

RioTinto

Cape Lambert Port B Development

CETACEAN MANAGEMENT PLAN

- Rev 6
- 12 December 2011



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Acronyms and Abbreviations

BHD	Back Hoe Dredge
CEO	Chief Executive Officer of the Office of the Environmental Protection Authority
CD	Chart Datum
CMP	Cetacean Management Plan
CSD	Cutter Suction Dredge
Cwth	Commonwealth
D&B	Drilling and Blasting
DEC	Department of Environment and Conservation (State)
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (Commonwealth)
DoF	Department of Fisheries (State)
DoT	Department of Transport
DSDMP	Dredging and Spoil Disposal Management Plan
EA	Environment Australia (now DSEWPaC)
EPA	Environmental Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
KPI	Key Performance Indicators
Mm ³	Million cubic meters
MTMP	Marine Turtle Management Plan
Mtpa	Million tonnes per annum
PER	Public Environment Report / Public Environmental Review
RTIO	Rio Tinto Iron Ore
SDP	Sea Dumping Permit
TSHD	Trailer Suction Hopper Dredge
WA	Western Australia



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1. Introduction

1.1. Background

Pilbara Iron Pty Ltd (Pilbara Iron) proposes to construct a second port facility at Cape Lambert, adjacent to their existing operations, to process and export up to 130 million tonnes per annum (Mtpa) of iron ore. This proposal is known as the Cape Lambert Port B development (the Port B development). The Port B development involves both marine and terrestrial works. The marine works include the construction of a jetty, wharf, and ship loaders, in addition to dredging and disposal for berth pockets, turning basins, approach / departure channel and the tug harbour extension.

The proposed marine works and ongoing port operations have the potential to influence or impact upon cetaceans that may pass through the development area. A number of cetaceans have been identified as potentially occurring within the development area (refer **Section 2**); however, the majority have been thought to remain in deeper waters (>20 m) (Prince 2001). New information has recently been presented to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) by others that suggest the possibility of a resting area for humpback whales (*Megaptera novaeangliae*) and calves in Nickol Bay, to the south west of Cape Lambert. In addition, humpback whales are frequently sighted within the Cape Lambert operational area during their annual migration. Accordingly, the DSEWPaC has stated that the management of potential impacts to humpback whales is an element of key concern in the Cape Lambert area and is therefore the key focus of this Cetacean Management Plan (CMP; this Plan; the Plan).

1.2. Objective

The objectives of this Plan are to ensure that the proposed marine works and ongoing operations are managed to minimise adverse impacts to cetaceans and to meet both Commonwealth and State legislative requirements (**Section 1.3**). The primary activities to be managed under this Plan include:

- vessel movements during construction and operation
- underwater noise impacts associated with pile driving during construction
- dredging and spoil disposal activities during construction
- potential underwater drilling and blasting during construction.

1.3. Legislative Requirements

This Plan has been prepared as a condition under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *Environment Protection (Sea Dumping) Act 1981* (Sea Dumping Act) approvals.

The Port B development was approved by the Delegate of the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities with the granting of Conditions (2008/4032) issued under the EPBC Act. Approval to undertake ocean disposal was issued through

the Sea Dumping Permit (SDP) SD2008/0822 under the Sea Dumping Act. The conditions outlined in the EPBC approval 2008/4032 and the SDP SD2008/0822 are provided in **Appendix A** and **Appendix B** respectively.

In addition to these Commonwealth approvals and related conditions, the Western Australian Minister for Environment granted environmental approval for the Port B development through the granting of Ministerial Statement 840 dated 30 September 2010. Ministerial Statement 840 covers a range of environmental factors and activities but cetacean management is essentially deferred to the Commonwealth. The Ministerial Statement 840 is provided in **Appendix C**.

Subsequent to the grant of the above approvals an amendment to the Tug Harbour Extension design, including changes to the dredging footprint and breakwater layout, was sought in December 2010. A further amendment was sought in August 2011 and covered additional dredging for a total volume of 610,000m³; these additional dredging areas included widening of the Western Port A Departure Channel (500,000m³), localised spot dredging in the main departure channel (65,000m³) and tug harbour channel re-alignment (45,000m³). The approvals covering these amendments are also contained in the respective appendices to this document.

Pilbara Iron will comply with the conditions outlined in EPBC 2008/4032, SDP SD2008/0822 and Ministerial Statement 840.

The Commonwealth and State Conditions and associated section references, specifically pertaining to the CMP are detailed within **Table 1-1** and **Table 1-2**, respectively.

■ **Table 1-1 Commonwealth Legislative requirements**

Document	Condition Number	Requirement	Section Reference
EPBC 2008/4032	4	<u>Cetacean Management Plan</u> To mitigate the impacts on cetaceans from the dredging activities, construction activities and the ongoing operation of the Cape Lambert Port, the person taking the action must prepare and submit to the Minister (for Sustainability, Environment, Water, Population and Communities) for approval a Cetacean Management Plan (CMP). The Plan must include the following:	
		a) Measures to prevent vessel strike during dredging activities, construction activities and ongoing operation of the Cape Lambert Port	3.1
		b) Measures to prevent any potential impact from underwater noise during construction	3.2
		c) Monitoring and exclusion zones during dredging and noise emitting construction activities, including pile driving	3.3
		d) Details of the responsible parties for each activity described in the CMP, noting that the person to whom this approval is granted is responsible for the proposed action and the reporting requirements of the responsible parties	3
e) Measures that ensure periodic reviews of the CMP and that ensure continual improvement measures applied accordingly. This condition does not remove the requirement under condition 20	5		
EPBC	5	Dredging activities must not commence until the CMP has been	1.3

Document	Condition Number	Requirement	Section Reference
2008/4032		approved by the Minister in writing. The approved CMP must be implemented.	
EPBC 2008/4032	8	<p><u>Blasting Management Plan</u></p> <p>To minimise impacts to listed threatened and migratory species, if underwater blasting is required, the person taking the action must prepare and submit to the Minister for approval a Blasting Management Plan (BMP), at least 2 months prior to commencement of blasting activities. The Plan must include the following:</p>	3.4
		<p>a) A description of the blast methodology</p> <p>b) The amount of blasting required and over what area</p> <p>c) Nomination of target blast pressures and potential environmental impacts of these pressures</p> <p>d) Monitoring for the presence of listed threatened and migratory species, including exclusion zones, prior to and during blasting</p> <p>e) Commitments that any blasting activities will not be undertaken at night or during turtle nesting or hatchling season</p> <p>f) Post blast inspection for injured fauna including management and reporting to the Department of injured fauna</p> <p>g) Details of responsible parties for each action described in the BMP, including reporting requirements</p>	
EPBC 2008/4032	9	Blasting activities must not commence until the BMP has been approved in writing by the Minister. The approved BMP must be implemented	3.4
EPBC 2008/4032	20 Paraphrased	If the person taking the action wishes to carry out any activity otherwise than in accordance with the CMP (Condition 4), the person taking the action must submit for the Minister's approval a revised version of the CMP. The varied activity shall not commence until the Minister has approved the varied plan in writing. If the Minister approves such a revised plan, that plan must be implemented in place of the plan originally approved.	5
EPBC 2008/4032	21 Paraphrased	Management plans referred to in these conditions of approval must be made publically available within 30 days of approval by the Minister.	1.3
EPBC 2008/4032	22 Paraphrased	All plans required under this approval must include the following elements:	
		a) A description of the EPBC listed species and habitat likely to be impacted by the components of the action which are the subject of that plan	2
		b) An assessment of the risk to these values, species or habitats, from the components of the action that are subject of or relevant to that plan	3
		c) Details of the management measures proposed in relation to these values, species or habitats, if it is a requirement of the condition requiring that plan	3
		d) Details of monitoring proposed for that species if it is a requirement of the condition requiring that plan	4
		e) Performance standards in relation to that species if it is a requirement of the condition requiring that plan	3
f) Management triggers in relation to that species if it is a requirement of the condition requiring that plan	3		

Document	Condition Number	Requirement	Section Reference
SDP SD2008/ 822	12	Before beginning dumping activities, Pilbara Iron Pty Ltd must check, using binoculars from a high observation platform on the vessel, for cetaceans or dugongs within the monitoring zone.	3.3
SDP SD2008/ 822	13	If any cetacean or dugongs as specified in Condition 12 are sighted in the monitoring zone, dredging / dumping activities must not commence in the monitoring zone until twenty minutes after the last cetacean or dugong is observed to leave the monitoring zone or the dredge is to move to another area of the dredge / disposal site to maintain a minimum distance of 300 m between the vessel and any cetacean or dugong identified in Condition 12.	3.3
SDP SD2008/ 822	15	Pilbara Iron Pty Ltd must document any incidents involving the dumping activities that result in injury or death to any cetacean, turtle or dugong. The time and nature of each incident and the species involved, if known, must be recorded.	3.3
SDP SD2008/ 822	16	Pilbara Iron Pty Ltd must notify the Department in writing, of any incidents documented in accordance with Condition 15. Reports must be submitted to the Department within 24 hours, or as requested by the Department.	3.3

■ **Table 1-2 WA State Legislative requirements**

Document	Condition Number	Requirement	Section Reference
Ministerial Statement 840	6-5	The proponent shall report any mortality of marine turtles or other threatened or specially protected fauna to the Department of Environment and Conservation (DEC) within 24 hours following detection.	3
Ministerial Statement 840	7-1	The proponent shall engage a dedicated Marine Fauna Observer or Observers who must: <ol style="list-style-type: none"> 1. Demonstrate a knowledge and experience of marine wildlife species and their behaviours in the Pilbara region 2. Have the capacity, subject to safety considerations, to move independently between pile driving barges and within the exclusion zones surrounding piling operations 3. Be on duty during all daylight hours when pile driving operations are conducted 4. Maintain a log of: <ol style="list-style-type: none"> a) Observed cetaceans in a format consistent with the National Cetacean Sightings and Strandings Database b) Other marine fauna observations, including fish kills and wildlife injuries within 500 m of piling operations c) Fauna behaviours, in particular any behaviours that could be attributed to piling activities d) Management responses in relation to dead and injured wildlife, including the suspension of piling activities as required under Condition 7-5 e) Observation effort in relation to piling activities 	3.2 3.2 3.2 3.2 3.2 3.2
Ministerial Statement 840	7-2	The proponent shall: <ol style="list-style-type: none"> 1. Make available, on request from the Office of the Environmental Protection Authority (EPA), the log prepared by the Marine Fauna Observer or observers, required under Condition 7-1 2. Within six months of completing pile driving operations for Cape Lambert Port B, lodge cetacean records with the National Cetacean Sighting and Strandings Database 	3.2

Document	Condition Number	Requirement	Section Reference
		at the Australian Antarctic Division	
Ministerial Statement 840	7-3	No pile driving shall commence during daylight hours between sunrise and sunset, until the designated Marine Fauna Observer or observers required by condition 7-1 have verified that no whales or marine turtles have been observed within an area 500 metres from the planned piling operation during the 15 minute period immediately prior to commencement.	3.2
Ministerial Statement 840	7-4	Prior to commencement of full power pile driving, the proponent shall implement soft start-up procedures that slowly increase the intensity of noise emissions over a period of no less than 15 minutes.	3.2
Ministerial Statement 840	7-5	If the Marine Fauna Observer or observers required under condition 7-1, or any other person, should observe a whale or turtle enter within 100 metres of a single piling operation, or 150 metres of each concurrent piling operation, the piling operation within that distance from the whale or turtle is to be suspended.	3.2
Ministerial Statement 840	7-6	Pile driving that has been suspended in accordance with condition 7-5 shall not recommence until all whales and turtles have moved beyond 500 metres from the suspended piling operation and beyond 150 metres of all concurrently operating pile-driving operations. Pile driving that has been suspended for more than 15 minutes shall recommence with soft start procedures as required by condition 7-4.	3.2
Ministerial Statement 840	7-7	No pile driving shall occur between the hours of sunset and sunrise during: <ol style="list-style-type: none"> 1. ...[subject matter not relevant to this Plan] 2. The peak southern migration of mother and calf humpback whale pods defined as 15 September to 10 October in any year. 	3.2
Ministerial Statement 840	11-1	Prior to commencing marine drilling and blasting activities, the proponent shall prepare to the requirements of the Chief Executive Officer of the Office of the EPA (CEO), a Drilling and Blasting Management Plan (D&BMP), in consultation with <ol style="list-style-type: none"> 1. Department of Environment and Conservation 2. Department of Transport (Maritime Division) 3. Department of Fisheries 4. Department of the Environment, Water, Heritage and the Arts (now DSEWPaC) 	3.4
Ministerial Statement 840	11-2	The objectives of the D&BMP are to ensure that drilling and blasting activities are managed to minimise adverse impacts on marine vertebrate species. The D&BMP shall include: <ol style="list-style-type: none"> 1. An assessment of the amount of drilling and blasting required and over what area 2. An assessment of likely blast pressures and potential environmental impacts of these pressures 3. Management actions and procedures to minimise environmental impacts, including the disposal of drilling muds and consideration of ecological windows between seasonally sensitive periods of marine wildlife 4. A description of how dead and injured wildlife are to be managed 5. Stakeholder communication 6. Reporting procedures and timeframes 	3.4
Ministerial Statement 840	11-3	In the event that marine drilling and blasting is required, the proponent shall implement the D&BMP required under Condition 11-1 and 11-2.	3.4

Document	Condition Number	Requirement	Section Reference
Ministerial Statement 840	11-4	The proponent shall make the D&BMP required under condition 11-1 and 11-2 publically available in a manner approved by the CEO.	3.4

This Plan, once approved by the Minister for Sustainability, Environment, Water, Population and Communities (the Minister), will be implemented in conjunction with the management actions outlined in the Dredging and Spoil Disposal Management Plan (DSDMP) and the Marine Turtle Management Plan (MTMP) that have also been prepared to manage the Port B development. Pilbara Iron will not undertake dredging and spoil disposal activities until this Plan has been approved in writing by the Minister.

In the event changes to the CMP are proposed, Pilbara Iron will seek approval from the Minister prior to implementation of any proposed changes. The finalised CMP will be made publicly available within 30 days of approval by the Minister.

2. Species of Interest

A total of 13 marine mammal species (including 12 cetaceans) listed under the EPBC Act (**Table 2-1**) have the potential to occur within the waters surrounding the development area (DEWHA 2009). Of these, the humpback (*Megaptera novaeangliae*) whale is listed as threatened, and the blue (*Balaenoptera musculus*) whale is listed as endangered (DEWHA 2009). These two species have special protection under the *Wildlife Conservation Act 1950* (WA) where they are described as 'rare or likely to become extinct'. The other whale and dolphin species that may be found within the region are listed as migratory and/or marine species under the EPBC Act and are protected as they are regarded as species of national environmental significance (DEWHA 2009).

