastal developments, with a number of exemptions, including industrial and commercial development that is demonstrably dependent on a foreshore location (Schedule One G[c]). It is considered acceptable that the Cape Lambert Port B proposal fits within this exemption. However, it is recommended that there be an assessment of shoreline stability, including the impacts of coastal inundation and erosion on the facility and subject site to ensure that any risk of damage from coastal processes can be avoided.	A review undertaken by JFA Consultants Pty Ltd (cited in Section 5.3.5 and 6.4.2 of PER) examined the meteorological, oceanographic, geological and coastal geomorphologic condition at Cape Lambert. Shoreline and vegetation movement was mapped (over the period from 1970 to 2007) commencing prior to the establishment of the Cape Lambert operation. This enabled an assessment of the historical movement of the shoreline and changes to the beaches to be determined. The review concluded that the current Cape Lambert coastline is stable and there was unlikely to be any further significant coastal movement. Whilst there has been evidence of (mostly) erosion over the 37 year period, this has been primarily due to stabilisation and development of the Cape Lambert peninsula and dune systems. The areas mostly affected (to the west of Cape Lambert) are now in an eroded state with very intermittent beach pockets and the scope for further erosion is limited. In the remaining areas, the rate of erosion and accretion (around 0.2 m/a) was considered small. As a result, any further developments at Cape Lambert are unlikely to cause further significant near shore geomorphological impacts. The review states that the beaches to the west of the Cape Lambert development have been cut off from sand supply (wind blown from land side and/or from adjacent pocket beaches) and due to their orientation to approaching cyclone events, have been especially affected by past shore works. However, the current state of these beaches is such that further shoreline erosion is not possible due to the lack of available sand. It is also highly unlikely that further development will have further consequences on the coastline geomorphology on the eastern beaches, given their current state. Refer also to the Proponent response to Issue 5.1.3 with regard to the flood and drainage assessment that has been undertaken and storm surge assessments.
5.1.3	Development in cyclone prone	Department for Planning and	Locations north of the 30 degree line of latitude are considered to be within a cyclone prone area as per SPP2.6. Storm surge that accompanies coastal cyclones can	A flood and drainage assessment was undertaken which considered the impacts of freshwater flooding, storm surge and the inclusion of flood

	areas	Infrastructure	inundate large areas a significant distance inland from the high water mark and pose potential risks to infrastructure and safety of lives. It is recommended that development be set back from any areas that would potentially be inundated by the ocean during the passage of a category 5 cyclone tracking to maximise its associated storm surge. Furthermore, any development that may pose a pollution risk in the case of leakage or damage from a passing cyclone should be set back sufficiently to reduce the impacts on adjacent coastal and marine environment.	protection bunds. Recent storm surge data collected by GEMS as part of work undertaken for the Shire of Roebourne was included in the model. As stated in the Proponent response to Issue 5.1.1, the storm surge assessments considered the joint probability of concurrent increased ocean levels and wave height. The stockyard height has been set to have immunity from a 100 year ARI immunity for the stockyard and surrounding infrastructure.
5.1.4	Terrestrial and marine environment	Department for Planning and Infrastructure	SPP2.6 Section 5.1(xii) requires the protection of significant natural features of the coast, which includes features significant as coastal habitats and for their biodiversity, visual or wilderness values. As per the PER, the land-based footprint of the proposal is approximately 340 ha. While sections of this area is degraded and previously cleared, a significant area will require further clearing. Clearing should be minimised and coastal habitats protected where possible. This includes ensuring that access to the beach is formalised to prevent employees trampling through dunal vegetation and contributing to blowouts. Signage and education will assist in reducing the impact on the coastal environment. It is noted that the study area is adjacent to the proposed Dampier Archipelago Marine Park and the study area is under consideration by DEC for a potential marine reserve. It is therefore important that development proposals in the region are appropriately located and managed to reduce impacts on the marine environment. In this regard, any development located on or adjacent to the coast should not discharge waste and/or stormwater in a manner that may degrade the coastal environment including coastal and marine waters and ecosystems (SPP2.6 Section 5.1[xiii, xiv]). While the PER states that the long term impacts on marine biodiversity will be minor, mitigation of any potential impacts through the development of management plans should be required. It is noted that a number of management plans are proposed, including: • DSDMP • Marine Turtle Management Plan • Dust Management Plan • Water Management Plan • Cultural Heritage Management Plan DPI strongly supports the preparation of these plans, along with continual monitoring of impacts to ensure that any permanent or negative implications of the proposal are minimised.	The Port B development has been designed to minimise its clearance footprint and to protect the coastal habitat as much as is practical given the nature of the development. The Proponent will provide an appropriately designed security fence around the perimeter of the Port B development stockyard and associated facilities to ensure security and safety of the public using Boat Beach Road and environs. The security fence will provide a physical separation of port related vehicle traffic from public vehicles on Boat Beach Road. The Proponent does not believe the establishment of formal public pathways to the beach is warranted given the situation at Boat Beach. Many 4 wheel drive vehicles are driven directly onto Boat Beach off the end of Boat Beach Road (the yacht club/ramp and car pack area), so pathways would have little value. The Proponent has previously erected cautionary signage at Boat Beach and above Bells Beach advising of the presence of breeding turtles and of the need to keep vehicles off beaches and of the need to minimise light during the turtle breeding season. The PER outlines the predicted impact of the Port B development on Boat Beach. Section 9.2.2 of the PER outlines the outcomes of the dredge plume modelling predictions and presents the following potential zones of impact and influence from turbidity (best case and worst case scenarios) and sedimentation (best case and worst case scenarios). The PER states (Page 9-38) that the estimated extent of the dredge plume shows that the Port B development dredging program will not impact or influence any area of the proposed Dampier Archipelago Marine Park. The Proponent will finalise and implement the various management plans provided in the PER and acknowledges the support for the preparation of the plans and the view of the DPI on monitoring of impacts to ensure that any permanent or negative implications of the proposal are minimised. The Proponent will implement monitoring and management measures that are practical and targeted. Coastal and marine ecosystems will be protected through the implementation of the Water Management Plan (Appendix B7 in the PER) and regulation of any discharges under Part V of the EP Act. Refer to the Proponent responses to Issue 1.5.1, Issue 1.5.2, Issue 1.5.3 and Issue 1.5.5 with regard to waste water and stormwater/site drainage management and licensing of discharge points to protect the marine environment.
5.1.5	Public interest and access	Department of Planning and Infrastructure	The adjacent beaches such as Boat Beach and Bells Beach are popular recreational areas for local communities and tourists for fishing, swimming and other personal activities. The Boat Beach boat ramp and Port Walcott Yacht Club are within the footprint of the proposal. The Shire of Roebourne's TPS incorporates objectives for the	The Proponent acknowledges that Boat Beach (or the Wickham Back Beach) incorporating the boat ramp and Port Walcott Yacht Club, is a popular recreational area for the local community and probably also for seasonal tourists. Section 10.4.6 of the PER states that Boat Beach