■ **Table 2-1 Marine mammal species of conservation significance (EPBC Act) found in the Pilbara region**

Scientific Name	Common Name	Status	Type of Presence
<i>Balaenoptera musculus</i>	Blue whale	Endangered, Migratory, cetacean	Species or species habitat may occur within area
<i>Megaptera novaeangliae</i>	Humpback whale	Vulnerable, Migratory, cetacean	Species or species habitat may occur within area
<i>Balaenoptera edeni</i>	Bryde's whale	Migratory, cetacean	Species or species habitat may occur within area
<i>Orcinus orca</i>	Killer whale, orca	Migratory, cetacean	Species or species habitat may occur within area
<i>Sousa chinensis</i>	Indo-Pacific humpback dolphin	Migratory, cetacean	Species or species habitat may occur within area
<i>Tursiops aduncus</i> (Arafura/Timor Sea populations)	Spotted bottlenose dolphin (Arafura/Timor Sea populations)	Migratory, cetacean	Species or species habitat likely to occur within area
<i>Balaenoptera acutorostrata</i>	Minke whale	Cetacean	Species or species habitat may occur within area
<i>Delphinus delphis</i>	Common dolphin	Cetacean	Species or species habitat may occur within area
<i>Grampus griseus</i>	Risso's dolphin, grampus	Cetacean	Species or species habitat may occur within area
<i>Stenella attenuate</i>	Spotted dolphin, pantropical spotted dolphin	Cetacean	Species or species habitat may occur within area
<i>Tursiops aduncus</i>	Spotted bottlenose dolphin, Indian Ocean bottlenose dolphin.	Cetacean	Species or species habitat likely to occur within area
<i>Tursiops truncatus</i> s. str.	Bottlenose dolphin	Cetacean	Species or species habitat may occur within area
<i>Dugong dugon</i> *	Dugong	Migratory, listed marine species	Species or species habitat likely to occur within area

*Not a cetacean

Blue whales and the other species of whales listed (**Table 2-1**) are unlikely to frequent the nearshore waters off Cape Lambert, tending to remain in deep water (>20 m) (Prince 2001). However, compared with all the other whale species, the occurrence of the humpback whale (*Megaptera novaeangliae*), in the Dampier/Cape Lambert area is reasonably well documented (Jenner et al. 2001). Humpback whales are regularly sighted during their seasonal migration along the Pilbara coastline, and have been spotted close to the mainland near Cape Lambert.

Prince (2001) undertook aerial surveys of marine mammals and other large fauna of the Pilbara coast in 2000 and concluded that Pilbara coastal waters support small populations of dolphins, the majority of which appear to be bottlenose (*Tursiops* sp.). Dolphins are frequently sighted in the development area surrounding the Cape Lambert wharf. However, due to their intelligent and mobile nature, the risk of direct strike with dolphins is considered low.

For these reasons, humpback whales are the key focus for this Plan. However, the management measures will also mitigate impacts to other cetacean species should they frequent the area. Potential impacts to dolphins are addressed in the marine mammal management within the DSDMP, prepared for the Port B development.

2.1. Humpback Whale Background

Humpback whales are generally found in waters greater than 20 m. Humpback whales migrate annually from feeding grounds in the Antarctic to breeding grounds in Camden Sound in the Kimberley region of Western Australia (Jenner et al. 2001). Their northern and southern migration routes pass off the coast of Cape Lambert and can stretch up to 50 km wide. Some humpback whales, during their seasonal migration along the Pilbara coastline, are spotted close to the mainland near Cape Lambert.

The northern migration off the coast of Cape Lambert peaks between the end of July and early August (Jenner et al. 2001). The peak of the south bound migration in the region occurs at the end August and early September, but potential occurrences may extend into November. Additionally, Condition 7-7 (Ministerial Statement 840) details that the peak southern migration of mother and calf humpback whale pods occurs between 15 September to 10 October in any year (**Table 2-2**).

Jenner et al. (2001) suggested that the majority of migrating whales are found in waters deeper than 50 m; however, some individuals, particularly during the southern migration, come closer to shore near Cape Lambert. 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. This is important in noting that humpback whales are not expected to occur all year-round at Cape Lambert (**Table 2-2**).

The Humpback whale migration patterns off Cape Lambert are not known in detail, however their numbers may have increased significantly since the last studies were carried out. Recent cetacean surveys by others have suggested that Nickol Bay, to the south west of Cape Lambert, may be a significant resting area for whales during their southern migration. Nickol Bay is a large (700 km²), shallow, muddy marine embayment, which is bordered to the west by the Dampier Archipelago and to the north by Delambre Island and Hauy Island (Jones 2004). The most southern extent of the embayment is located over 30 km from Cape Lambert.

- Table 2-2 Predictable occurrence periods for Humpback whales in the Cape Lambert area

	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern Migration												
Southern Migration												
<i>Legend</i>		<i>Predicted occurrence</i>				<i>Potential occurrence</i>				<i>Unlikely to occur</i>		

3. Management and Mitigation Procedures

3.1. Summary

The different zones of observation and exclusion/monitoring for cetaceans during vessel movement, pile driving and dredging and disposal and are summarised in **Table 3-1**.

■ **Table 3-1 Precaution zones surrounding dredge and construction works**

Activity	Observation Zone	Exclusion Zone / Monitoring Zone
Vessel movement	1 km	300 m*
Pile driving	2.5 km	2 000 m*
Dredging and spoil disposal activities	1 km	300 m*

* This does not apply for dolphins.

The definitions of these zones are as follows:

- **Observation Zone** – For vessel movements and dredging and spoil disposal activities, this is the radius cetaceans and their movements will be monitored, recorded and reported. Within the distance set for pile driving activities, the 2.5 km distance was based on the EPBC Act policy statement 2.1 (DEWHA 2008) and refined from the 160 db maximum ranges modelled by SVT (SVT 2009). Where a cetacean moves within this 2.5 km radius, pile driving works shall not commence.
- **Exclusion Zone / Monitoring Zone** – For vessel movements, this is the minimum required distance between operating vessels and cetaceans. Dredging or spoil disposal works will not commence where a cetacean is observed within this zone. Where activities are already underway, the activity will cease if cetaceans enter this zone. For pile driving, the 2 000 m exclusion zone was dictated within DSEWPaC correspondence. It should be noted that Condition 7-3 (Ministerial Statement 840) details only a 500 m exclusion zone for pile driving activities. Therefore the 2 000 m exclusion zone is considered conservative.

The observation and exclusion / monitoring zones will be monitored by an appropriately trained lookout during vessel movements and dredging and spoil disposal activities, while a dedicated Marine Fauna Observer (MFO) will be contracted during piling operations. The nominated lookouts will be selected crew who have received training in marine fauna observations from a qualified person. A MFO is as defined within Condition 7-1 of Ministerial Statement 840.

The management and mitigation measures specific to each activity are detailed within the subsequent sections.

3.2. Vessel Movements

Increased vessel movements within the Port B development area will increase the probability of cetacean strikes leading to injury or mortality simply through the number of additional vessels that will be in the area. However, there is evidence that large cetaceans including humpback whales typically exhibit short term behavioural changes in response to approaching vessels including

increasing dive times and moving away from the vessels’ path (Baker and Herman 1989). To further reduce the likelihood of vessel strikes to cetaceans during construction activities and dredging and spoil disposal works associated with the Port B development, the following mitigation and management measures will be implemented (**Table 3-2**).

Due to the stationary nature of the Cutter Suction Dredge (CSD) and the Back Hoe Dredge (BHD) and the slow speed of the Trailer Suction Hopper Dredge (TSHD) that will be used for the dredging program, there is a low risk of collision between these dredge vessels and cetaceans as a result of the Port B development (refer **Section 3.3**). As a minimum requirement, mitigation and management measures have been developed in accordance with the Environment Protection and Biodiversity Conservation Regulations 2000.

■ **Table 3-2 Cetacean vessel movement mitigation and management measures**

Performance Objectives	Targets	Key Performance Indicators
To limit impacts to marine mammals in the development area	No impacts to marine mammals as a result of vessel movement	The number of reported injured or dead marine mammals within the work area
<p>Management Measures – vessel movements</p> <ul style="list-style-type: none"> ■ Prior to commencement of dredging and construction activities, nominated crew will receive training from a qualified person. This training will include details of procedures to be followed in the event of marine mammals sighting, injury or death. ■ Marine mammals (except dolphin) observation and response procedures, including the application of a 1 km observation zone and a 300 m vessel movement exclusion zone, will be implemented during dredging, spoil disposal and construction works (piling activities separate (refer to Table 3-3). ■ An appropriately trained lookout will be maintained for cetaceans while any dredging or construction vessels travel within the project area. ■ In the event that a cetacean is sighted by the nominated lookout, vessel speeds and direction will be adjusted to avoid the observed individual (within the safety constraints of the vessel). ■ All port related vessels will be made aware of the locations of the dredges and associated equipment such as floating or submerged pipelines, cables and support vessels. Information will be exchanged between involved parties with regards to planned shipping movements and dredging activities. Should marine mammals be sighted within 300 m of dredging and /or spoil disposal activities, all construction vessels operating as a component of the Port B development will be notified. <p>Reporting</p> <ul style="list-style-type: none"> ■ Pilbara Iron will record and report (i.e. email / fax statement), all marine mammal (including dolphin) injury and mortality incidents to the DEC and DSEWPaC within 24 hours. Details will include the time and nature of each incident and the species involved, if known. ■ All sightings of marine mammals (except dolphins) will be recorded on a Cetacean and Marine Fauna Survey Form (Appendix D). 		

During ongoing operations, routine vessels that use the Cape Lambert port terminals are displacement type vessels (bulk ore carriers and tugs). Ore carriers travel at about 7 knots whilst in the shipping channel. The potential risk of vessel strike with a cetacean by loaded ore carriers is reduced because of the relatively low speed of travel of these vessels, their large bulk, their high visibility and the underwater noise they generate, which tend to lead to avoidance behaviours. Ore carriers have no capacity to safely manoeuvre within the shipping channel to avoid striking a cetacean if one is identified on a potential collision course. Furthermore, the distance required to significantly reduce the travelling speed of a fully loaded ore carrier in order to avoid a potential collision with a cetacean within the shipping channel makes this option of limited effectiveness.

Tugs travel up to about 12 knots when making their way to and from the berths and ore carriers. Speed reduction and course amendment by travelling tugs to avoid potential collision with cetaceans is undertaken and is effective.

The greater risk of vessel strike is from the higher speed vessels, such as recreational vessels. Pilbara Iron does exclude recreational vessels from approaching the wharf/jetty structure; this reduces the risk of high speed vessel strike from recreational vessels in that area. The capacity of Pilbara Iron to adequately control recreational vessels and prevent vessel strikes with cetaceans in the Cape Lambert and surrounding areas is limited.

3.2.1. Predicted Outcome of Vessel Movements

There is a low risk of collision between vessels and cetaceans as a result of the Port B development due to the expected avoidance behaviour of the cetaceans (McCauley et al. 2000) and the implementation of conservative management measures during construction. This predicted outcome is consistent with the earlier and similar work undertaken at Cape Lambert where there were no recorded injuries to marine fauna associated with the dredging activity or shipping movement. As such the objective to maintain the abundance, biodiversity, productivity and geographic distribution of marine fauna will be achieved.

3.3. Pile Driving Activities

Pile driving generates impulse noises where although most of the energy is directed down into the seabed, some energy will propagate horizontally through the ocean. Noise has the ability to interfere with the communication in cetaceans (Weilgart 2007) and may result in behavioural responses, such as avoidance behaviours (Tyack 2008).

The following mitigation and management measures have been put in place to reduce potential impact from underwater noise associated with pile driving activities to cetaceans during the construction phase of the Port B development (**Table 3-3**). As a minimum requirement, mitigation and management measures have been developed in accordance with the Environment Protection and Biodiversity Conservation Regulations 2000.

■ **Table 3-3 Cetacean pile driving activities mitigation and management measures**

Performance Objectives	Targets	Key Performance Indicators
To limit impacts to marine mammals in the development area	No impacts to marine mammals as a result of piling activity	The number of reported injured or dead marine mammals within 2 km of the construction site
Management Measures – pile driving		
<ul style="list-style-type: none"> ■ Pilbara Iron will engage a dedicated Marine Fauna Observer/s who will: <ol style="list-style-type: none"> 1. Demonstrate a knowledge and experience of marine wildlife species and their behaviours in the Pilbara region 2. Have the capacity, subject to safety considerations, to move independently between pile driving barges and within the exclusion zones surrounding piling operations 3. Be on duty during all daylight hours when pile driving operations are conducted 4. Maintain a log of: <ol style="list-style-type: none"> a. Observed cetaceans in a format consistent with the National Cetacean Sighting and Strandings Database. 		

<ul style="list-style-type: none"> b. Other marine fauna observations, including fish kills and wildlife injuries within 500 m of piling operations. c. Fauna behaviours, in particular any behaviours that could be attributed to piling activities. d. Management responses in relation to dead and injured wildlife, including the suspension of piling activities. e. Observation effort in relation to piling activities. <ul style="list-style-type: none"> ■ Pilbara Iron will implement a marine fauna exclusion zone for sensitive species (Humpback whales or other cetaceans, excluding dolphins) consisting of a 2 000 m radius from the noise emission source (i.e. pile driving). ■ Pile driving will be conducted during daylight hours (defined between 6am and 7pm only). ■ Where an application to pile drive at night (beyond those defined hours above) is sought from or approved by the DEC, Pilbara Iron will update the CMP accordingly and submit it for approval by the Minister in accordance with Condition 20 of EPBC 2008/4032. ■ Pile driving activities will not commence during daylight hours, until the designated Marine Fauna Observer/s have verified that no whales have been observed within 2.5 km, from the planned piling operation, during the 20 minute period immediately prior to the commencement of pile driving. ■ Soft start-up procedures that slowly increase the intensity of noise emissions over a period of no less than 20 minutes will be implemented. ■ Should sensitive marine fauna (Humpback whales or other cetaceans) be observed or enter into the 2 000 m exclusion zone, pile driving will cease until such time as the cetacean has, or cetaceans have, moved outside the 2 000 m exclusion zone or has not been sighted for 20 minutes. ■ No pile driving shall occur between the hours of sunset and sunrise during the peak southern migration of mother and calf humpback whale pods defined as 15 September to 10 October in any year. ■ Pilbara Iron will implement acoustic controls on the pile drivers to reduce noise at source. ■ Warning strikes will not be used to deter cetaceans from the area. ■ Vessels will not be used to herd cetaceans from the area. <p>Reporting</p> <ul style="list-style-type: none"> ■ Pilbara Iron will record and report (i.e. email / fax statement), all marine mammal (including dolphin) injury and mortality incidents to the DEC and DSEWPaC within 24 hours. Details will include the time and nature of each incident and the species involved, if known. ■ All sightings of marine mammals (except dolphins) will be recorded (Appendix D). ■ Pilbara Iron will within six months of completing pile driving operations for the Port B development, lodge cetacean records with the National Cetacean Sighting and Strandings Database at the Australian Antarctic Division.
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3.3.1. Predicted Outcome of Pile Driving Activities

It is considered unlikely there will be any long term detrimental effect to cetaceans in the vicinity of the Port B development as a result of pile driving. This is due to the highly conservative exclusion zone of 2 000 m as the impact of noise reduces with distance as the modelling results indicate (SVT 2009). The CMP outlines specific mitigation and monitoring measures to limit impacts.

3.4. Dredging and Spoil Disposal

The dredging and spoil disposal program will utilise three types of dredge: CSD, BHD and TSHD. The former two are stationary dredges and the latter is a slow moving dredge. Dredges will be operating in close proximity to the wharf, dredging for berth pockets, turning basins, approach / departure channel and the tug harbour extension. Dredges will also operate in the main departure channel and around the existing tug harbour for short periods. Dredges will transit to one of the three offshore spoil grounds to dump dredged material.

The following mitigation and management measures have been put in place to reduce potential impact from dredging and spoil disposal activities to cetaceans during the dredging (and spoil disposal) program component of the Port B development (**Table 3-4**). As a minimum requirement mitigation and management measures have been developed in accordance with the Environment Protection and Biodiversity Conservation Regulations 2000.

■ **Table 3-4 Cetacean dredging and spoil disposal mitigation and management measures**

Performance Objectives	Targets	Key Performance Indicators
To limit impacts to marine mammals in the development area	No impacts to marine mammals as a result of dredging and spoil disposal activities	The number of reported injured or dead marine mammals within the work area
<p>Management Measures – dredging and spoil disposal</p> <ul style="list-style-type: none"> ■ Prior to commencement of dredging activities, all appropriate crew will receive training from a qualified person. This training will include details of procedures to be followed in the event of marine mammals sighting, injury or death. ■ Marine mammal (except dolphin) observation and response procedures including the application of a 1 km observation zone and a 300 m monitoring zone will be implemented during dredging and spoil disposal activities. ■ Prior to commencement of dredging and spoil disposal activities, an appropriately trained lookout will check, using binoculars from a high observation platform on the vessel, for cetaceans within the 300 m monitoring zone. ■ Where cetaceans are sighted in the monitoring zone, dredging/dumping activities will not commence in the 300 m monitoring zone until 20 minutes after the last cetacean is observed to leave the monitoring zone. Alternatively the dredge is to move to another area of the dredge / disposal site to maintain a minimum distance of 300 m between the vessel and any cetacean. ■ Should sensitive marine fauna (Humpback whales or other cetaceans) be observed or enter into the 300 m monitoring zone, dredging and / or spoil disposal activities will cease until such time as the cetacean has, or cetaceans have, moved outside the 300 m monitoring zone or has not been sighted for 20 minutes. ■ A lookout will be maintained for cetaceans while any dredging or construction vessels travel within the Port B development area. In the event that a cetacean is sighted, vessels speeds and direction will be adjusted to avoid collision with the observed individual (within the safety constraints of the vessel). ■ All port related vessels will be made aware of the locations of the dredges and associated equipment such as floating or submerged pipelines, cables and support vessels. Information will be exchanged between involved parties with regards to planned shipping movements and dredging activities. Should marine mammals be sighted within 300 m of dredging and /or spoil disposal activities, all construction vessels operating as a component of the Port B development will be notified. <p>Reporting</p> <ul style="list-style-type: none"> ■ Pilbara Iron will record and report (i.e. email / fax statement), all marine mammal (including dolphin) injury and mortality incidents to the DEC and DSEWPaC within 24 hours. Details will include the time and nature of each incident and the species involved, if known. ■ All sightings of marine mammals (except dolphins) will be recorded (Appendix D). 		

3.4.1. Predicted Outcome of Dredging and Spoil Disposal

Due to the stationary nature of the CSD and the BHD and the slow speed of the TSHD, there is a low risk of collision between these dredge vessels and cetaceans. The 300 m exclusion zone is a conservative mitigation measure in the case that a cetacean does not exhibit avoidance behaviour as expected (Baker and Herman 1989). Any impacts from turbidity generated by dredging and spoil disposal activities will be managed through Section 4.2 of the DSDMP prepared for the Port B development.

3.5. Marine drill and blast

Currently, there are no marine drilling and blasting activities proposed for the Port B development. Both the Commonwealth EPBC 2008/4032 and the State Ministerial Statement 840 approval contain conditions pertaining to marine drill and blast activities.

If marine drilling and blasting activities are proposed for the Port B development in the future, both the DSEWPaC and the EPA will be advised and in accordance with current approval conditions, management plans addressing the marine drill and blast activities will be prepared in consultation with those Government agencies stipulated in the aforementioned Conditions (**Table 1-1** and **Table 1-2**).

To minimise impacts to listed threatened, migratory species and other marine vertebrate species a combined Blasting Management Plan (BMP) and Drilling and Blasting Management Plan (D&BMP) will be prepared, to address both the Commonwealth and State requirements, respectively. The Plan will be developed to the requirement of the CEO of the EPA and will be submitted to the Commonwealth Minister for approval at least two months prior to the commencement of blasting activities.

Blasting activities will not commence until the BMP/D&BMP has been approved in writing by the Minister. The approved BMP/D&BMP will be made publicly available, in a manner approved by the CEO, and within 30 days of any written approval issued by the Minister.

The approved BMP/D&BMP will be implemented where drilling and blasting activities are undertaken. Any amendments to the BMP/D&BMP will be approved by the Minister before the amended plan is implemented.

■ **Table 3-5 Cetacean drill and blast mitigation and management measures**

Performance Objectives	Targets	Key Performance Indicators
To limit impacts to marine mammals in the development area	No impacts to marine mammals as a result of marine drill and blast activities	The number of reported injured or dead marine mammals associate with drill and blast activities
<p>Management Measures – Marine drill and blast</p> <p>This BMP/D&BMP will incorporate management and monitoring for Commonwealth listed threatened and migratory species (including cetaceans)</p> <p>This plan will include:</p> <ul style="list-style-type: none"> ■ A description of the drill and blast methodology, developed according to detailed site characteristics not available to date (i.e. area and depth to be blasted, rock hardness and proximity of other infrastructure) and environmental protection requirements ■ An assessment of the amount of drilling and blasting required including geographical extent ■ Nomination of the likely blast pressures and potential environmental impacts of these pressures ■ Management actions and procedures to minimise environmental impacts including the disposal of drilling muds and consideration of ecological windows between seasonally sensitive periods for marine wildlife ■ Monitoring for the presence of listed threatened and migratory species, including exclusion zones, prior to and during blasting ■ Commitments that any blasting activities will not be undertaken at night or during turtle nesting or hatchling seasons ■ Post blast inspection for injured fauna including management and reporting of injured fauna ■ A description of how dead and injured wildlife are to be managed 		

- Details of responsible parties for each action described in the BMP/D&BMP, including reporting requirements and timeframes
- Stakeholder communication

3.5.1. Predicted Outcome of Marine Drilling and Blasting

No marine drilling and blasting is currently planned for the Port B development so the scope of works for such activity and the associated outcomes cannot be predicted at this time. Management measures will be defined in a combined BMP/D&BMP as required by the EPBC 2008/4032 approval and Ministerial Statement 840. This BMP/D&BMP will address the management of the key elements of any future proposed drilling and blasting activity for the Port B development to the prior satisfaction of the DSEWPaC and EPA.

4. Monitoring

Opportunistic surveys will also be undertaken during the dredge monitoring programs in addition to observations made from vessel and by look-outs and by the Marine Fauna Observers. This will contribute to the knowledge of cetacean abundance and distribution in the region. The survey template for this opportunistic survey program is provided (**Appendix D**).

Additionally, an opportunity to record any sightings of cetaceans by staff within the proposed development area will be provided. Training on the identification of cetaceans and the procedure in completing the survey forms will be available to personnel involved with the Port B development and possibly the Cape Lambert Operations personnel (e.g. helicopter pilots). All data collected from these opportunistic cetacean surveys will be available to the DEC and DSEWPaC, in an effort to help increase knowledge of cetacean movement around the Cape Lambert area.

No pre-dredging opportunistic survey to collect whale (or dolphin) data has been undertaken for the Port B development. EPBC 2008/4032 approval conditions 10, 11, 12 and 13 require an Ecosystem Research and Monitoring Program (ERMP) to be prepared and submitted to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities within six months of the date of approval of the Port B development. The requirements of that ERMP incorporate monitoring programs for listed and threatened migratory species populations associated habitat and the Commonwealth Marine Areas and the behaviour of listed threatened and migratory species including (but not limited to) cetaceans and marine turtles.

5. Review and Amendment Procedures

This CMP will be reviewed annually, or in response to significant changes in project scope, legislative requirements, risk profile or occurrence of major environmental incidents.

Pilbara Iron will update the CMP and submit an amendment for approval to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities.

If the project requires Pilbara Iron to carry out an activity otherwise than in accordance with the approved CMP, Pilbara Iron will update the CMP and submit it for approval by the Minister in accordance with Condition 20 of EPBC 2008/4032. The varied activity shall not commence until the Minister has approved the varied CMP in writing. If the Minister approves such a revised CMP, it must be implemented in place of the CMP originally approved. As per Condition 24 of EPBC 2008/4032, the Minister may also direct Pilbara Iron to revise the CMP.

6. References

- Baker, CS & Herman, LM, 1989, *Behavioral responses of summering humpback whales to vessel traffic: experimental and opportunistic observations*, Final Report to the National Park Service. U. S. Department of the Interior Anchorage, AK.
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<<http://www.environment.gov.au/erin/ert/epbc/index.html>>
- Jenner, KCS Jenner, MNM & McCabe, KA 2001, Geographical and Temporal Movements of Humpback Whales in Western Australian Waters, *APPEA Journal*, 38:692-707.
- Jones, DS 2004, The Burrup Peninsula and Dampier Archipelago, Western Australia: an introduction to the history of its discovery and study, marine habitats and their flora and fauna, *Records of the Western Australian Museum*, 66:27–49.
- McCauley, RD Fewtrell, J Duncan, AJ Jenner, C Jenner, MN Penrose, JD Prince, RIT Adhitya, A Murdoch, J & McCabe, K 2000, Marine Seismic Surveys: a Study of Environmental Implications, *Australian Petroleum Production and Exploration Association Journal*, 40:692-708.
- Prince, RIT, 2001, *Aerial Survey of the Distribution and Abundance of Dugongs and Associated Macrovertebrate Fauna - Pilbara Coastal and Offshore Region, WA*. Report prepared for Environment Australia
- SVT, 2009, *Cape Lambert Port B Development Underwater Noise Assessment*. Report prepared by SVT Engineering Consultants for Rio Tinto Iron Ore, August 2009.
- Tyack, P 2008, Implications for marine mammals of large-scale changes in the marine acoustic environment, *Journal of Mammalogy*, 89:549-558.
- Weilgart, LS 2007, The impacts of anthropogenic ocean noise on cetaceans and implications for management, *Canadian Journal of Zoology*, 85:1091-1116.

Appendix A Environment Protection and Biodiversity Conservation approval 2008/4032



Australian Government

Department of Sustainability, Environment, Water, Population and Communities

Approval

Cape Lambert Port B Development, Pilbara Region, WA (EPBC 2008/4032)

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted Pilbara Iron Pty Ltd

proposed action To undertake development of a new port facility and associated infrastructure at Cape Lambert in the Pilbara region of Western Australia.

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approved
Listed migratory species (sections 20 & 20A)	Approved
Commonwealth marine areas (sections 23 & 24A)	Approved

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until fifty years from the date of this decision

Decision-maker

name and position Vicki Middleton
Assistant Secretary
Environment Assessment Branch

Signature

date of decision

26 October 2010

DECISION ON CONTROLLED ACTION – approved subject to conditions

Cape Lambert Port B Development, Pilbara Region, WA (EPBC 2008/4032)

Sea Dumping Permit

- 1) The person taking the action must comply with the requirements of any permit obtained under the Commonwealth *Environment Protection (Sea Dumping) Act 1981*, including any conditions attached.

Dredging and Spoil Disposal Management Plan

- 2) To mitigate the impacts from the dredging activities on EPBC Act listed threatened and migratory species and the Commonwealth marine area, the person taking the action must prepare and submit to the Minister for approval a Dredging and Spoil Disposal Management Plan (DSDMP). The Plan must include the following:
 - a) Measures (for example mitigation measures, performance indicators/trigger levels and corrective actions/management actions) that will ensure there are no unacceptable impacts on EPBC Act listed threatened species, migratory species and/or the Commonwealth marine area. These must include:
 - i. operating procedures to minimise injury to, or mortality of, EPBC Act listed threatened or migratory species from dredging activities;
 - ii. reporting mechanisms that ensure reporting to the Minister within one business day of injury to, or mortality of, any EPBC Act listed threatened or migratory species caused by dredging activities;
 - iii. management triggers and contingency measures when dredging must be varied or suspended, including requirements to report to the Minister;
 - iv. measures that minimise the risk of introduced marine pest species, including ballast-water management and vessel inspections for any non-domestic vessels;
 - v. measures to prevent and respond to accidental fuel, oil or chemical spills;
 - vi. measures that ensure that dredging activities do not impact corals during coral spawning periods, including suspension of dredging activities;
 - vii. measures to monitor water quality, turbidity plume and coral health, including dredging exclusion periods and management triggers;
 - viii. responsive actions that must be undertaken in the event contingency measures are employed, including requirement to report to the Minister; and
 - ix. reactive and post dredge monitoring, including reporting timeframes.
 - b) Details of responsible parties for each activity described in the DSDMP, noting that the person to whom this approval is granted is responsible for the proposed action; and
 - c) Measures that ensure periodic reviews of the DSDMP and that ensure continual improvement measures are applied accordingly. This condition does not remove the requirement under Condition 20.
- 3) Dredging activities must not commence until the DSDMP has been approved by the Minister in writing. The approved DSDMP must be implemented.