			Cape Lambert area, including retaining access to key coastal recreational nodes within the precinct, in particular Boat Beach. The PER states that "options regarding public access to Boat Beach are under review" (PER Page 10-12). SPP2.6 requires the provision of public access to the coast to allow for recreational opportunities. However this access is to be consistent with the values and management of the area, including interests of security, safety and protection of coastal resources (SPP2.6 5.1[iii]). While the development should not impede public enjoyment of the adjacent beaches, access and pathways should be formal, with adequate signage and fencing to ensure security and safety of the public utilising the adjacent beach for recreational purposes.	receives high visitation by local residents, especially from Wickham and Roebourne, but may also receive some visitation by tourists. Vehicular access to Bells Beach has been restricted in recent years (to prevent vehicles being driven onto the beach); this has resulted in a suspected much reduced usage of that beach by the public, except by local volunteers during the turtle breeding season. The Shire of Roebourne TPS No. 8 town planning scheme objectives specifically for Cape Lambert are cited in Section 7.6.2 of the PER. The Proponent will ensure continued road access to Boat Beach is maintained. Figure 4-1 in Section 4.1 of the PER shows an indicative route for access to Boat Beach around the Port B development. This route is provisional and will be optimised during final design. No formal road access to Bells Beach is proposed; either from the existing car park area or from any re-aligned access road. Refer to the Proponent response to Issue 5.1.4 with regard to the provision of a security fence around the port facilities (precluding entry by the public and access to the beach by employees), the establishment of formal public pathways and signage.
5.1.6	Maritime planning	Department of Planning and Infrastructure	The Maritime and Aviation Policy Branch of DPI do not have any comments at this stage however may provide recommendations on project conditions relating to port/maritime related approvals at the appropriate stage of the approvals process.	Comment noted. No specific response required from the Proponent.
			5.2 Buffer zone (between Cape Lambert and Point Samson)	
5.2.1	Buffer between Cape Lambert and Point Samson	Shire of Roebourne	Additional expansion of export capacity at Cape Lambert will place further pressure on the interface between the operations at Cape Lambert and the residents and urban assets of Point Samson. The Shire, the Proponent and DoIR (DSD's predecessor) have been considering the future of a large Ministerial Reserve [35813] which provides a natural buffer between the two areas. The land is still reserved to the Minister for State Development for industrial purposes and is also currently zoned for "Strategic Industry" under the Shire of Roebourne TPS8. The Shire and the Proponent have been in broad agreement on the most appropriate status for the reserved land. DSD has now indicated its willingness to work with the Shire and the Proponent to recommend to their Minister that the land be re-designated as buffer area, with a small portion that lies outside the area that is environmentally sensitive being retained for industrial purposes. The Shire and the Proponent are not currently in agreement over a relatively minor area north of the Cape Lambert access road and adjacent to the eastern boundary of the Cape Lambert lease. The Shire recommends that any subsequent EPA report on the Port B proposal includes a recommendation to Government to facilitate the re-designation of Reserve 35813 for the principal purpose of providing a landscape buffer between the Proponent's Cape Lambert operations and the Township of Point Samson.	The Proponent has participated with the Shire of Roebourne (and DoIR/DSD) in efforts to secure the re-designation of Reserve 35813 (between the Cape Lambert operations and the town of Point Samson) to "Industrial Buffer and Landscape Protection". The Proponent supports this initiative and the suggested recommendation made by the Shire that the Government facilitate the re-designation as once the buffer zone is secured, it will ensure adequate separation between the Point Samson town and the Cape Lambert operations. Further discussions may be required on specific boundaries of any buffer zone near the Cape Lambert lease, An additional benefit from the establishment of this buffer zone is the retention of coastal dune habitat that supports *Lerista nevinae* (refer the Proponent responses to Issue 2.2.1, Issue 2.2.2 and Issue 2.2.3).
5.2.2	Proponent position on buffer zone	DEC – Industry Regulation - Pilbara Region	One issue that is worth noting is the use of the area between Point Samson and the port operations as a buffer zone. The community, through the CCEF have maintained that this area needs to remain as a buffer. This will avoid the issues that are present in Port Hedland where poor planning has lead to an ongoing air quality problem. The Proponent, at CCEF meetings, has supported the reserving of this area for buffer purposes.	Refer to the Proponent response to Issue 5.2.1. The Proponent concurs with the points raised and re-iterates its position on the buffer zone as has been previously stated in CCEF meetings.
5.2.3	Proposed Sam's Creek Buffer Zone	Point Samson Community Association	The PSCA has worked very hard with the Proponent and the Shire of Roebourne to facilitate the rezoning of Vacant Crown Land between our town and Cape Lambert to that of Conservation and Buffer Zone. Indeed, many senior representatives of a range of Government Agencies have visited and been very supportive of such an approach.	Refer to the Proponent response to Issue 5.2.1 and Issue 5.2.2. Senior management of the Proponent has made approaches to Government agencies over recent years on behalf of the community advocates of the buffer zone and the outcome of those approaches has

			The desirability of a Buffer Zone is compelling and any proper consideration of the pollution and planning issues at places like Port Hedland, Dampier and Esperance makes the requirement fairly obvious. Best practice town planning makes this a non-negotiable requirement in our view. The PSCA is very disappointed that the Proponent has failed to meet its previous commitments to us to vigorously pursue this issue with Government and work such a recommendation into the environmental approval process for this project. The recent change of Government and restructuring of key Government Agencies combined with the shuffling of senior Rio personnel appears to have effectively stalled our Buffer zone project which is a huge letdown for our community. With the above in mind, the PSCA requests that the EPA and Minister show leadership on this issue and demand the appropriate establishment of a suitable Buffer Zone as a precursor to project approval.	been reported back to the advocates. The Proponent supports this proposal, but has little legal or other capacity to ensure its implementation; it is primarily a matter for Government (state and local) and for the local community to advocate. Proponent support for the buffer zone will be maintained, independent of the outcome of the environmental approval process for the Port B development; however, implementation of the buffer zone will provide benefits to the Port B development by maintaining the distance separation between industry and the Point Samson town.
			5.3 Coastal processes	
5.3.1	Coastal processes	Department for Planning and Infrastructure – Coastal Management Group	It does not appear that any assessment of the coastal/shoreline stability has been undertaken. It is recommended that the impacts of coastal processes, including coastal inundation, be assessed to ensure that as a minimum, adequate measures are in place to minimise the risk to life and the risk to the environment.	Refer to the Proponent responses to Issue 1.5.1 and Issue 1.5.2.
			PART 6: MARINE MANAGEMENT	
6.1	Risk management from increased shipping	Shire of Roebourne	The full implementation of Port B [Stage 1] would result in a huge increase in shipping movements, however the PER does not address the management of these risks in any meaningful way. The only reference to the management of shipping is in a single paragraph in Section 9.3.3 that states that “spill response planning is in place”. While the management of shipping movements and the specification of marine management arrangements may not be a central focus for environmental assessment the environmental risks that may result from a lack of marine management and regional response capabilities to minimise risk and provide the best possible response arrangements is a matter that should be considered. Marine management for the Cape Lambert area is currently controlled by DPI-Marine from Perth. This situation raises questions around the ability of these current arrangements to provide for the most appropriate management of shipping and other marine activities in this area. The Shire suggests that any subsequent EPA report on the Port B proposal include a recommendation that the management of shipping and associated marine activities in the Cape Lambert area be reviewed with the objective of specifying the most appropriate management arrangements and, as required, statutory controls.	The regulatory management framework for Port Walcott/Cape Lambert is outside the direct control of the Proponent. Irrespective of the regulatory regime, the Proponent seeks to manage its operations in accordance with Current Best Practice principles, including in the field of spill response/management. For example, the same strategies/procedures in relation to marine management are applied at Cape Lambert as are applied at the Dampier operations which are subject to regulation from the Dampier Port Authority. Consistent with these management practices, the detailed design phases of the Port B development include detailed risk assessments including the risks associated with increased ship movements and control measures to mitigate such risks. The management team of the Proponent has a proven track record of managing all aspects of port expansions, having recently overseen the successful multi-staged expansion program of the Dampier Port Operations from approximately 70 Mtpa to approximately 145 Mtpa (approved capacity) with zero environmental harm, and the expansion of the Cape Lambert operations from approximately 55 Mtpa to 85 Mtpa (approved capacity).
6.2	Contribution to on going sea and shore monitoring and management of marine pollution	Shire of Roebourne	The full implementation and operation of the first stage of the Port B proposal would see an increase in export tonnage of 130 Mtpa or 153% above the currently approved capacity of 85 Mtpa. The management of marine operations is on an on-going concern, given that the operations of the port are overseen by DPI officers based in Perth. In regard to marine pollution control and clean-up in and around Point Samson, the Shire recommends that any approval for Port B include a condition requiring the Proponent to contribute to on-going sea and shore monitoring and management of	The Proponent remains concerned about any verifiable instances of marine pollution emanating from ships visiting Port Walcott/Cape Lambert. Such occurrences of marine pollution would be in breach of international maritime law, and hence subject to policing by government agencies. To the extent that the Proponent can control such matters, the Proponent will continue to seek to influence the behaviour of ship’s crews visiting the port such that they exhibit acceptable operating and environmental behaviours whilst in Port waters. In recent times the