Cetacean Management Plan

- 4) To mitigate the impacts on cetaceans from the dredging activities, construction activities and the ongoing operation of the Cape Lambert Port, the person taking the action must prepare and submit to the Minister for approval a Cetacean Management Plan (CMP). The Plan must include the following:
 - a) measures to prevent vessel strike during dredging activities, construction activities and ongoing operation of the Cape Lambert Port;
 - b) measures to prevent any potential impact from underwater noise during construction;

- c) monitoring and exclusion zones during dredging and noise emitting construction activities, including pile driving;
 - d) details of the responsible parties for each activity described in the CMP, noting that the person to whom this approval is granted is responsible for the proposed action and the reporting requirements of the responsible parties; and
 - e) measures that ensure periodic reviews of the CMP and that ensure continual improvement measures applied accordingly. This condition does not remove the requirement under Condition 20.
- 5) Dredging activities must not commence until the CMP has been approved by the Minister in writing. The approved CMP must be implemented.

Marine Turtle Management Plan

- 6) To mitigate the impacts from dredging activities on marine turtles, during construction and ongoing operation of the Cape Lambert Port facilities, the person taking the action must prepare and submit to the Minister for approval a Marine Turtle Management Plan (MTMP). The Plan must include the following:
- a) measures for the protection of marine turtles during pile driving activities, including soft start up procedures, monitoring for the presence of marine turtles and exclusion zones;
 - b) mitigation measures for light spill management and reduction, including, but not limited to, the lighting sources, lighting intensity, directionality and shrouding.
 - c) turtle behaviour monitoring programs including adult nesting activity at Bells Beach and Cooling Water Beach, relative to other sites in the region, including hatchling dispersal (onshore and offshore);
 - d) long term population monitoring programs at Bells Beach and Cooling Water Beach;
 - e) a monitoring program to measure the magnitude of pile driving impacts effects on nest sites at Cooling Water Beach;
 - f) a nest relocation programme for Cooling Water Beach in the event that monitoring indicates a significant decline in nest success relative to other beaches;
 - g) monitoring programs for the stability and vegetation cover of the Bells Beach primary dune, including responsive actions in the event that monitoring data indicates that landform stability is being reduced as a result of erosion, vegetation cover reduction or other processes;
 - h) measures for reporting incidents involving marine turtles to the Department throughout the life of port operations;
 - i) details of responsible parties for each activity described in the MTMP, noting that the person to whom this approval is granted is responsible for the proposed action, and the reporting requirements of the responsible parties; and
 - j) measures that ensure periodic reviews of the MTMP and that ensure continual improvement measures applied accordingly. This condition does not remove the requirement under Condition 20.
- 7) Dredging activities must not commence until the MTMP has been approved by the Minister in writing. The approved MTMP must be implemented.

Blasting Management Plan

- 8) To minimise impacts to listed threatened and migratory species, if underwater blasting is required, the person taking the action must prepare and submit to the Minister for approval a Blasting Management Plan (BMP), at least 2 months prior to commencement of blasting activities. The Plan must include the following:
- a) a description of the blast methodology;
 - b) the amount of blasting required and over what area;

- c) nomination of target blast pressures and potential environmental impacts of these pressures;
 - d) monitoring for the presence of listed threatened and migratory species, including exclusion zones, prior to and during blasting;
 - e) commitments that any blasting activities will not be undertaken at night or during turtle nesting or hatchling seasons;
 - f) post blast inspection for injured fauna including management and reporting to the Department of injured fauna; and
 - g) details of responsible parties for each action described in the BMP, including reporting requirements.
- 9) Blasting activities must not commence until the BMP has been approved in writing by the Minister. The approved BMP must be implemented.

Ecosystem Research and Monitoring Program

- 10) The person taking the action must develop and implement an Ecosystem Research and Monitoring Program (ERMP) to acquire a detailed ecological understanding of the marine environment of the Cape Lambert region, that can be used to monitor, manage and/or improve the regional marine environment. The Plan must include monitoring programs for the following:
- a) Coastal processes including beach degradation;
 - b) Condition of listed and threatened migratory species populations, associated habitat and the Commonwealth Marine Areas;
 - c) Behaviour of listed threatened and migratory species, including but not limited to, cetaceans and marine turtles. This should include monitoring of potential important habitats, including resting areas;
 - d) Water quality;
 - e) Benthic habitat, including but not limited to, coral, seagrass, mangrove; and
 - f) Implementation and reporting timeframes for each of the actions described above.
- 11) The ERMP must be submitted to the Minister for approval no later than six months from the date of this approval.
- 12) After 12 months from the date of this approval, dredging activities must not thereafter be undertaken unless the Minister has approved the ERMP in writing. The approved ERMP must be implemented.
- 13) The results of the ERMP must be used to inform an adaptive management response to observed impacts and/or any potential impacts identified, and to inform the continuous improvement of the management measures within the MTMP, CMP and BMP (if required).

Conditions – Other

- 14) The person taking the action must ensure that all relevant staff and contractors and any other persons working on the action receive comprehensive training in relation to the requirements of this decision and comply with all requirements of this decision relevant to their duties prior to commencing action on the project.
- 15) Upon the direction of the Department, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Department. The independent auditor must be approved by the Department prior to the commencement of the audit. Audit criteria must be agreed by the Department and the audit report must address the criteria to the satisfaction of the Department.
- 16) If, at any time after two years from the date of this approval, the Minister notifies the person taking the action that the Minister is not satisfied that there has been substantial commencement of the action, the action must not thereafter be commenced without the written agreement of the Minister.

- 17) Within 10 days of commencement of the action, the person taking the action must advise the Minister in writing of the actual date of commencement.
- 18) Each year the person taking the action must provide a report to the Minister addressing compliance with each of the conditions of this approval. The date of the first compliance report must be within twelve months from the date of this approval with each subsequent report 12 months from the date of the previous report. The Compliance report must:
 - (a) be endorsed by Pilbara Iron Pty Ltd or a person approved in writing by the Department, who is delegated to sign on behalf of Pilbara Iron Pty Ltd;
 - (b) include a statement as to whether the person taking the action has complied with the conditions;
 - (c) identify any non-compliances and describe corrective and preventative actions taken; and
 - (d) make the compliance report publicly available on the Internet within 30 days of it being submitted to the Minister.
- 19) The Reports described at Condition 18 must be provided until the expiry of this approval.
- 20) If the person taking the action wishes to carry out any activity otherwise than in accordance with the DSDMP, CMP, MTMP, BMP and ERMP, referred to in conditions 2, 4, 6, 8, and 10, respectively, the person taking the action must submit for the Minister's approval a revised version of the relevant plan or program (however described). The varied activity shall not commence until the Minister has approved the varied plan or program in writing. If the Minister approves such a revised plan or program, that plan or program must be implemented in place of the plan or program originally approved.
- 21) Management plans, reports, systems and programs (however described) referred to in these conditions of approval must be made publicly available within 30 days of approval by the Minister.
- 22) All plans, reports or programs (however described) required under this approval must include the following elements:
 - (a) a description of the EPBC Act listed species and habitat likely to be impacted by the components of the action which are the subject of that plan, report or program (however described);
 - (b) an assessment of the risk to these values, species or habitats, from the components of the action that are the subject of or relevant to that plan, report or program (however described);
 - (c) details of the management measures proposed in relation to these values, species or habitats, if it is a requirement of the condition requiring that plan, report or program (however described);
 - (d) details of monitoring proposed for that species if it is a requirement of the condition requiring that plan, report or program (however described);
 - (e) performance standards in relation to that species if it is a requirement of the condition requiring that plan, report or program (however described); and
 - (f) management triggers in relation to that species if it is a requirement of the condition requiring that plan, report or program (however described).
- 23) The person taking the action must maintain accurate records of activities associated with or relevant to the above conditions of approval, and make them available on request by the Department. Such documents may be subject to audit by the Department and used to verify compliance with the conditions of approval.
- 24) If the Minister believes that it is necessary or desirable for the better protection of any relevant controlling provision to do so, the Minister may request that the person taking the action make specified revisions to any plans, reports or programs (however described) approved pursuant to these conditions. The person taking the action must comply with any such request. The revised plans, reports or programs (however described) must be implemented.

Definitions

In this document, unless a contrary intention appears, the terms below have the meanings given to them:

Blasting activities: means any blasting of consolidated seabed material.

Dredging activities: means all activities associated with the dredging and disposal including:

- i the excavation or dredging of the material;
- ii the loading and carriage of dredged material for the purpose of dumping;
- iii the dumping of the material at the prescribed disposal sites.

Construction activities: means the commencement of any works that may impact on threatened and/or migratory species due to disturbance of habitat including disturbance resulting from dredging, increased noise and/or increased lighting.

The Department: is the Australian Government Department responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.

The Minister: is the Australian Government Minister who administers the *Environment Protection and Biodiversity Conservation Act 1999*.

EPBC Act: is the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth).

Appendix B Sea Dumping Permit SD2008/0822



ENVIRONMENT PROTECTION (SEA DUMPING) ACT 1981

SEA DUMPING PERMIT No. SD2008/822

for

PILBARA IRON PTY LTD

I, VICKI JANE MIDDLETON, a delegate of the Minister for Sustainability, Environment, Water, Population and Communities, acting under Section 19 of the *Environment Protection (Sea Dumping) Act 1981*, hereby grant a sea dumping permit to Pilbara Iron Pty Ltd, GPO Box A42, PERTH WA 6837, to load for the purposes of dumping, and to dump up to 14 million cubic metres of capital seabed material derived from berth pockets, turning basins, approach/departure channel and tug harbour, as part of the Cape Lambert Port B Development, Cape Lambert, WA commencing on the date of signature of this permit and extending for a period of three years, subject to conditions which are specified in Appendices 1 and 2.

DATE.....^{26th}.....day of.....^{October}.....2010

Vicki Middleton

Vicki Middleton
Delegate of the Minister

This permit comprises six (6) pages, including Appendices 1 and 2.

CONDITIONS FOR DUMPING AT SEA OF SEABED MATERIAL DERIVED FROM CAPITAL DREDGING AT CAPE LAMBERT, WA

Definitions

In this permit:

- “the Act” means the *Environment Protection (Sea Dumping) Act 1981*;
- “the Application” means the Application for a permit under the *Environment Protection (Sea Dumping) Act 1981* submitted by Pilbara Iron Pty Ltd on 19 March 2008, subsequent information provided in the draft PER and letter dated 30 November 2010, received on 4 December 2010 - Notification of revised proposal - wharf relocation;
- “the Department” means the Department of Sustainability, Environment, Water, Population and Communities
Ports and Marine Section,
GPO Box 787, Canberra ACT 2601.
Telephone – 02 6274 1111
Facsimile – 02 6274 1620
Email – portsandmarine@environment.gov.au
or successor entities;
- “Cetacean” means the migratory whales identified as of significance under the *Environment Protection and Biodiversity Conservation Act 1999*;
- “DSDMP” means the Dredging and Spoil Disposal Management Plan;
- “draft PER” means Public Environment Review submitted by Pilbara Iron Pty Ltd dated March 2009 and subsequent PER Supplementary Information Package dated 21 August 2009;
- “dumping activities” means all activities associated with the dumping permitted under this permit, including:
(i) the excavation or dredging of the material;
(ii) the loading and carriage of dredged material for the purpose of dumping;
(iii) the dumping of the material at the prescribed disposal site;
- “Environmental incident” means any event which has the potential to, or does impact, on the environment;
- “Environmental risk” any risk, additional to those risks previously identified in the Application, which has the potential to, or does impact, on the environment;
- “GPS” means Global Positioning System;
- “Monitoring zone” means the area within 300 metres of any point on the dredging/dumping run about to be commenced; and

“vessel” means any vessel or vessels used for or in connection with the loading and/or dumping activities.

1. Except so far as the contrary intention appears, terms used in these conditions to this permit have the same meaning as such terms in the Act.
2. Pilbara Iron Pty Ltd must ensure that all activities are undertaken in accordance with the conditions of the EPBC Act approval (EPBC2008/4032).

Dredging and Spoil Disposal Management Plan (DSDMP)

3. Pilbara Iron Pty Ltd must develop and submit for the Minister’s approval a DSDMP for managing the impacts on the environment, from the dredging and dumping activities, relating to the Cape Lambert Port B Development as specified in the Application. Dredging and dumping must not commence until the DSDMP is approved by the Minister.
4. Pilbara Iron Pty Ltd may submit for the Minister’s approval a revised version of the DSDMP specified under Condition 3. If the Minister approves such a revised DSDMP, that DSDMP must be implemented in place of the original DSDMP specified at Condition 3.
5. If the Minister believes that it is necessary or desirable for the better protection of the environment to do so, the Minister may request Pilbara Iron Pty Ltd to make specified revisions to the DSDMP as specified in Condition 3 and submit the revised DSDMP for the Minister’s approval. If the Minister approves a revised DSDMP pursuant to this condition, Pilbara Iron Pty Ltd must implement that DSDMP instead of the original DSDMP specified at Condition 3.
6. The DSDMP must be made available (electronically) on Pilbara Iron Pty Ltd website within 30 days of the DSDMP being approved by the Minister as specified in Condition 3.

Material to be dumped

7. Pilbara Iron Pty Ltd must ensure that the dredged material which is loaded and dumped comprises only up to 14 million cubic metres of capital seabed material as detailed in the application.
8. Pilbara Iron Pty Ltd must ensure that each load of dredged material is dumped so that the overall dredge material is distributed evenly over the disposal site(s) specified in Condition 9.

Disposal Sites

9. Pilbara Iron Pty Ltd must only dump within the disposal site(s) prescribed by the following MGA94 (Zone 50) coordinates:

Spoil Ground One

Easting	Northing
522842	7732018
523570	7731490
522453	7729953
521725	7730481

Spoil Ground Two

Easting	Northing
525748	7735714
526476	7735186
525359	7733649
524631	7734177

Spoil Ground Three

Easting	Northing
537470	7740726
537470	7739826
535570	7739826
535570	7740726

10. Pilbara Iron Pty Ltd must establish by GPS that, prior to dumping, the vessel is within the disposal site(s) defined in Condition 9.

Access for Observers

11. At least two nominees of the Department are to be afforded access to witness, inspect, examine or audit any part of the operations, including any dumping or monitoring activity, the vessel or any other equipment, or any documented records, and are to be provided with any necessary assistance in carrying out their duties.

Mitigation Measures for Protection of Marine Species

12. Before beginning dumping activities, Pilbara Iron Pty Ltd must check, using binoculars from a high observation platform on the vessel, for cetaceans or dugongs within the monitoring zone.
13. If any cetaceans or dugongs as specified in Condition 12 are sighted in the monitoring zone, dredging/dumping activities must not commence in the monitoring zone until twenty minutes after the last cetacean or dugong is observed to leave the monitoring zone or the dredge is to move to another area of the dredge/disposal site to maintain a minimum distance of 300 metres between the vessel and any cetacean or dugong identified in Condition 12.

Environmental Risk and Incidents

14. If, at any time during the course of the dumping activities, an environmental incident occurs or environmental risk is identified, measures must be taken immediately by Pilbara Iron Pty Ltd to mitigate the risk or the impact. The situation is to be reported in writing within 24 hours, to the Department, with details of the incident or risk, the measures taken, the success of those measures in addressing the incident or risk and any additional measures proposed to be taken.
15. Pilbara Iron Pty Ltd must document any incidents involving the dumping activities that result in injury or death to any cetacean, turtle or dugong. The time and nature of each incident and the species involved, if known, must be recorded.

16. Pilbara Iron Pty Ltd must notify the Department, in writing, of any incidents documented in accordance with Condition 15. Reports must be submitted to the Department within 24 hours, or as requested by the Department.

Compliance of all Parties engaged in dumping activities

17. Pilbara Iron Pty Ltd must ensure that all persons engaged in the dumping activities under this permit, including the owner(s) and person(s) in charge of the vessel, comply with this permit and the requirements of the Act.

Monitoring and reporting

18. Pilbara Iron Pty Ltd must keep records comprising either weekly plotting sheets or a certified extract of the ship's log which detail:

- a. the times and dates of when each dumping run is commenced and finished;
- b. the position (as determined by GPS) of the vessel at the beginning and end of each dumping run, with the inclusion of the path of each dumping run; and
- c. the volume of dredge material (in-situ cubic metres) dumped and quantity in dry tonnes and compare these quantities with the total amount permitted under the permit on a daily basis.

These records are to be retained by Pilbara Iron Pty Ltd for verification and audit purposes.

19. A bathymetric survey of the disposal sites must be undertaken by Pilbara Iron Pty Ltd:

- a. prior to the commencement of dredging under this permit; and
- b. within one month of the completion of all dumping activities authorised under this permit.

20. Within two (2) months of the final bathymetric survey being undertaken, Pilbara Iron Pty Ltd must provide a digital copy of each of the bathymetric surveys to the RAN Hydrographer, Locked Bag 8801, South Coast Mail Centre, NSW 2521.

21. Pilbara Iron Pty Ltd must provide a report on the bathymetry to the Department within two (2) months of the final bathymetric survey being undertaken. The report must include a chart showing the change in sea floor bathymetry as a result of dumping and include written commentary on the volumes of dumped material that have been retained within the disposal site.

22. To facilitate annual reporting to the International Maritime Organization, Pilbara Iron Pty Ltd must report to the Department by 31 January each year, including on the day of the expiry of the permit or completion of all dumping activities under this permit, information at Appendix 2 to this permit, or in a format as approved by the Department from time to time.

Appendix 2: Sea Dumping Permit International Reporting Requirements

Please fill in this form and return it by **email only** to the Department of Sustainability, Environment, Water, Population and Communities by 31 January each year. This information is required for Australia's International reporting obligations under the London Protocol. Email: portsandmarine@environment.gov.au

Permit Holder: Address: Submitted by: Phone: Email:	Date: (dd/mm/yyyy)
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Sea Dumping Permit number:

Permit start date: (dd/mm/yyyy) **Permit end date:** (dd/mm/yyyy)

Approved dumping site/s:

Geographical position

Latitude	Longitude

Permit quantity:

Quantity dumped (cubic metres/number) in the preceding calendar year:

Description of material Please tick relevant box or boxes

- Capital Dredged Material , Maintenance Dredged Material , Fish Waste ,
 Vessels , Platforms , Sewage Sludge , Organic Material of Natural Origin ,
 Bulky Waste , CO₂ , Inert-Inorganic Geological Material ,

Comments:



Mr Peter Royce
Principal Advisor – Environmental
Approvals
Rio Tinto Iron Ore
GPO Box A42
PERTH WA 6837

Date: 21 March 2011
EPBC Ref: 2008/4032
SD Ref: 2008/822
Contact: Dionne Cassanell
(02) 6274 2487
dionne.cassanell@environment.gov.au

Dear Mr Royce

Variation to Management Plans (EPBC2008/4032) and Variation to Sea Dumping Permit (SD2008/822) for the Cape Lambert Port B Development

I refer to your email of 22 December 2010 advising the Department of the change to the configuration of the tug harbour as part of the Cape Lambert Port B Development and the subsequent telephone conversations with Ms Dionne Cassanell of this Department in relation to the variation of management plan(s) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval and variations to the Sea Dumping Permit.

The Department has reviewed the revised Cetacean Management Plan (CMP) (Rev 5 dated 18 February 2011), Dredging and Spoil Disposal Management Plan (DSDMP) (Rev 8 dated 1 March 2011) and the Marine Turtle Management Plan (MTMP) (dated February 2011) and considers that they adequately reflect the reconfiguration of the tug harbour.

Therefore, acting as a delegate of the Minister for Sustainability, Environment, Water, Population and Communities, under the EPBC Act, and in accordance with Condition 20 of EPBC2008/4032 I have decided to approve the revised CMP, MTMP and DSDMP. In addition, as a delegate of the Minister for Sustainability, Environment, Water, Population and Communities, under the *Environment Protection (Sea Dumping) Act 1981* (Sea Dumping Act) I have decided to approve the revised DSDMP, in accordance with Condition 4 of the Sea Dumping Permit (SD2008/822) issued on 26 October 2010.

Acting as the delegate of the Minister under Section 23 of the Sea Dumping Act, I also wish to advise the sea dumping permit has been varied to allow for the reconfiguration of the tug harbour. I have included a copy of the variation to the permit with this letter.

If you require any further information please contact the EPBC project manager for this proposal.

Yours sincerely

Barbara Jones
Assistant Secretary
Environment Assessment Branch





ENVIRONMENT PROTECTION (SEA DUMPING) ACT 1981
VARIATION TO SEA DUMPING PERMIT No. *SD2008/822*

for

PILBARA IRON PTY LTD

I, BARBARA ANN JONES, a delegate of the Minister for Sustainability, Environment, Water, Population and Communities, acting under Section 23 of the *Environment Protection (Sea Dumping) Act 1981*, hereby vary the permit granted on 26 October 2010 to Pilbara Iron Pty Ltd, GPO Box A42, PERTH WA 6837, to load for the purposes of dumping, and to dump up to 14 million cubic metres of capital seabed material derived from berth pockets, turning basins, approach/departure channel and tug harbour, as part of the Cape Lambert Port B Development, Cape Lambert, WA, by:

Amending Appendix one to include the additional definition as follows:

“Tug Harbour” means the area labelled/identified as Revised Tug Harbour Infrastructure and Dredge Footprint in Appendix 3.

Amending the permit to include Appendix 3 as attached to this variation.

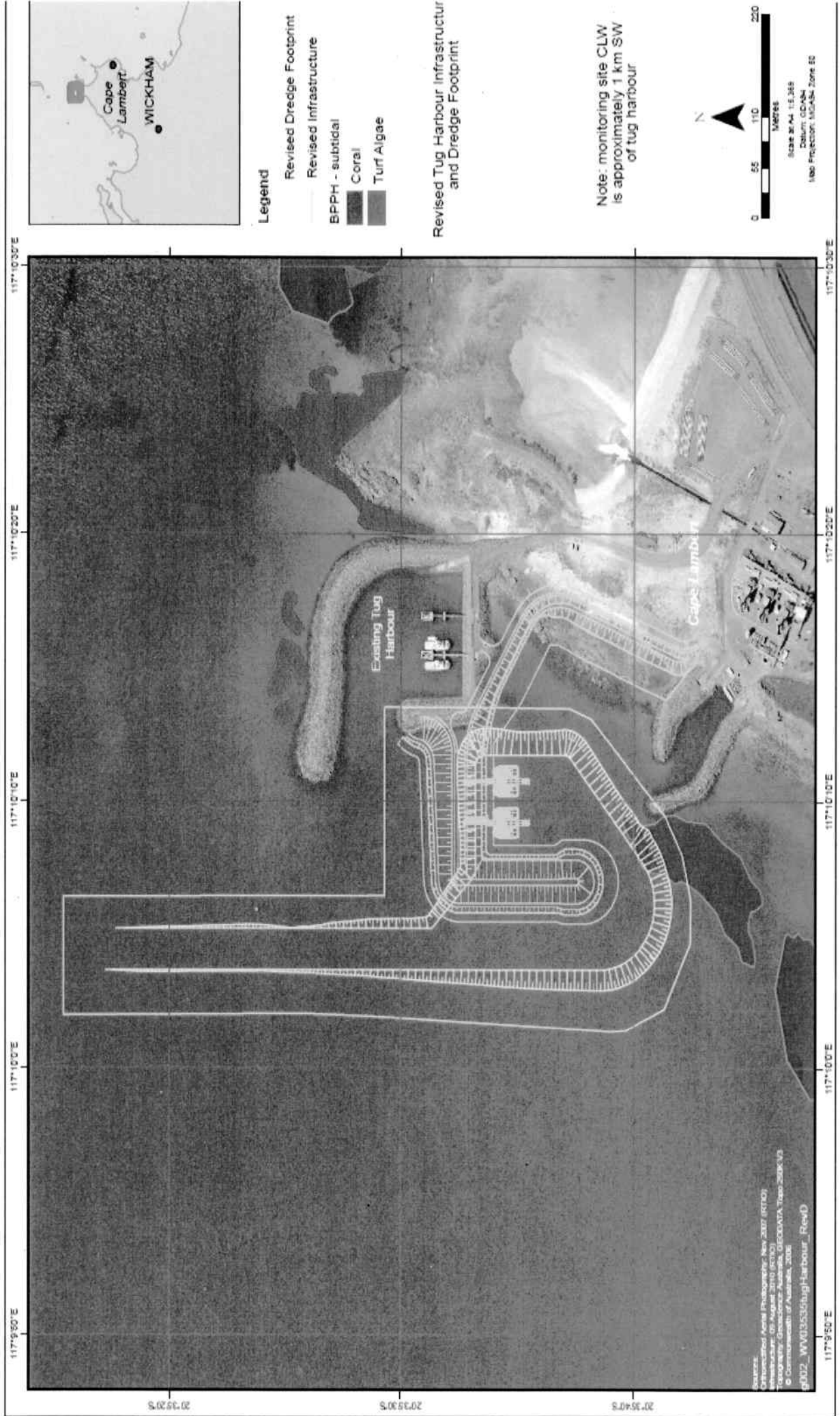
All other conditions of the permit remain unaltered.

Dated.....*21st*.....day of.....*March*.....2011



Barbara Ann Jones
Delegate of the Minister

Appendix 3





Mr Peter Royce
Principal Advisor – Environmental
Approvals
Rio Tinto Iron Ore
GPO Box A42
PERTH WA 6837

Date: 23 December 2011
EPBC Ref: 2008/4032
SD Ref: 2008/822
Contact: Matthew Kuntsi
(02) 6274 1536
matthew.kuntsi@environment.gov.au

Dear Mr Royce

Variation to Management Plans (EPBC2008/4032) and Variation to Sea Dumping Permit (SD2008/822) for the Cape Lambert Port B Development

I refer to your letter dated 27 October 2011 requesting the Department to vary sea dumping permit SD2008/822 to include additional capital/maintenance dredging at the Western CLA departure channel, existing departure channel and tug harbour and the subsequent emails with Matthew Kuntsi of this Department in relation to the variation of management plan(s) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) approval and variations to the Sea Dumping Permit.

As the delegate of the Minister for Sustainability, Environment, Water, Population and Communities under Section 23 of the *Environment Protection (Sea Dumping) Act 1981*, I wish to advise the sea dumping permit SD2008/822 has been varied to allow for additional capital/maintenance dredging of up to 610,000m³ at the Western CLA departure channel, existing departure channel and tug harbour. I have included a copy of the variation to the permit with this letter.

I have reviewed the revised Dredging and Spoil Disposal Management Plan (DSDMP) (Rev 9, dated 12 December 2011), Cetacean Management Plan (CMP) (Rev 6, dated 12 December 2011) and the Marine Turtle Management Plan (MTMP) (dated December 2011) and consider that they adequately reflect the variation in dredge footprint and volume.

Therefore, as delegate of the Minister for Sustainability, Environment, Water, Population and Communities, under the EPBC Act, and in accordance with Condition 20 of EPBC2008/4032 I have approved the revised CMP, MTMP and DSDMP.

If you require any further information please contact the EPBC project manager for this proposal.

Yours sincerely

Matthew Johnston
A/g Assistant Secretary
Environment Assessment Branch





ENVIRONMENT PROTECTION (SEA DUMPING) ACT 1981
VARIATION TO SEA DUMPING PERMIT No. SD2008/822
for
PILBARA IRON PTY LTD

I, MATTHEW JOHNSTON, a delegate of the Minister for Sustainability, Environment, Water, Population and Communities, acting under Section 23 of the *Environment Protection (Sea Dumping) Act 1981*, hereby vary the sea dumping permit granted on 26 October 2010 to Pilbara Iron Pty Ltd, GPO Box A42, PERTH, WA, 6837, and varied on 21 March 2011, to load, for the purposes of dumping, and to dump up to 14 million cubic metres of capital seabed material derived from berth pockets, turning basins, approach/departure channel and tug harbour, as part of the Cape Lambert Port B Development, Cape Lambert, WA commencing on the date of signature of this permit and extending for a period of three years, subject to conditions which are specified in Appendices 1 and 2. The permit is varied as follows:

The deletion of the words on page one of the permit

to load, for the purposes of dumping, and to dump up to 14 million cubic metres of capital seabed material derived from berth pockets, turning basins, approach/departure channel and tug harbour, as part of the Cape Lambert Port B Development, Cape Lambert, WA commencing on the date of signature of this permit and extending for a period of three years, subject to conditions which are specified in Appendices 1 and 2.