			marine pollution, given that the marine operations and shipping associated with the Cape Lambert operation are the principal source of marine pollution in the area.	Proponent has gone to considerable lengths to increase its direct communication with shipowners for this very purpose, including visitation of Pilbara site management personnel to Asian shipowners for face-to-face meetings. It should be noted that some debris found on the beaches in the region may also be derived from recreational and professional (local and transient) fishing activities.
6.3	Size and scale of the upgraded export facility	Point Samson Community Association	At the rated 215 Mtpa export capacity, Cape Lambert will be the largest bulk export port in Australia with some 1150 large bulk carriers anchoring, berthing, loading and sailing via a narrow dredged channel every year. Tonnages passing through Cape Lambert will dwarf those exported from Dampier and exceed current exports from Port Hedland. Cape Lambert is situated in a far more exposed section of the coastline than Dampier and Port Hedland, which is particularly relevant in the cyclone season. The Point Samson community is fearful of a significant marine incident and possible oil spill which could have devastating consequences for our community and environs. With this in mind, the PSCA are very firmly of the view that the Proponent should be compelled to undertake a thorough and detailed fully independent risk analysis of the proposed marine operation in all its facets and implement appropriate strategies so as to provide a 'best practise' marine operation and oil spill response capability. Such a requirement ought to be reflected in the Ministerial Conditions associated with any approval of the project.	The Proponent conducts regular risk assessments and audits to ensure that oil spill response capability remains at a commensurate level with the scope of the operations at all our Pilbara facilities, including Cape Lambert. Capability in this regard is evidenced by a number of elements including, but is not limited to, the following; • There is sufficient oil spill equipment on site at Cape Lambert to respond to a Tier 1 event (0-10 tonne spill). • Cape Lambert has an Emergency Response Team (ERT) that is trained in Oil Spill Response. • Local Marine Vendors have been trained in oil spill response (Westug, Global Marine) • Oil Response Company of Australia (ORCA) conducts quarterly servicing and inspections of all our oil spill equipment. • ORCA conducts in-house training of ERT members on a regular basis. • Selected personnel have been trained in advanced oil spill response. • The Cape Lambert spill response team is a member of the regional response team. • The Cape Lambert spill response team participate in local and regional exercises. The maximum rated output from Cape Lambert under this proposal will be around 215 Mtpa (85 Mtpa plus 130 Mtpa). The current output from Dampier is approximately 140 Mtpa and it is understood that total exports from Port Hedland will shortly exceed 200 Mtpa. These three ports will therefore be on similar terms with respect to export tonnages and Cape Lambert should not be regarded as an outlier in that regard. The Proponent does not agree that risk of shoreline damage is appreciably higher from ships or shipping during cyclone seasons. The port is closed when the arrival of a cyclone is judged to be imminent and all ships are ordered to leave port waters. The decision on when to close the port is made in a consultative manner between the Proponent, the Port Walcott Harbour Master, the Dampier Harbour Master and the Port Walcott Pilots. Once at sea, vessels have it in their own best interests to plot a course away from the incoming cyclone. In addition to these procedures, the Proponent recently invested in a cyclone proof tug harbour at Cape Lambert to provide a safe haven for tugs during cyclones, to eliminate the risk of a mooring failing and tugs becoming unrestrained in heavy seas. This cyclone haven is proposed to be expanded in due course.
6.4	Marine management	Point Samson Community Association	The prospect of substantially increased shipping numbers highlights and exacerbates a number of issues which are already causing concern for our community. Principal amongst these are:	Refer to the Proponent response to Issue 6.3 for comments on spill response capability and marine pollution management.

			• Severe doubts as to whether the port operator has the equipment, specialist knowledge and trained staff to enable a rapid and best practice response to a serious marine incident on a 24/7 basis. We know that under certain conditions a serious oil spill at the berth could be impacting our town beach in a little over one hour. We have little faith in the likelihood of such a spill being contained before it is on our town beach and in the Popes Nose/Sam's Creek mangal. • Residents regularly pick up a variety of marine waste on our shoreline, much of which obviously originates from bulk carriers at anchorage and above water work sites at Cape Lambert. A large proportion of this material is plastic. • The lack of any form of waste disposal infrastructure (for liquid or solid waste) at the current loading facility or the proposed new berth, which we fear adds to the surreptitious night time disposal of waste into the sea. Section 8.4.6 (Solid and liquid waste) fails to address the issue of marine waste particularly from bulk carriers – this is a serious deficiency requiring correction. • Many members of our community have concerns about what appears to be uncontrolled bulk carrier anchoring procedures, which allow these large vessels to deliberately target attractive sea bed characteristics to improve crew fishing. The PSCA would like to see this matter reviewed and studies undertaken to allow an understanding of the full effects of destructive anchoring practices.	The importation and processing of foreign waste at Cape Lambert would be a complicated process with high risk of quarantine related issues. The Proponent does not agree that implementation of such measures would represent an environmentally superior option. As outlined in the response to Issue 6.2, the Proponent's management strategy for this matter is to educate and influence shipowners to remain vigilant in the retention of garbage and other waste on board the vessel for processing at other ports that have purpose built facilities. Anchoring of ships is subject to regulation by the Proponent. Anchorage locations are determined prior to arrival at one of the approved sites provided on Chart Aus55 *Approaches to Port Walcott.* Upon arrival of a ship into the port, the anchorage location is checked by the Proponent and in the event of any discrepancy between the nominated and actual location, the vessel is ordered to relocate to its designated anchorage. The Proponent is not aware of any systemic deficiencies with the existing procedures for controlling anchorage practices, and as such does not intend to commission any review into the effects of anchoring practices.
			PART 7: HEALTH	
7.1	Mosquitoes	Department of Health	The Cape Lambert Port B development is located in an environment that can experience very significant problems with nuisance (biting) insects. Mosquitoes are likely to be the most common problem, but other biting flies, especially tabanids (March flies) and ceratopogonids (biting midge), also cause a nuisance and have caused severe allergic reactions in some people living and working in the region. The region is also subject to outbreaks of mosquito-borne disease, especially Ross River vitus (RRV), but also Barmah Forest virus and the much rarer but potentially fatal Murray Valley encephalitis, under certain environmental conditions. Considerable numbers of cases of RRV disease occur in some years at other towns and mine sites in the region (eg Karratha, Roebourne, Port Hedland, Newman, Nullagine, Paraburdoo, Tom Price) after heavy rains associated with monsoonal activity from January to May. A large proportion of nuisance and disease carrying mosquitoes affecting the proposed development are likely to emanate from surrounding natural mosquito breeding habitat. However, on-site infrastructure and activities also have the potential to create mosquito breeding habitat. Consequently, an integrated program to manage mosquitoes and other nuisance insects that also reduces the risk of exposure of employees to mosquito-borne diseases will be an important OSH component for the site. The program should comprise, but not necessarily be limited to, the following elements: • Monitoring of larval mosquitoes in the surrounding natural environment and on-site infrastructure to warn of the risk of nuisance/disease carrying mosquitoes and to inform the location and timing of control measures; • Chemical control of larval mosquitoes in man-made breeding sites and in natural breeding sites in close proximity to the workplace; • Control of adult biting insects using fogging and/or residual surface sprays; • Source reduction (removal or modification of mosquito breeding habitat); • Appropriate location, design and maintenance of project infrastructure that may breed mosquitoes (eg waste water, storm water infrastructure); and • Provision of advice, seasonal warnings, insect screens on enclosed workspaces,	The management of mosquito control is an issue that is being addressed by the Proponent, and is being undertaken independent of the Port B development. Accordingly, the Proponent will address mosquito management associated with the Port B development as part of its current and planned program over all of its coastal operations and towns. A formal management plan is being prepared by the Proponent which will bring together the various activities that are being already undertaken to fit under a single co-ordinated framework. It will be prepared and based on recommendations provided by a pest management company and will focus on a routine program to assist pest management. Activities that are currently carried out, or planned, by the Proponent include: • monitoring of larval mosquitoes to identify risks of nuisance/disease carrying mosquitoes and to plan control measures; • controlling larval mosquitoes in sites near workplaces and residences; • controlling adult biting insects; and • providing advice, seasonal warnings, personal repellents, appropriate clothing, etc to ensure employees reduce their exposure to mosquitoes. The offer by the DoH Mosquito Borne Disease Control Branch to contact them for information on the development of a mosquito management plan is appreciated and one that may be taken up by the Proponent.