The insertion of the words on page one of the permit in their place

to load, for the purposes of dumping, and to dump up to 14.61 million cubic metres of capital and maintenance seabed material derived from berth pockets, turning basins, approach/departure channel and tug harbour, as shown in Appendix 4, as part of the Cape Lambert Port B Development, Cape Lambert, WA commencing on the date of signature of this permit and extending until 26 October 2013, subject to conditions which are specified in Appendices 1, 2, 3 and 4.

The permit definitions and conditions prescribed in Appendix 1 of the permit are varied as follows

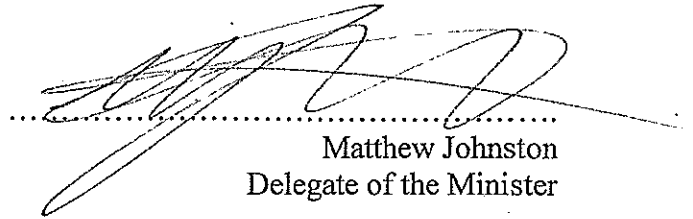
Definitions - "the Application": insert "*and the variation requests dated 22 December 2010 and 27 October 2011*" prior to the semi colon at the end of the definition.

Condition 7: delete "*14 million cubic metres*" and insert "*14.61 million cubic metres*" in its place.

Amending the permit to include Appendix 4 as attached to this variation.

All other conditions of the permit remain unaltered.

DATED..... *23rd*day of..... *December*2011


.....
Matthew Johnston
Delegate of the Minister

Appendix 4



Appendix C Ministerial Statement 840



Minister for Environment; Youth

Statement No. 840

**STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
(PURSUANT TO THE PROVISIONS OF THE
ENVIRONMENTAL PROTECTION ACT 1986)**

**CAPE LAMBERT PORT B DEVELOPMENT -
SHIRE OF ROEBOURNE**

- Proposal:** The proposal is to construct and operate a second port (Port B) at Cape Lambert to process and export up to 130 million tonnes of ore per annum.
- Proponent:** Pilbara Iron Pty Ltd
- Proponent Address:** Level 22, Central Park, 152 – 158 St George's Terrace,
PERTH WA 6000
- Assessment Number:** 1717
- Appeal Determination:** 59 to 61 of 2010
- Report of the Environmental Protection Authority:** Report 1357

The proposal referred to in the above report of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

1 Proposal Implementation

- 1-1 The proponent shall implement the proposal as assessed by the Environmental Protection Authority and described in Schedule 1 of this statement subject to the conditions and procedures of this statement.

Published on

30 SEP 2010

2 Proponent Nomination and Contact Details

- 2-1 The proponent for the time being nominated by the Minister for Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal.
- 2-2 The proponent shall notify the Chief Executive Officer of the Office of the Environmental Protection Authority (CEO) of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.

3 Time Limit of Authorisation

- 3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.
- 3-2 The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

- 4-1 The proponent shall prepare and maintain a compliance assessment plan to the satisfaction of the CEO.
- 4-2 The proponent shall submit to the CEO, the compliance assessment plan required by condition 4-1 at least six calendar months prior to the first Compliance Assessment Report required by condition 4-6 or prior to implementation, whichever is sooner. The compliance assessment plan shall indicate:
1. the frequency of compliance reporting;
 2. the approach and timing of compliance assessments;
 3. the retention of compliance assessments;
 4. reporting of potential non-compliance and corrective actions taken;
 5. the table of contents of compliance reports; and
 6. public availability of compliance reports.
- 4-3 The proponent shall assess compliance with conditions in accordance with the compliance assessment plan required by condition 4-1.

- 4-4 The proponent shall retain reports of all compliance assessments described in the compliance assessment plan required by condition 4-1 and shall make those reports available when requested by the CEO.
- 4-5 The proponent shall advise the CEO of any potential non-compliance within two business days of that non-compliance being known.
- 4-6 The proponent shall submit its first Compliance Assessment Report within 15 months following the date of issue of this statement addressing the twelve-month period from the date of issue of this statement and then annually from the date of submission of the first Compliance Assessment Report. The compliance assessment report shall:
1. be endorsed by the proponent's Managing Director or a person approved in writing by the CEO, delegated to sign on the Managing Director's behalf;
 2. include a statement as to whether the proponent has complied with the conditions;
 3. identify all potential non-compliances and describe corrective and preventative actions taken;
 4. be made publicly available in accordance with the approved compliance assessment plan; and
 5. indicate any proposed changes to the compliance assessment plan required by condition 4-1.

5 Fauna – Short Range Endemics

- 5-1 The proponent shall not clear or disturb:
1. the ground or any vegetation beyond the proposal footprint depicted in Figure 1 and defined in Table 2 of this Statement; and
 2. more than a total combined area of 19.2 hectares of vegetation from those portions of the development footprint that extends over *Lerista neviniae* habitat as outlined in Figure 1 and defined in Table 3 of this Statement.
- 5-2 The proponent shall not clear *Lerista neviniae* habitat; to access borrow, or for the purpose of laydown or storage, or for any purpose other than that essential for the construction of port infrastructure.
- 5-3 The proponent shall submit a ground disturbance report to the CEO to demonstrate ongoing compliance with conditions 5-1 and 5-2 above initially bi-monthly from the commencement of ground disturbing activities, during

construction, and then annually during the operation of Cape Lambert Port B. The report shall include:

1. a clear, top down (not oblique) aerial image captured at the end of each month from the commencement of ground disturbing activities and then annually during the operation of Cape Lambert Port B for those areas of *Lerista neviniae* habitat within the proposal footprint depicted in Figure 1 and defined in Table 3 of this Statement; and
2. a spatial analysis that provides the actual total combined area of *Lerista neviniae* habitat disturbance.

5-4 The proponent shall, in consultation with the Department of Environment and Conservation, for the whole duration of the Cape Lambert Port B development project, actively manage *Lerista neviniae* habitat as defined by primary and secondary dune vegetation and outlined in Figure 1, within the industrial lease area to ensure that its habitat value is maintained or enhanced. Active management shall include:

1. feral animal control;
2. the prohibition of stock;
3. weed control;
4. limited and controlled vehicle and pedestrian access through fencing and signage; and
5. the control of wild fires.

5-5 The proponent shall:

1. within six months of the first shipment of iron ore from Cape Lambert Port B, rehabilitate those areas of the footprint that were cleared during the construction phase but which are not required during the operational phase of the Cape Lambert Port B proposal; and
2. within five years of the cessation of port operations at Cape Lambert Port B, remove all marine and terrestrial infrastructure and rehabilitate all areas disturbed by the Cape Lambert Port B development.

5-6 All plant material used in rehabilitation is to be of local provenance, sourced from coastal plain and near coastal plain communities of the Roebourne Plain, south of Balla Balla and Whim Creek, and north of Cape Preston and the Fortescue River. The dominant species, general species composition, percentage cover and community structure in rehabilitated areas are to be comparable with suitable reference sites on nearby land which has not been disturbed by industrial

development. Reference sites are to be chosen in consultation with the Department of Environment and Conservation.

6 Turtle Management

- 6-1 At all stages of the Cape Lambert Port B development proposal including construction, operations and decommissioning, the proponent shall ensure that, other than the area labelled 'direct light' on Figure 3 and defined in Table 9 of this Statement, the whole of Bell's Beach from the line labelled 'beach boundary' on Figure 3 and defined in Table 9 up to, and including coastal vegetation within which turtle nesting occurs, is maintained in the shade at ground level and is not subject to direct light from Port infrastructure or activities during the turtle nesting and hatching seasons defined as 20 October to 10 March in any year.
- 6-2 The proponent shall implement the *Cape Lambert Port B Development Marine Turtle Management Plan* dated December 2008, and subsequent Cape Lambert Port B Turtle Management Plans prepared in consultation with the Department of Environment and Conservation and in accordance with the review procedures outlined in section seven of the *Cape Lambert Port B Development Marine Turtle Management Plan* dated December 2008.
- 6-3 The proponent shall make the Turtle Management Plan required by condition 6-2, and the results of monitoring programs outlined in the Turtle Management Plan, publicly available in a manner approved by the CEO.
- 6-4 The proponent shall establish, in consultation with the Chief Executive Officer of the Department of Environment and Conservation, protocols to detect, rescue and release adult and hatchling turtles that are or have been mis-orientated or disorientated by light spill.
- 6-5 The proponent shall report any mortality of marine turtles or other threatened or specially protected fauna to the Department of Environment and Conservation within 24 hours following detection.

7 Pile Driving

- 7-1 The proponent shall engage a dedicated Marine Fauna Observer or Observers who must:
1. demonstrate a knowledge and experience of marine wildlife species and their behaviours in the Pilbara region;
 2. have the capacity, subject to safety considerations, to move independently between pile driving barges and within the exclusion zones surrounding piling operations;

3. be on duty during all daylight hours when pile-driving operations are conducted; and
4. maintain a log of:
 - (a) observed cetaceans in a format consistent with the National Cetacean Sightings and Strandings Database;
 - (b) other marine fauna observations, including fish kills and wildlife injuries within 500m of piling operations;
 - (c) fauna behaviours, in particular any behaviours that could be attributed to piling activities;
 - (d) management responses in relation to dead and injured wildlife, including the suspension of piling activities as required under condition 7-5; and
 - (e) observation effort in relation to piling activities.

7-2 The proponent shall:

1. make available, on request from the Office of the Environmental Protection Authority, the log prepared by the Marine Fauna Observer or observers, required under condition 7-1; and
2. within six months of completing pile driving operations for Cape Lambert Port B, lodge cetacean records with the National Cetacean Sighting and Strandings Database at the Australian Antarctic Division.

7-3 No pile driving shall commence during daylight hours between sunrise and sunset, until the designated Marine Fauna Observer or observers required by condition 7-1 have verified that no whales or marine turtles have been observed within an area 500 metres from the planned piling operation during the 15 minute period immediately prior to commencement.

7-4 Prior to commencement of full power pile driving, the proponent shall implement soft start-up procedures that slowly increase the intensity of noise emissions over a period of no less than 15 minutes.

7-5 If the Marine Fauna Observer or observers required by condition 7-1, or any other person, should observe a whale or turtle enter within 100 metres of a single piling operation, or 150 metres of each concurrent piling operation, the piling operation within that distance from the whale or turtle is to be suspended.

- 7-6 Pile driving that has been suspended in accordance with condition 7-5 shall not recommence until all whales and turtles have moved beyond 500 metres from the suspended piling operation and beyond 150 metres of all concurrently operating pile-driving operations. Pile driving that has been suspended for more than 15 minutes shall recommence with soft start-up procedures as required by condition 7-4.
- 7-7 No pile-driving shall occur between the hours of sunset and sunrise during:
1. the turtle nesting season defined as 20 October to 10 March in any year; and
 2. the peak southern migration of mother and calf humpback whale pods defined as 15 September to 10 October in any year.
- 7-8 The proponent shall, to the satisfaction of the CEO design and implement, in partnership with an expert or experts in the field of noise propagation modelling in the marine environment, an underwater noise monitoring program during the Cape Lambert Port B pile driving operation to:
1. measure underwater noise from pile driving operations to establish a library of sound signals:
 - (a) at varying distances from the noise source;
 - (b) when driving piles of different sizes and types;
 - (c) during the concurrent piling of different numbers of piles; and
 - (d) in conditions of different water depths.
 2. review the predictive capacity of the noise propagation model used for Cape Lambert Port B and make recommendations for improving the accuracy of underwater noise modelling in the future.
- 7-9 The results of the noise monitoring and modelling review are to be published within three years after the completion of the Cape Lambert Port B pile driving operation in a manner approved by the CEO.

8 Marine Dredging

- 8-1 The proponent shall ensure that the implementation of the proposal does not cause a direct loss of Benthic Primary Producer Habitat in excess of 0.7 hectares. Benthic Primary Producer Habitat is shown on Figure 4a.

8-2 Prior to the commencement of dredging, the proponent shall establish a monitoring program to monitor water quality and coral health. The monitoring program shall include:

1. the collection and analysis of water quality and coral health monitoring data including turbidity (NTU), temperature (°C), light ($\mu\text{mol.m}^2/\text{day}$), gross sedimentation rates ($\text{mg.cm}^2/\text{day}$), particle size distribution and coral health;
2. monitoring for all the nominated parameters is to be undertaken at the 15 monitoring sites as listed in Table 6 and shown on Figures 4b and 4c in Schedule 1;
3. Data recording and downloading frequencies for all the nominated parameters at the 13 monitoring sites (including one 'impact', five 'indicator', five 'influence' and two 'reference' sites) listed in Table 6 of this Statement, as set out below, unless otherwise approved by the CEO:
 - (a) coral health monitoring is to be undertaken at intervals of 14 days or less;
 - (b) particle size distribution monitoring should, as a minimum, occur prior to, during and post dredging;
 - (c) sedimentation deposition data is to be collected at intervals of 14 days or less using sediment traps;
 - (d) all other parameters, including NTU and temperature, are to be recorded at intervals not exceeding 30 minutes and downloaded at intervals of 14 days or less.
4. the two 'contingency reference' sites listed in Table 6 of this Statement, shall be monitored as required in order to provide evidence of the spatial distribution of any observed trends in water quality or coral health at the 13 monitoring sites.

This program shall be designed to allow net coral mortality at any 'indicator' site listed in Table 6 of this Statement to be calculated with a statistical power of 0.8 or greater, or an alternative statistical power determined by the CEO.

8-3 Prior to the commencement of dredging the proponent shall implement the monitoring program required by condition 8-2 to the satisfaction of the CEO.

8-4 The proponent shall ensure that net detectable coral mortality at any 'indicator' site listed in Table 6 of this Statement, which is a result of proposal implementation, is less than 5 percent and the net detectable coral mortality at any 'influence' site listed in Table 6 is zero.