			personal repellents, appropriate clothing, etc to enable employees to reduce their exposure to biting mosquitoes. Alterations of topography (eg resulting from earthworks) that enhance retention or impoundment of rainwater and runoff, or that promote scouring should be avoided so as to minimise opportunities for mosquitoes to breed. Poorly designed and/or maintained water holding infrastructure (eg constructed wetlands, stormwater drainage, evaporation ponds) have the potential to breed large numbers of nuisance and disease-carrying mosquitoes and so must be designated/maintained in such a manner as to minimise mosquito breeding. Information about developing a mosquito management plan and guidelines for appropriate design and maintenance of storm and waste water infrastructure can be obtained form the DoH's Mosquito-Borne Disease Control Branch.	
7.2	Pesticide safety	Department of Health	There are general requirements for all Proponents to control pests (weeds, vermin, vectors, feral animals etc) on the site. DoH recognises the Proponent has identified the presence of several weeds in the area. In addition, the Proponent has highlighted issues related to clearing of the land (vegetation); and the increase in activity around the site and surrounding area from personnel and vehicles may spread new and existing weeds (section 8.4.3 – Potential Threat and Impacts, Table ES 1-3 Vegetation & Flora) and increase feral animals to the site (Table ES 1-3 – Terrestrial Fauna). However, the Proponent has not identified the feral animals and vermin potentially/present at the area. It is expected that any treatment and application of pesticides must be applied in accordance with the Health (Pesticides) Regulations 1956. In addition, contractors/persons who are applying the pesticides for reward must be appropriately trained and hold a current Pesticide Licence and be employed by a Registered Commercial Pest Firm. However, if the Proponent/company wish their own employees to apply pesticide(s) as part of their Pest Management Program, then the employees should be provided with sufficient knowledge, skills, training and the personal protective equipment to safely apply the pesticide(s). Furthermore, the need to adequately store, handle pesticides on site should adhere to the AS 2507:1998 – Australian Standard for the storage and handling of agricultural and veterinary chemicals. DoH recognises the Proponent will be establishing a thorough Weed Management Procedure (13.6 – EMP 006) which covers daily inspection and fortnightly checks for the spread of new and existing weeds. The Proponent may wish to consider developing and implementing an Insects, Vermin and Feral Animal Management Procedures detailing the control and spread of these animals in similar detail to its Weed Management Procedure. This can be encompassed in the Proponent's General Wildlife Interaction Guideline which defines feral animals, general rules about waste, reporting of feral animals and policy of not permitting any domestic animals on-site. These separate management plans can be combined within the Proponent's Pest Management Plan; the plan should cover development of policy and procedures, implementation, monitoring and evaluating (and be modified as required). Plans must include prevention and control of strategies for pests (such as weeds, vectors, vermin, feral animals etc), education of all employees, contractors, visitors and the public to the site. DoH acknowledges the Proponent has highlighted within its CEMP (Appendix B3) an Induction Package involving education of proper disposal of waste material and ensure good hygiene practices are used to prevent pests being conveyed and attracted to operational site	The Proponent already has management strategies in place for the control and treatment of weeds, vermin and feral animals within its lease area. Weeds are controlled by the Cape Lambert operations through periodic spraying campaigns using either licensed contractors or trained staff. Vermin and feral animals are controlled through either trapping or baiting; foxes have been the primary target in recent years to reduce predation of turtle hatchlings at Bells Beach and Cooling Water Beach. The Proponent acknowledges the advice provided by the DoH that any application of pesticides must be done in accordance with the Health (Pesticides) Regulations 1956 and that contractors/persons applying pesticides must be appropriately trained and hold a current Pesticide Licence and be employed by a Registered Commercial Pest Firm. In addition, employees of the Proponent that use and apply pesticides are provided with sufficient skills, training and the Personal Protective Equipment to safely apply the pesticide(s). Any chemical that is stored and handled by employees of the Proponent is undertaken in accordance with the AS 2507:1998 – Australian Standard for the Storage and Handling of Agricultural and Veterinary Chemicals. Given the level of risk associated with the Port B development and the nature of the local setting, the Proponent believes the existing management controls that are being implemented by the Cape Lambert operations and the measures outlined in the CEMP (Appendix B3 of the PER) for the construction phase of the Port B development are sufficient.

			from the various activities.	
7.3	Provision of Health Services	Department of Health	The PER includes discussion on the potential requirements for health services arising from increased population numbers to meet the workforce needs of this proposal. However, this component only considers GP services and has not recognised the role of the DoH and the extensive health services provided by the Pilbara Area Health Service in the region. These services are currently utilised by the Proponent and its employees. It is recommended that the Proponent consults with DoH representatives in Port Hedland to ensure that service requirements can be appropriately considered.	Although not strictly an environmental approvals issue, the Proponent notes the DoH recommendation and agrees to undertake further discussions with the DoH. As indicated in the Proponent response to Issue 8.1.1, discussions/reviews will need to be around current levels of government medical service provision in all areas of health, particularly as an increase in population to the area will compound pressures on already over-stretched service delivery. The Proponent is keen to work with the DoH on how best to address this to ensure relevant and up to date data and information is available for the future planning and provision of these services and to consider opportunities to complement local medical service delivery.
			PART 8: SOCIAL	
			8.1 FIFO	
8.1.1	Fly-in/Fly-out [FIFO] operational workforce	Shire of Roebourne	A key factor that will determine whether the Port B proposal maximises the social benefits of the growth that will flow from the development is the proportion of the operational workforce that is offered on a FIFO basis. FIFO employment, particularly when associated with 12 hour shift rosters, provides little positive social benefit to the local area. Whereas the housing of operational workforces on a local residency basis adds to the population base and increases the viability of the towns within the Shire by underwriting the ability of these towns to support existing and new services and facilities. The Shire therefore requests that any subsequent EPA report on the Port B proposal includes a recommendation that the Proponent adopt a corporate employment and housing strategy to minimise the use of the FIFO option and maximises the number of locally resident workers to ensure that the positive social benefits of growth associated with the Port B development are maximised.	The Proponent has considered the implications of the accommodation and workforce delivery models available to expanded port capacity at Cape Lambert. As outlined in the PER, two models have been considered, namely a full reliance of residential housing for the expanded workforce (Model A) and a mix of residential and FIFO (Model B). The Proponent's analysis of offering FIFO as an alternative to only offering full residential employment can be considered in light of project cost, project delivery and estimated impact on service delivery in existing residential towns. With respect to project cost, maximum residential development is hampered by inflated residential development costs in the Pilbara. Project delivery is also impacted by the long lead time for land development, subdivision and utilities provision for a residential expansion. The Proponent's social impact analysis suggests that the full expanded residential option (A) is likely to lead to greater pressure and stress on existing service delivery in the areas of health, education, policing and childcare. Wickham is the current residential base for the Cape Lambert operations, and like many Pilbara towns, currently is experiencing shortages in service delivery, particularly in the area of health and childcare. The Proponent is concerned that a significant expansion in residential population in towns such as Wickham would exacerbate current pressures in key Government services. Given limited resources and problems with attraction and retention of service workers, the Proponent believes that a mix of increased residential employment at levels less likely to stress current services levels, together with the offer of FIFO employment provides a more sustainable outcome as a result of the Port B development. The Proponent agrees to undertake further analysis to better refine the optimum split between residential and FIFO roles at the locations of Wickham and Roebourne for new accommodation construction. The Proponent notes that Karratha is not currently a viable residential base for the Cape Lambert port as the daily commute distance of up to one hour each way (based on existing road access) is not feasible with the current shift patterns at the port. The Proponent does not accept the Shire's request for an EPA recommendation that it adopt a corporate policy to minimise the use of

				FIFO and maximise the number of local residential workers for this expansion or as a general position. The Proponent believes that FIFO is a part of the employment offer that it makes to existing and future employees in the Pilbara region, recognising that FIFO provides a range of benefits that are important to some employees: such as access to a wider range of health, education and other community services for family members. The Proponent notes that its operations within the Shire of Roebourne are predominately residentially based, with 85 % of current permanent employees living and working in the region. The Proponent is also in the final stages of a house construction program in Karratha and will have 76 new houses completed this year for residential employees and their families.
8.1.2	FIFO workforce	Point Samson Community Association	The prospect of increased worker FIFO to support the operational phase of this project should be firmly and instantly ruled out. These individuals living in camps and working twelve hour shifts are viewed as essentially parasitic by our community. They make virtually no contribution to community activities or business, and simply sap the already sub-optimal and overstretched local service providers and infrastructure. Ministerial conditions should rule out the prospect of operational FIFO.	Refer to the Proponent response to Issue 8.1.1.
			8.2 Wickham Back Beach	
8.2.1	Wickham Back Beach	Shire of Roebourne	The proposed location of the stockpiles and the additional railway infrastructure for Port B will heavily restrict or effectively preclude public access to the Wickham Back Beach. Even if access can be retained, the amenity of the beach will be severely compromised. The only reference to this issue (Section 10.4.6 of PER) is that "options regarding public access to Boat Beach remain under review". Unless uncompromised access to and use of the Wickham Back Beach is retained, by relocating the stockpiles or some other alternative that is acceptable to the Shire, the Shire requests that this matter be given greater weight in the final PER. And that any subsequent EPA report on the Port B proposal includes a recommendation that the Proponent fund the development of alternative access and facilities to replace the facilities either lost or highly compromised by the development of Port B, at a location and in a manner acceptable to the Shire of Roebourne and the State Government.	Refer to the Proponent response to Issue 5.1.4 with regard to the provision of a security fence around the port facilities (precluding entry by the public and access to the beach by employees), the establishment of formal public pathways and signage. The Proponent will ensure continued road access to Boat Beach is maintained. Figure 4-1 in Section 4.1 of the PER shows an indicative route for access to Boat Beach around the Port B development. This route is provisional and will be optimised during final design. No formal road access to Bells Beach is proposed; either from the existing car park area or from any re-aligned access road. No existing facility at Boat Beach is proposed to be re-located. The Proponent does not plan to re-locate the stockyards from that presented in the PER. Arrangements for any changes to the access road to Boat Beach will be discussed in advance with the Shire of Roebourne.
8.2.2	Social impacts on Point Samson	Point Samson Community Association	The PSCA are disappointed that discussions, reviews and studies initiated by the Proponent have largely ignored the potential impacts of this project on our small community. A review of Section 10 and Table 2-1 demonstrates the minimal contact with the PSCA very clearly. As the town nearest the export facility, it is well recognized that Point Samson is the principal victim of the Proponent's pollution. Many of our members hold concerns about the potential long term health effects of this pollution. Our volunteer town folk are also the people who regularly clean up after contractors' leisure activities. The community had high expectations of working together with meaningful consideration and certainly some prospect of targeted social dividends in the areas of impact. Regrettably this has not occurred. The PSCA has watched with interest the very significant contributions made to development effected communities in the Pilbara, by the likes of BHP, Chevron and Woodside in recent times. Despite some wonderful examples being set elsewhere in	The Proponent recognises the need to identify, report and actively manage any impacts that its operations have on local communities. Relating to the coastal operations, the Proponent has the Coastal Communities Environment Forum (CCEF) which convenes every six months and includes relevant stakeholders, including local community representatives. Supplementary meetings are also held as required. The CCEF is chaired by the General Manager, Coastal Operations and hence benefits from direct senior management involvement. The CCEF addresses and reports on environmental matters and has provided regular opportunities for discussion around the issues raised. The Proponent also attends the Point Samson Community Association (PSCA) meetings when relevant for discussions and to provide updates on the Cape Lambert operations, with particular reference to recent expansion works and approvals.