- 8-5 The proponent shall monitor water quality and coral health for the duration of the dredging and/or spoil disposal activities and for at least two months after cessation of all dredging and spoil disposal activities.
- 8-6 In the event that the coral health monitoring required by condition 8-3 is not undertaken during any 28 day period (i.e., two consecutive coral health monitoring surveys) at any 'indicator' or 'influence' site, the proponent shall immediately cease dredging and disposal activities which may affect water quality at that site until such a time as the net detectable coral mortality at that site can be assessed and demonstrated to be no greater than that stated in condition 8-4.
- 8-7 In the event that monitoring required by conditions 8-3 and 8-5 indicates that the coral criterion in condition 8-4 is not being met at any 'indicator' site as a result of proposal implementation and the circumstances which led to the exceedance still persist or are likely to re-occur, the proponent shall:
1. immediately cease dredging activities that could contribute to the decline in coral health at the affected 'indicator' site(s); and
 2. report such findings including evidence which allows the determination of the cause of the decline in coral health.
- The proponent shall report the above to the CEO within 4 days of the decline in coral health being identified.
- 8-8 The proponent shall not recommence dredging and/or spoil disposal activities following any cessation required under condition 8-7 until it can be demonstrated to the requirements of the CEO that the recommencement of such activities will not contribute to further net mortality of corals at sites where non compliant levels of net detectable coral mortality have occurred.
- 8-9 The proponent shall not conduct any dredging and/or spoil disposal activities or drilling and blasting activity during the period 3 days prior to the predicted commencement of mass coral spawning or as soon as mass coral spawning is detected if prior to that predicted time, and dredging and spoil disposal activities are to remain suspended for seven days from the commencement of mass coral spawning.
- 8-10 At 6 months and 18 months from completion of construction the proponent shall report to the CEO the permanent loss of Benthic Primary Producer Habitat and any loss of Benthic Primary Producer Communities within the six local assessment units shown on Figures 4b and 4c. The reports shall include co-ordinates and a map showing the areas of loss of Benthic Primary Producer Habitat and Benthic Primary Producer Communities caused by the proposal and

the results of water quality monitoring correlated with Coral health, to the requirements of the CEO.

For the purpose of conditions 8-1 to 8-10, the terms 'benthic primary producers', 'benthic primary producer communities', 'benthic primary producer habitats', 'permanent loss' and 'direct loss' are defined in EPA Environmental Assessment Guideline Number 3; *Protection Of Benthic Primary Producer Habitats In Western Australia's Marine Environment* (EAG3).

9 Non-Indigenous Marine Species

9-1 The proponent shall ensure that all non-trading vessels and associated immersible equipment, that are either owned by the proponent, or contracted for construction, maintenance, port operations or decommissioning of the Cape Lambert Port B proposal, (including dredges and pile driving barges) are appropriately cleaned, maintained and inspected by a Department of Fisheries Officer or a suitably qualified marine pest expert approved by the Department of Fisheries, and provide evidence to the satisfaction of the CEO on advice from the Department of Fisheries, certifying that:

1. there is no sediment on or within the non-trading vessel and equipment;
2. ballast water (if any) has been, or will be, managed according to the Australian Quarantine Inspection Service ballast water requirements;
3. no invasive marine species (as listed within the Revised Consultative Committee on Introduced Marine Pest Emergencies (CCIMPE) Trigger List - refer to condition 9-5) or any other species demonstrating invasive characteristics, have been identified on or within any vessel or immersible equipment inspected;
4. any cleaning or treatment activities undertaken to address invasive marine species risk, has been undertaken to an extent that the non-trading vessel or associated immersible equipment is considered to represent a low risk to the West Australian marine environment; and
5. vessel and immersible equipment inspections shall be conducted either;
 - (a) immediately (no more than 48 hours) prior to vessel or immersible equipment departure for Cape Lambert Port B; or
 - (b) within 48 hours following arrival of vessel or immersible equipment within Port Walcott; and
 - (c) vessels that have spent more than seven days in coastal waters (less than 50 meters depth) between inspection and their arrival at Port Walcott shall also be inspected during the sixth week after arrival in Port Walcott.

Tug vessels and other support vessels that move between the proponents Dampier and Cape Lambert operations and between Johns Creek marina at Point Samson to these operations and remain in Western Australia's territorial waters, are excluded from the requirements of this condition and condition 9-2.

- 9-2 Specified vessels and immersible equipment and vessels used to undertake single or multiple bunkering or other routine operational activities at neighbouring ports (Dampier and Port Hedland), will be exempt from the invasive marine species risk mitigation measures referred to in condition 9-1 if, prior to arriving or departing from Port Walcott, the CEO, on advice from the Department of Fisheries, has issued a written exemption for that specified vessel and immersible equipment to enter Port Walcott prior to an identified date, based on comprehensive information submitted by the proponent that includes a risk assessment supported by documentation demonstrating biofouling management measures and a vessel activity profile since the most recent dry-dock cleaning.
- 9-3 If, non-trading vessels and associated immersible equipment are to be transferred without exemption (condition 9-2) from Cape Lambert to other locations within Western Australia's territorial waters, the proponent shall, at least 14 days prior to departure from Port Walcott, undertake an inspection or submit a demobilisation risk assessment to the Department of Fisheries that is informed by the invasive marine species monitoring of Cape Lambert Port B. Invasive marine species monitoring shall:
1. be consistent with monitoring design, implementation and reporting standards set out as part of the National Monitoring Network for the Prevention and Management of Marine Pest Incursions, as approved by the Monitoring Design Assessment Panel of the National Introduced Marine Pest Coordinating Group;
 2. include a review of target priority species prior to each monitoring survey;
 3. include a range of sample sites focusing on habitats considered most capable of facilitating the establishment of priority target species throughout all areas of port activities including anchorages, wharves, jetties, slipways, harbours and natural substrates;
 4. be undertaken a minimum of every three years for the life of the project; and
 5. include opportunistic sampling and analysis of specimens removed during port and vessel maintenance activities.
- 9-4 The proponent shall, throughout the life of the project notify the CEO and the Department of Fisheries of any known invasive marine species detected in the waters within the marine leases held by the proponent at or adjacent to Cape

Lambert within 48 hours following detection or following subsequent sample analysis undertaken as part of inspection or monitoring activities.

- 9-5 In the event that any invasive marine species are detected during either the inspection of non-trading vessels and immersible equipment, or during monitoring surveys, the proponent shall, in consultation with the CEO and the Department of Fisheries develop and implement an agreed Invasive Marine Species Management Strategy to prevent wherever practicable, the establishment and proliferation of that organism, aiming to control and potentially eradicating that organism, and to minimize the risk of that the organism being transferred to other locations within Western Australia.

For the purpose of conditions 9-1 to 9-5: the term 'non-trading vessel' refers to those vessels included in the definition of non-trading vessels outlined in the *National System for the Prevention and Management of Marine Pest Incursions, National Biofouling Management Guidance for Non-Trading Vessels*; and known invasive marine species are considered to be those species listed by the Consultative Committee on Introduced Marine Pest Emergencies (CCIMPE) within the Revised CCIMPE Trigger List.

10 Dust

- 10-1 Prior to commissioning, the proponent shall update the *Dust Management Plan – 2009 Cape Lambert Port Operations, December 2008* to include Cape Lambert Port B to the requirements of the CEO on advice from the Department of Environment and Conservation.
- 10-2 The Construction Environmental Management Plan and Dust Management Plan shall describe the process for defining and reviewing criteria for determining when port construction or operation is significantly contributing to ambient dust levels at Point Samson and Wickham, in consultation with the Department of Environment and Conservation.
- 10-3 The proponent shall implement the Dust Management Plan required by condition 10-1.
- 10-4 The proponent shall make the Dust Management Plan required by condition 10-1 publicly available in a manner approved by the CEO.

11 Marine Drilling and Blasting Activities


- 11-1 Prior to commencing marine drilling and blasting activities, the proponent shall prepare to the requirements of the CEO, a Drilling and Blasting Management Plan (D&BMP), in consultation with:
1. Department of Environment and Conservation;

2. Department of Transport (Maritime Division);
 3. Department of Fisheries; and
 4. Commonwealth Department of the Environment, Water, Heritage and the Arts.
- 11-2 The objectives of the D&BMP are to ensure that drilling and blasting activities are managed to minimise adverse impacts on marine vertebrate species. The D&BMP shall include:
1. an assessment of the amount of drilling and blasting required and over what area;
 2. an assessment of likely blast pressures and potential environmental impacts of these pressures;
 3. management actions and procedures to minimise environmental impacts, including the disposal of drilling muds and consideration of ecological windows between seasonally sensitive periods for marine wildlife;
 4. a description of how dead and injured wildlife are to be managed;
 5. stakeholder communication; and
 6. reporting procedures and time frames.
- 11-3 In the event that marine drilling and blasting is required, the proponent shall implement the D&BMP required under conditions 11-1 and 11-2.
- 11-4 The proponent shall make the Plan required under conditions 11-1 and 11-2 publically available in a manner approved by the CEO.
- 11-5 No dredging, marine drilling or blasting activities are to be conducted outside the 320 hectare area illustrated in Figure 2 and bounded by the coordinates listed in Table 4 of this Statement.
- 11-6 The disposal of dredge material is not to take place in Western Australian State Waters outside the two square kilometre area bounded by the coordinates listed in Table 5 of this Statement.

Procedures

1. Where a condition states “on advice of the Environmental Protection Authority”, the Office of the Environmental Protection Authority will provide that advice to the proponent.

2. The Office of the Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the proponent.
3. The proponent is required to apply for a Works Approval and Licence for this project under the provision of Part V of the *Environmental Protection Act 1986*.



Hon Donna Faragher JP MLC
MINISTER FOR ENVIRONMENT; YOUTH

30 SEP 2010

Schedule 1

The Proposal (Assessment No.1717)

General Description

The proposal is for the construction and operation of a second port (Port B) at Cape Lambert to process and export up to 130 million tonnes of ore per annum (Mtpa).

The upgrade works are described in the following documents:

- *Cape Lambert Port B development – Public Environmental Review and draft Public Environmental Report, March 2009.* Prepared for Rio Tinto Pty Ltd by Sinclair Knight Merz (17 March 2009); and
- *Cape Lambert Port B Development – Environmental Assessment of the Wharf relocation, November 2009.* Prepared for Rio Tinto Pty Ltd by Sinclair Knight Merz (27 November 2009).

Summary Description

A summary of the key proposal characteristics is presented in Table 1.

Table 1 Summary of Key Characteristics of the Cape Lambert Port B Proposal

Element	Description
Life of project	At least 50 years
Iron ore throughput capacity	Up to 130 Mtpa
Stockyard capacity	Storage to accommodate up to 130 Mtpa.
Total footprint of land-based activities	340 ha
Total area of vegetation clearing within the footprint	300 ha
Dredging: Volume of sea bed to be dredged for berth pockets, turning basins, departure channel, service wharf B and tug harbour extension: Area of seabed to be dredged: Dredging depths; <ul style="list-style-type: none"> • berth pockets; • approach/departure channel; and • turning basins. Duration of dredging program:	Up to 14 Mm ³ Up to 320 ha <ul style="list-style-type: none"> • 20 metres Chart Datum; • 16 metres Chart Datum; and • 10 metres Chart Datum. Approximately 52 weeks.

Table 1 Summary of Key Characteristics of the Cape Lambert Port B Proposal (cont'd)

Element	Description
Dredge disposal: Number of spoil grounds in State waters: Dimensions of spoil ground: Volume of dredge spoil to be disposed of in Western Australian State Waters: Amount of dredge spoil to be disposed of onshore:	1 2 km long by 1 km wide 6.06 Mm ³ 0 Mm ³
Duration of pile driving operation	Approximately 52 weeks
Access jetty and wharf: Design: Length: Number of ship loading berths:	Open trellis design allowing water flow beneath. Up to 2.2 km (from conveyor junction on land to end of wharf). Up to 4.
Major plant components: Car dumpers: Screenhouses (lump rescreening plants): Sample stations/systems: Stackers: Reclaimers: Shiploaders:	3 2 2 3 or 4 3 2

Abbreviations

Mtpa million tonnes per annum
 ha hectares
 Mm³ million cubic metres
 km kilometre

Attachments

Figures (attached)

- Figure 1 Terrestrial component of proposal footprint with *Lerista neviniae* habitat
- Figure 2 Marine component of proposal footprint.
- Figure 3 Bell's Beach light spill
- Figure 4a Predicted dredging impacts and monitoring sites
- Figure 4b Predicted dredging impacts and monitoring sites

Figure 4c Predicted dredging impacts and monitoring sites

Tables (attached)

Table 2	Coordinates of terrestrial footprint
Table 3	Coordinates of potential impact areas in <i>Lerista neviniae</i> habitat
Table 4	Coordinates of dredging footprint
Table 5	Coordinates of Western Australian State waters spoil disposal site.
Table 6	Coordinates of dredging impact monitoring sites
Table 7	Boundary coordinates of predicted worst case dredging impacts
Table 8	Seaward boundary coordinates of shaded area on Bell's Beach
Table 9	Coordinates of area of direct light at Bell's Beach