			our region, it does appear that the status quo of minimal Rio contribution will continue, which is a great shame if allowed to be perpetuated.	The Proponent also has the Cape Lambert Community Advisory Group where local stakeholders are updated on local operations and can identify specific issues and opportunities relevant to the local and surrounding communities. Through these various fora the Proponent has been able to identify a number of areas and opportunities to work with the Point Samson Community Association (PSCA) in order to contribute to the community. For example, the Proponent assisted with the Point Samson Centenary celebrations in 2009 with the provision of funds toward the coordination of the celebrations and the town entry statement. The Proponent will continue with these avenues of communication with the PSCA (and others) and looks forward to working with the PSCA in relation to this development. It should also be recognised that the Proponent already contributes significantly toward local communities, both directly and indirectly, and that these contributions benefit many in these communities.
			PART 9: ABORIGINAL HERITAGE/NATIVE TITLE	
			9.1 Heritage	
9.1.1	Heritage	Department of Indigenous Affairs	The DIA has been providing advice regarding heritage matters associated with the Project to the Proponent and based on the information submitted within the PER document, the Registrar (of the DIA) is satisfied that the Proponent will comply with the provisions of the *Aboriginal Heritage Act 1972* and undertake consultation with the relevant Traditional Owners regarding heritage matters.	Comment noted. No response required other than the Proponent will continue to comply with the provisions of the *Aboriginal Heritage Act 1972* and continue consultation with the relevant Traditional Owners regarding heritage matters (refer to the Proponent response to Issue 9.2.3) in accordance with the Rio Tinto Community Standards and draft Heritage Protocols which will link with regional agreements as they are settled.
9.1.2	Aboriginal heritage sites within development area	Ngarluma Aboriginal Corporation	Where the Proponent proposes for its Expansion Project, there are Aboriginal sites. In addition, working in any part of Ngarluma Country without consulting the Ngarluma people through NAC first as the recognised Traditional Owners is an affront and is a breach of the Ngarluma people's cultural responsibilities and obligation to the Dreaming and human ancestors who require that current day Ngarluma always use their best efforts to protect all Country by consulting with those who wish to use it alongside them. Further, Ngarluma people, with NAC itself, have an obligation to ensure that those that use Country alongside them are protected from various dangerous Dreamtime spirits and forces within Country.	The Proponent is aware of its obligations, not only under its own standards but under State and Federal legislation, for the protection and management of cultural heritage. The Proponent seeks to have heritage surveys conducted prior to working in any area. The Proponent has a comprehensive process in place to record heritage sites before project work is carried out and, wherever possible, arrangements are made to avoid sites. If site avoidance (through project redesign) is not practical, proper procedures under State legislation are followed, which include consultation with the relevant Aboriginal groups.
			9.2 Native title/consultation	
9.2.1	Ngarluma participation in flora and fauna surveys	Ngarluma Aboriginal Corporation	By the Proponent's denying the Ngarluma people access to Traditional Country, including through participation in flora and fauna surveys, the Proponent is denying not only the Ngarluma people, but also the Ngarluma culture now and the ability for the Ngarluma people to extend that cultural knowledge to their children to ensure the existence of the Ngarluma culture in the future. Participation in flora and fauna surveys is a vital method of Ngarluma people continuing to access Country that is otherwise now largely inaccessible. To date, neither NAC nor Ngarluma people have been invited to participate and share their extensive knowledge.	The Proponent refutes the claim that it is denying Ngarluma people access to its traditional country. It is acknowledged that the biological survey work that commenced on behalf of the Proponent in late 2007 did not involve Ngarluma people. This was largely due to the absence of any clear Agreement requirement for such involvement at the time these surveys were conducted. However, the Proponent has endeavoured to progressively keep the Ngarluma Aboriginal Corporation advised of issues in regard to the Port B development as can be judged by the log of consultation that has been maintained (refer Table 2-1 in Section 2.2 of the PER).
9.2.2	Acknowledgement of Ngarluma's native title to the area	Ngarluma Aboriginal Corporation	Section 7.11 PER Importantly, the Proponent acknowledges Ngarluma's native title to the area of the Cape Lambert operation and the Wickham town site and that its extensive infrastructure has impacted Ngarluma Country for over 40 years.	Comment noted. No specific response required from the Proponent.

9.2.3	Consultation with Ngarluma	Ngarluma Aboriginal Corporation	Other than undertaking some incomplete Aboriginal heritage surveys…, the Proponent has otherwise not consulted at all with NAC about the Expansion Project, despite its comments in the PER, its policies…and its obligations to Ngarluma under a Letter Agreement made in July 2008 (incorrectly referred to as May 2008 in the PER). The Cultural Heritage Management Plan has been prepared without consultation with Ngarluma. The Proponent lists the ILUA negotiations as evidence of consultation, but there has been nil consultation about the project at those meetings. The Proponent has not met anywhere near such standards (Rio Tinto policies) in failing to consult with NAC on the Expansion Project. Note that there has been no consultation with the Ngarluma people by the Proponent.	The Aboriginal heritage surveys are incomplete because the work program was halted on a number of occasions due to deaths, onset of the wet season, and other heritage commitments by the Ngarluma group. The Proponent accepted those reasons provided by Ngarluma. Following the wet season, the survey program has not recommenced in spite of a number of representations by the Proponent, principally because the Ngarluma has raised issues with the Agreement negotiations underway. The Proponent is of the view that it is complying with the Letter Agreement. The Proponent has a log of the interactions that it has had with Ngarluma to keep them advised of events and to consult on specific matters. This includes presentations at working group meetings (ILUA negotiations) to discuss Agreements, where contrary to the Ngarluma assertion heritage matters including upcoming surveys have been a regular agenda item. The frequency of those meetings reduced in 2008 and 2009, but this is a reflection of the Ngarluma unwillingness to engage. In the absence of Agreement working group meetings, the Proponent has sought specific meetings on heritage work or sent letters and emails to keep the group updated and to seek survey dates. The Cultural Heritage Management Plan (Appendix B6 of the PER) referred to by Ngarluma has been prepared as a preliminary draft only and any amendments have been confined to adding further material for discussion. It is intended that the CHMP is discussed with the NAC on behalf of the Ngarluma people and it is awaiting the results of currently incomplete heritage surveys so that these can form part of that management discussion. Currently, the document remains a working draft and although it has been used to guide the general approach to heritage site management in the interim, the Proponent is fully conscious of its draft status. Of some relevance to the above is the Department of Indigenous Affairs submission (refer Issue 9.1.1) which stated that it has been providing advice to the Proponent regarding heritage matters associated with the Cape Lambert Port B development and based on the information submitted within the PER document, the Registrar (of the DIA) is satisfied that the Proponent will comply with the provisions of the *Aboriginal Heritage Act 1972* and undertake consultation with the relevant Traditional Owners regarding heritage matters.
9.2.4	Legal proceedings	Ngarluma Aboriginal Corporation	Section 1.2 Page 1-2, PER The PER incorrectly states that there is no legal proceedings due to the Proponent's ongoing non-compliance with the Letter Agreement. NAC has been forced to lodge an array of objections under the Native Title Act 1993 to infrastructure expansion to get the Proponent to complete agreements and to properly consult with NAC on the Project.	At the time of writing, there were no legal proceedings against the Proponent, such as a prosecution or action before a court, relating to either environmental or heritage matters. Furthermore, the Proponent does not agree that it is in breach of the Letter of Agreement. The proceedings to which the submission refers are Native Title "future act" objection processes which give Native Title parties a right to be notified and if they wish, to object to proposals to grant tenure. If an objection is made, the Proponent has an obligation to consult with the objector about possible impacts on native title rights. The Proponent believes that the objections made by the NAC are in breach of the letter agreement, but at this stage prefers to continue to engage with the NAC with the objective of concluding a comprehensive agreement.
9.2.5	Cultural staff	Ngarluma	The Proponent's cultural heritage staff are not complying with the cultural heritage	The Proponent is complying with not only the Letter Agreement but with

	compliance with Letter Agreement	Aboriginal Corporation	survey procedures that are part of the Letter Agreement with NAC.	the Proponent's own Heritage Management Standards.
9.2.6	Protection of the environment by the EPA/Guidance Statement 41/EPA Position Statement 5/EPA Annual Reports 1990-1991, 1991-1992, 2004-2005, DEP Annual Report 1994-1995/ Environmental Impact Assessment Administrative Procedures	Ngarluma Aboriginal Corporation	For this Expansion Project proposal, the EPA must consider Aboriginal heritage and ensure that the Proponent has properly addressed it. The NAC recommends conditions that should apply to the Expansion Project (conditions to apply to the Proponent and any Joint Ventures or Assignees). The Expansion Project will destroy Aboriginal sites and so "adversely affect matters of heritage significance" to the Ngarluma people. Given the heritage significance of all Ngarluma Country, the Proponent has to demonstrate that it has properly considered how to minimise any adverse impact by the proposal on heritage values. Given its failure to consult with NAC about the Expansion Project, (the Proponent) cannot demonstrate that any Aboriginal heritage matters have been considered or addressed. Given the listed EPA policies (and other references), and the Proponent's ignoring of the concerns of the Ngarluma people, when they are the Traditional Owners, the failings of consultation here are a disgrace. It is also causing the Ngarluma people great harm and embarrassment. The Ngarluma people are culturally bound to try to protect Country. When companies like the Proponent ignore them, it is a great stress to the Elders. It makes them look, and feel, weak in the eyes of their own people, particularly the young people who look to them for guidance and to hand on traditional skills and knowledge. Ngarluma Elders have been through the Aboriginal Law. They cannot leave Country to be destroyed. To do so would be to sanction the destruction of not only Traditional Country, but the Ngarluma culture as well.	Section 1.7 of the PER outlines the environmental assessment processes used in Western Australia and by the Commonwealth jurisdictions for applicable new proposals. Section 1.7.4 of the PER states the principles of environmental protection incorporated in the *Environmental Protection Act 1986* and which will be applied to the current proposal. Section 1.7.5 and Section 1.7.6 of the PER list the many key Western Australia and Commonwealth environmental legislation and regulations (including heritage legislation) that can apply to the development, environmental assessment, implementation, construction and operation of the Port B development. Section 1.7.6 of the PER lists the applicable guidelines, standards and publications that have been developed to assist proponents and the community understand the minimum requirements to be met for the protection of elements of the environment and society, and which have been considered and applied where appropriate in the preparation of the PER. The EPA is obligated to undertake an assessment of all relevant factors associated with a proposal and to recommend applicable environmental conditions to the Minister for the Environment to consider in setting final conditions for proposals that are approved through a Ministerial Statement. It should be recognised that there are alternative mechanisms to ensure the protection of Aboriginal heritage that can be applied outside the environmental assessment process, principally through the *Aboriginal Heritage Act 1972* and the *Native Title (State Provisions) Act 1999* (WA) and the *Native Title Act 1993* (Cwth). The nature and scope of draft environmental conditions to be recommended by the EPA is essentially a matter for that authority, not the Proponent.
			PART 10: PROJECT DESIGN	
			10.1 Wharf design	
10.1.1	Ship waste off-loading	Dampier Port Authority	The proposed development of the wharf structure in line with the existing facility does not provide access/infrastructure for the off-loading of ships wastes. As Australia is a signatory to the MARPOL 73/78 convention, some consideration to compliance with this convention, especially Annex V should be incorporated. Information can be drawn from the existing facility and the demonstrated trends in the need for waste disposal from current ships.	The current design of the Port B development wharf structure facility does not allow for provision of waste removal from ships. This is currently the case for all other Pilbara ports managed by the Proponent. Annex V requires that waste material (such as general garbage and cargo waste) should generally be stored on the vessel and then returned to shore at the ship home port. If there was some critical necessity to remove such waste from the berthed ship, it could potentially be carried out utilising the ship provisioning cranes located on the wharf to lift bins off vessels to take to shore. The Proponent understands that countries that become party to the MARPOL 73/78 convention are required to comply with Annexes I and III only, but V (general garbage and cargo waste) are voluntary annexes.
10.1.2	Stormwater management on wharf structure	Dampier Port Authority	No details are provided for the stormwater management on the wharf structure where impervious surfaces are proposed. These areas are likely to contain ore fines, and susceptible to wash-off into adjacent marine areas during rainfall events.	The proposed wharf deck will have several open structure areas where material may fall through, or wash-down may escape. This approach is consistent with the Proponent's other ports in the Pilbara. Full containment of all material and wash-down under the wharf would involve significant structural additions and a large capital cost to implement. Cleanup of spillages using bobcats will still be available on

				concreted areas, as can be done now on existing wharves at Dampier and Cape Lambert.
			10.2 Project staging	
10.2.1	Project staging	Shire of Roebourne	The Port B proposal is only the first stage of a much larger development proposal, which would result in the ultimate development of an 8 berth loading facility. As some of the works, such as dredging for an 8 berth wharf, are included in this 4 berth proposal, the impact of the whole of the ultimate expansion project should form part of this assessment, including all land based development and operations and their cumulative impacts. It is recommended that the assessment of Port B [Stage 1] should also be undertaken in parallel with an assessment of the Port B [Stage 2], and if possible a cumulative impact assessment of the key environmental factors that would allow maximum environmental impact parameters for Cape Lambert to be established. This matter is of particular significance given that Cape Lambert is very likely to be the focus of re-energised plans to expand export capacity for the recently announced RTIO/BHPB Pilbara JV.	There is no pre-determined expansion pathway should a RTIO/BHPBIO Pilbara JV proceed. The RTIO/BHPBIO JV issue is further addressed in the Proponent response to Issue 11.5.1. The Port B development is designed to accommodate forecast iron ore demand for the Proponent and to ensure that possible future expansion options are not precluded (ie flexibility allows future expansion), in the event that the Proponent also opts to pursue those additional capacity options. However, at this time, the scope of any future expansion remains uncertain and therefore it would be inappropriate to access the current view of any potential Stage 2 development. However, if further expansion is to occur, some project areas, such as the dredging footprint, are best incorporated in initial phases as undertaking dredging in any possible future second phase in close proximity to an active port will result in considerable scheduling delays, business disruption, loss in production and pose increased safety hazards/risks. This can add considerable cost and risk to any possible future expansion, unless critical areas have been undertaken in the initial development phase. Environmental approvals sought for possible future expansions of the Port B development would require a cumulative assessment of impacts from the constructed/operating Port B development, as well as the existing Cape Lambert operation at the time of submission. The Proponent does not support the Shire proposition that the current assessment of the Port B development should be undertaken in parallel with an assessment of some unknown future expansion phase to provide a cumulative impact assessment enabling the maximum environmental impact parameters for Cape Lambert to be established. Subject to the outcomes of ongoing studies, the actual construction of the Port B development might be staged such that the entire project scope might not be undertaken as a single construction phase.
			PART 11: OTHER	
			11.1 Acid Sulphate soils	
11.1.1	Acid sulphate soils	Department of Mines and Petroleum	There is potential for some of the disturbance areas (including borrow sources) to be located in areas of high to medium risk of acid sulphate soils. However, it appears that [the Proponent] will implement management measures should further testing confirm acid sulphate soils within construction areas.	Figure 5-9 of the PER presents the potential Acid Sulphate Soils (ASS) risks at Cape Lambert based on the ASS risk dataset for the region. There is some risk of encountering ASS during construction. For this reason, the draft CEMP outlines management strategies for addressing the risk of ASS. These strategies involve the following: • Should detailed geotechnical investigations and further desktop assessment indicate that ASS are likely to be present within the Project area, a site testing and management plan will be developed to manage the specific location or locations of disturbance, which will include measures to minimise the potential impacts of ASS. • Any visual evidence of ASS shall be reported for investigation. Visual evidence includes: o red, orange or yellow staining on rock or soil;

				o white salt accumulation on top of soils or exposed rock; and o pyrite in soils or exposed rock. • Material suspected of having ASS properties shall be managed according to the ASS Management Plan (to be developed following Geotechnical investigations) until its status can be confirmed either by on-site paste pH test or more detailed off-site elemental testing. The above approach is consistent with the ASS Guidelines and is appropriate for the level of risk for the Port B area.
			11.2 Rehabilitation and closure	
11.2.1	Progressive rehabilitation	Department of Mines and Petroleum	The rehabilitation of areas temporarily disturbed through construction activities, such as borrow pits and construction lay down areas, do not appear to be addressed in the PER. The rehabilitation section within the PER only references rehabilitation at the time of decommissioning. Progressive rehabilitation of areas no longer required should be continuous throughout the life of the project. This matter may have been addressed in the Proponent's CEMP, which has not been reviewed.	Areas that have been disturbed and are no longer required to be used for either construction or ongoing operational requirements will be progressively rehabilitated by the completion of the construction program. The draft CEMP provided in the PER addresses elements of rehabilitation in the following procedures: • EMP 002 Ground Disturbance Management Procedure • EMP 003 Borrow Pit Management Procedure • EMP 004 Topsoil Management Procedure • EMP 005 Vegetation and Flora Management Procedure The draft CEMP also states a rehabilitation procedure will be developed for areas that are high conservation areas or temporarily disturbed. Borrow pits will be rehabilitated in accordance with the Borrow Pit Specification and Management Plan.
11.2.2	Environmental conditions for closure	Department of Mines and Petroleum	It is noted that no Environmental Conditions in relation to closure are proposed to be placed on the proposal under Part IV of the *Environmental Protection Act 1986*. Although closure conditions are expected to be placed on most mining related activities, in this case it appears appropriate to be omitted.	Comment noted. No specific response required from the Proponent.
			11.3 Port management	
11.3.1	Port management	Dampier Port Authority	The Cape Lambert facility is currently not in the Dampier Port limits. However there would be significant advantage for both the Proponent and the State if the management of this area was consistent with the Port of Dampier area. The DPA would encourage discussion regarding management of the area to assist this consistency with the added benefit to environmental management.	Refer to the Proponent response to Issue 6.1 where it is states that the regulatory management framework for Port Walcott/Cape Lambert is outside the direct control of the Proponent and the management approach toward both Cape Lambert and Dampier ports adopted by the Proponent is outlined. The Proponent considers that there is already sufficient consistency in the management approach to the Dampier and Cape Lambert iron ore port facilities. Under the Pilbara Iron infrastructure sharing arrangements implemented in 2005, these port facilities are jointly operated by the Proponent (Pilbara Iron Pty Ltd) as Manager on behalf of Hamersley Iron Pty ltd and the Robe River Joint venture respectively. In its role as Manager, the Proponent utilises consistent management practices and consistent standards. It should also be noted that there are significant operational differences between the two port facilities, including the fact that Cape Lambert is a

				single user port. A 'one size fits all' approach will not necessarily be appropriate and may result in greater cost with no significant improvement in environmental management outcomes.
			11.4 Works Approval and Licensing	
11.4.1	Part V approvals – prescribed premises	DEC – Industry Regulation - Pilbara Region	There are numerous activities proposed onsite which may be listed as prescribed activities under Schedule 1 of the *Environmental Protection Regulations 1987.* Prior to the construction and operation of these facilities, the Proponent will be required to apply for a works approval and licence, as stipulated under the *Environmental Protection Act 1986*. Categories may include 10, 52, 54 (or 85), 54A (or Schedule 2, Category 4), 61 and 73.	Comments noted. A Works Approval application will be prepared and submitted to the DEC covering all proposed Schedule 1 prescribed activities associated with the Port B development, including those listed. Similarly, an application for a new Licence (or a Licence amendment) covering the Port B development will be submitted to the DEC prior to staged commissioning.
			11.5 Impact of Third Party Infrastructure Users and BHP Billiton Joint Venture with Proponent	
11.5.1		Ngarluma Aboriginal Corporation	Given the recent announcement of the proposed 50/50 joint venture on Pilbara iron ore operations by the Proponent and BHPB, it is likely that BHPB will also need to use the Cape Lambert port for its ore stockpiles and shipments, meaning that the currently configured Expansion Project should be shelved for any EPA environmental impact assessment until it is known as to whether or not the joint venture is going to proceed. Given the congestion at Port Hedland where BHPB currently stockpiles and exports iron ore, it is highly likely that one or both of the Proponent's ports on Ngarluma Country, or perhaps a third and subsequent ports, are required. It is also likely that the Government will require more certain third party access to infrastructure such as the rail and ports. All of this means that the Proponent's current Expansion Project is likely to be already out-of-date, surpassed by the recent joint venture and probable third party user scenarios. Given this, NAC recommend that the EPA recommend against the Expansion Project being considered for environmental impact assessment at this time until there is more certainty and clarity from the Proponent, BHPB and others, such as the State and Federal Government, on these matters.	On June 5 2009, Rio Tinto announced a non-binding agreement with BHP Billiton to establish a production joint venture (JV) covering the entirety of both companies' Western Australian iron ore assets. The JV will encompass current and future Western Australian iron ore assets and liabilities (excluding certain assets such as the Proponent's HIsmelt assets) and will be owned 50:50 by BHP Billiton and Rio Tinto. Both parties are progressing the negotiation of the definitive and binding transaction documentation to finalise the proposed joint venture arrangements. It is anticipated that the proposed joint venture will take at least 12 months before it can be implemented and will need to go through a series of regulatory and government clearances. Termination rights exist if the non-binding agreement is not executed within six months of the date of the announcement or the conditions precedent are not satisfied by 31 December 2010. Until the JV is established, the iron ore operations of BHPB Billiton and Rio Tinto will continue to operate independently and development plans and proposals will continue as planned until such time the JV is established. Accordingly, no changes to the Port B development arising from the recent announcement regarding the proposed joint venture are anticipated and there is no justification for the EPA assessment being suspended until the JV is established. External market factors provide an equally significant influence on the Proponent's ultimate decision to proceed with this, or any other, project. The issue of third party access is currently subject to ongoing legal proceedings and, in any event, is not relevant to the environmental approvals process for Port B development. As previously publicly stated, the Proponent does not support third party access to its infrastructure (such as rail and ports) and will strongly defend its rights to its own infrastructure. On the basis of the above, the Proponent does not support the NAC proposition that the EPA should recommend against the Port B development being considered for environmental impact assessment at this time.

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Attachments (provided separately in CD)

1. Review of Air Quality Impact Assessment for Cape Lambert Port B Development
2. Air Quality Impact Assessment Supplementary Report
3. Cape Lambert Port B Development Cetacean Management Plan
4. Revised Cape Lambert Port B Development Underwater Noise Assessment Report
5. Turtle Monitoring at Bells Beach and Selected Rookeries of the Dampier Archipelago: 2008/2009 Season
6. Cape Lambert Port B Development Marine Water Quality Baseline Monitoring Report
7. Cape Lambert Port B Development Benthic Primary Producer Habitat Monitoring Report (Subtidal)
8. Cape Lambert Port B Development Baseline Intertidal Report