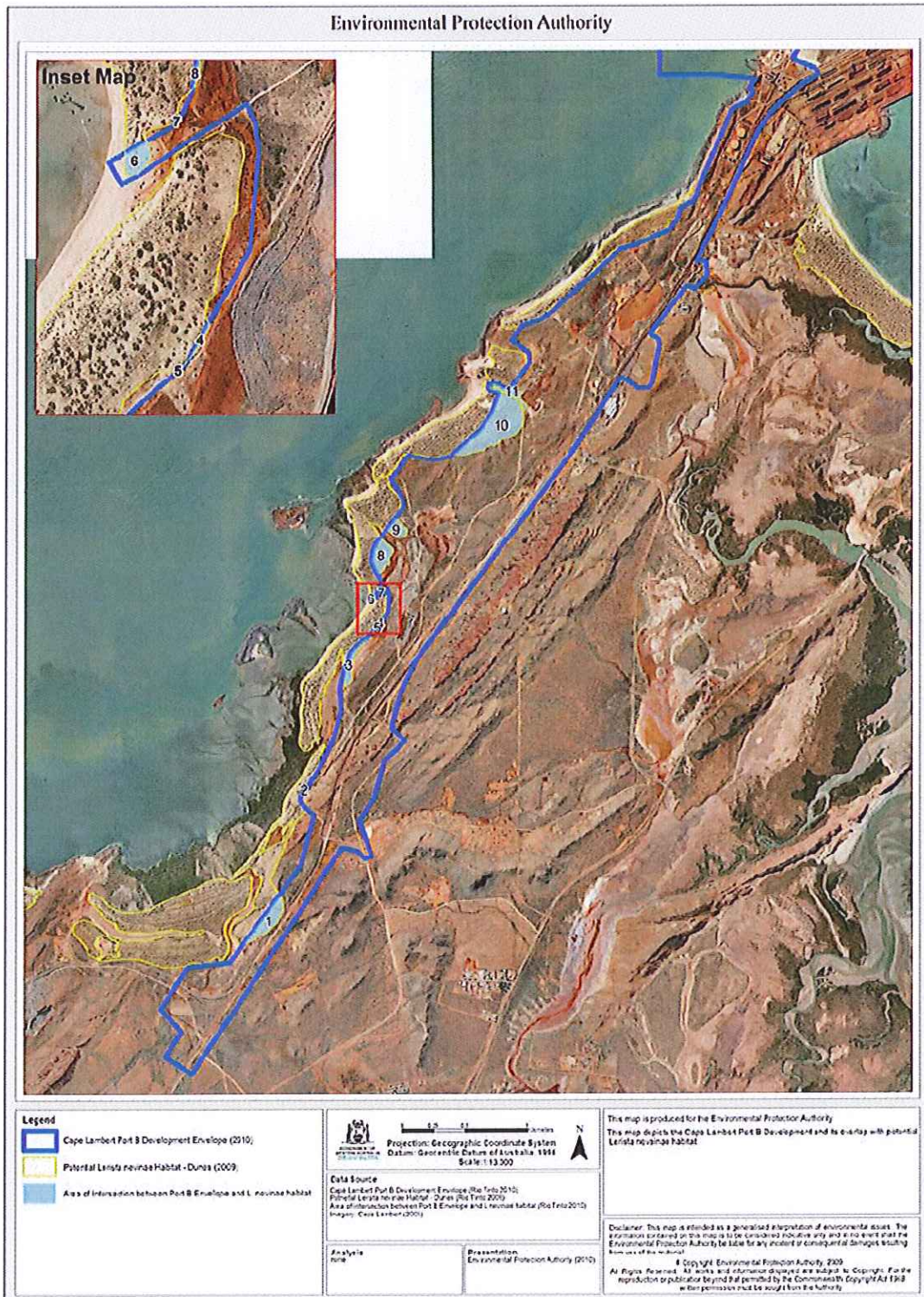


Figure 1: Terrestrial component of proposal footprint with *Lerista neviniae* habitat

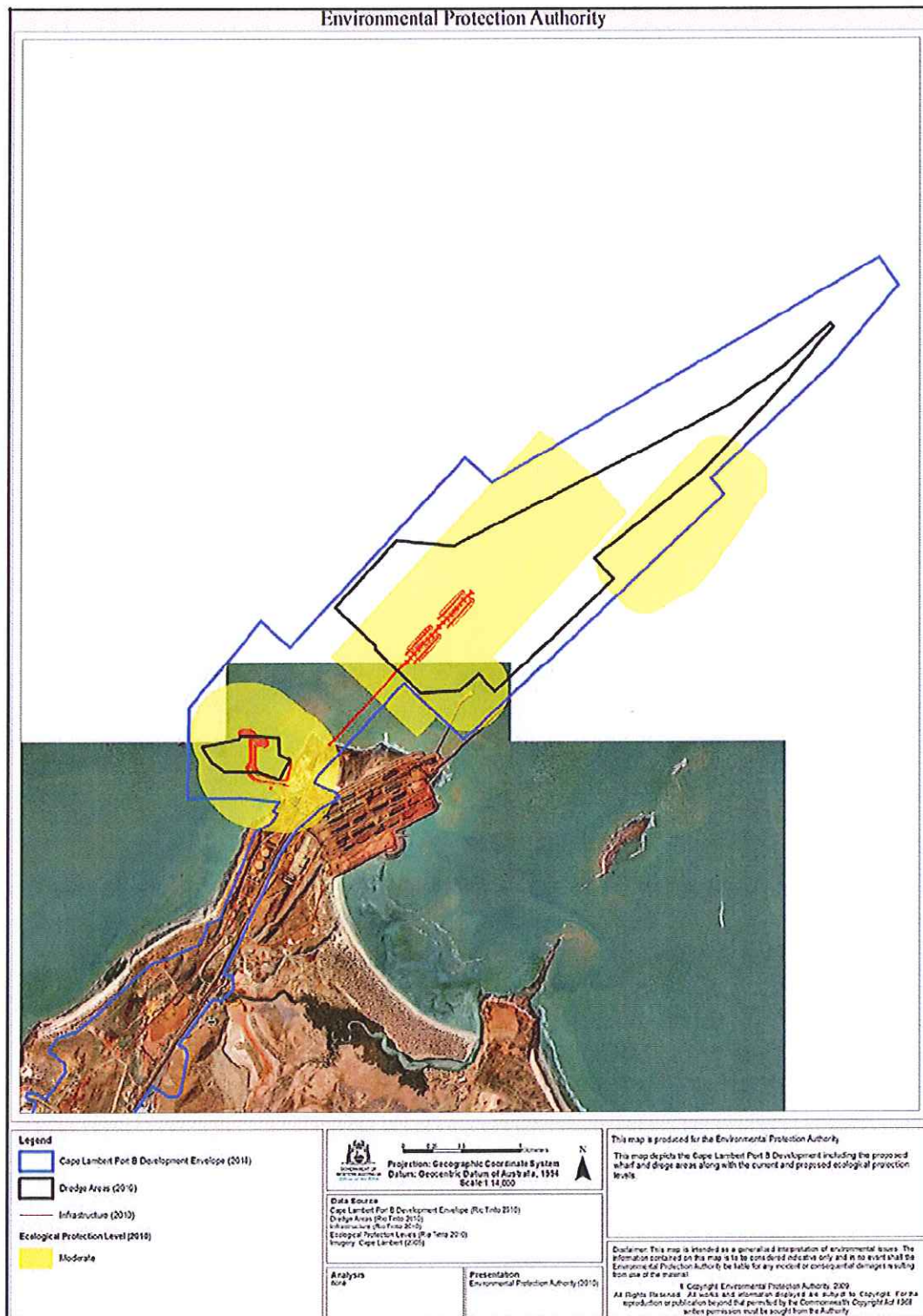
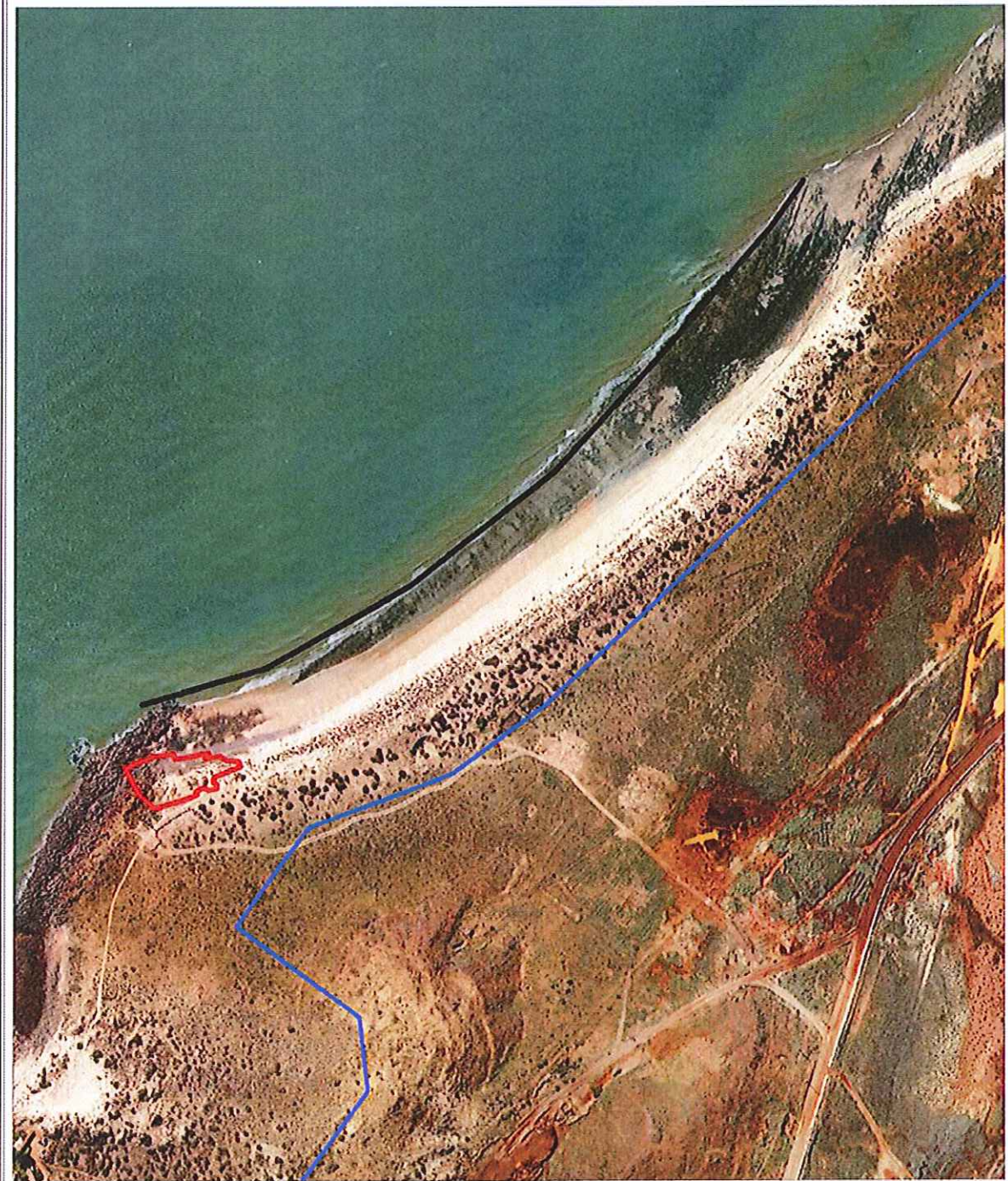






Figure 2: Marine Component of Proposal Footprint

Environmental Protection Authority



Legend	
	Beach Boundary (2010)
	Cape Lambert Port B Development Envelope (2010)
	Direct Light (2010)


 Projection: Geographic Coordinate System
 Datum: Geocentric Datum of Australia, 1994
 Scale: 1:2 000

Data Source
 Beach Boundary (EPA 2010)
 Cape Lambert Port B Development Envelope (Ro Tnto 2010)
 Direct Light (Ro Tnto 2010)
 Imagery: Cape Lambert (2008)

Analysis none	Presentation Environmental Protection Authority (2010)
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This map is produced for the Environmental Protection Authority
 This map depicts the Cape Lambert Port B Development, the direct light spill onto Bell's Beach and the definition of the beach according to the EPA

Disclaimer: This map is intended as a generalised interpretation of environmental issues. The information contained on this map is to be considered indicative only and in no event that the Environmental Protection Authority be liable for any incident or consequential damages resulting from use of the material.
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Figure 3: Bell's Beach Light Spill

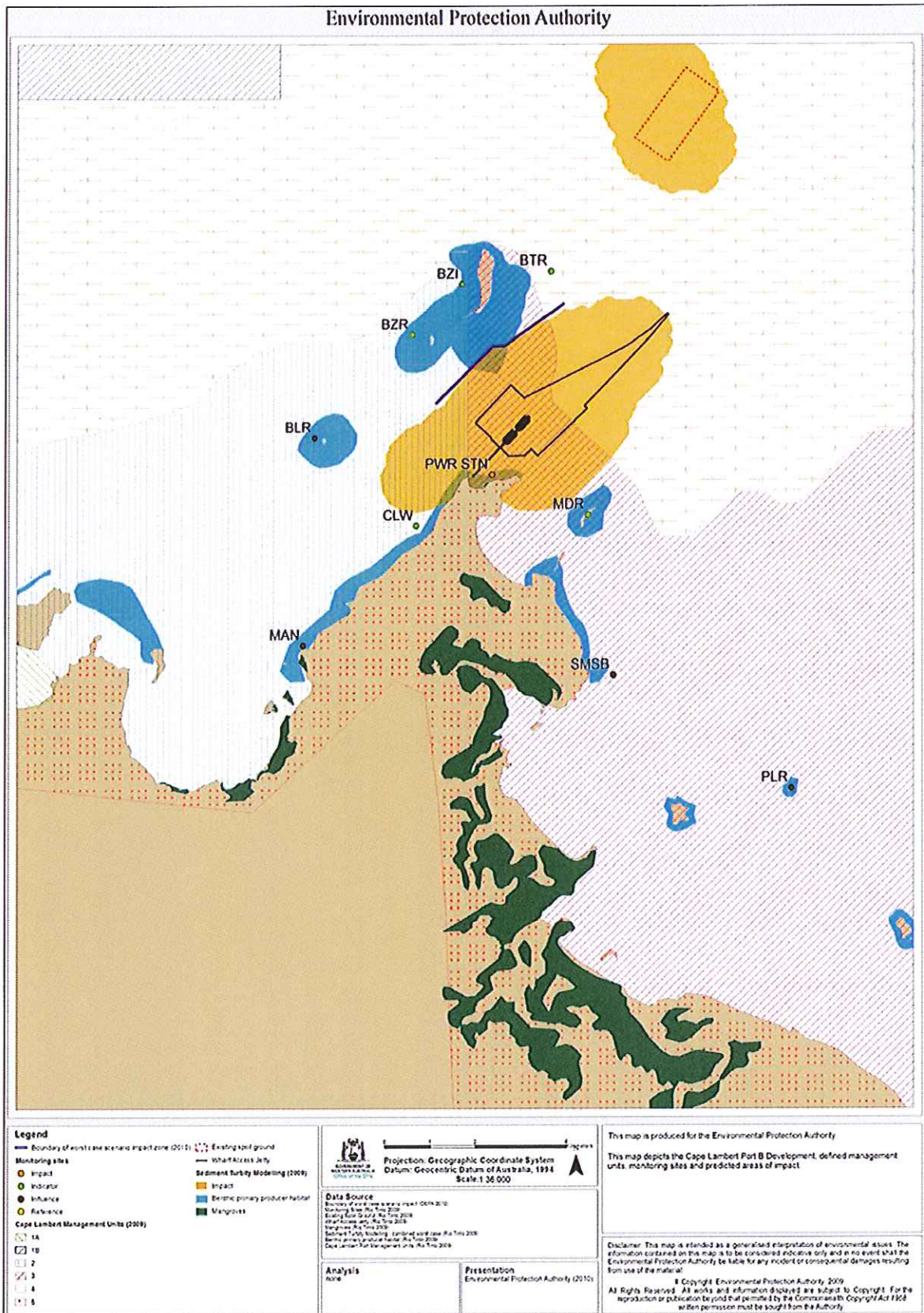


Figure 4a: Predicted Dredging Impacts and Monitoring Sites

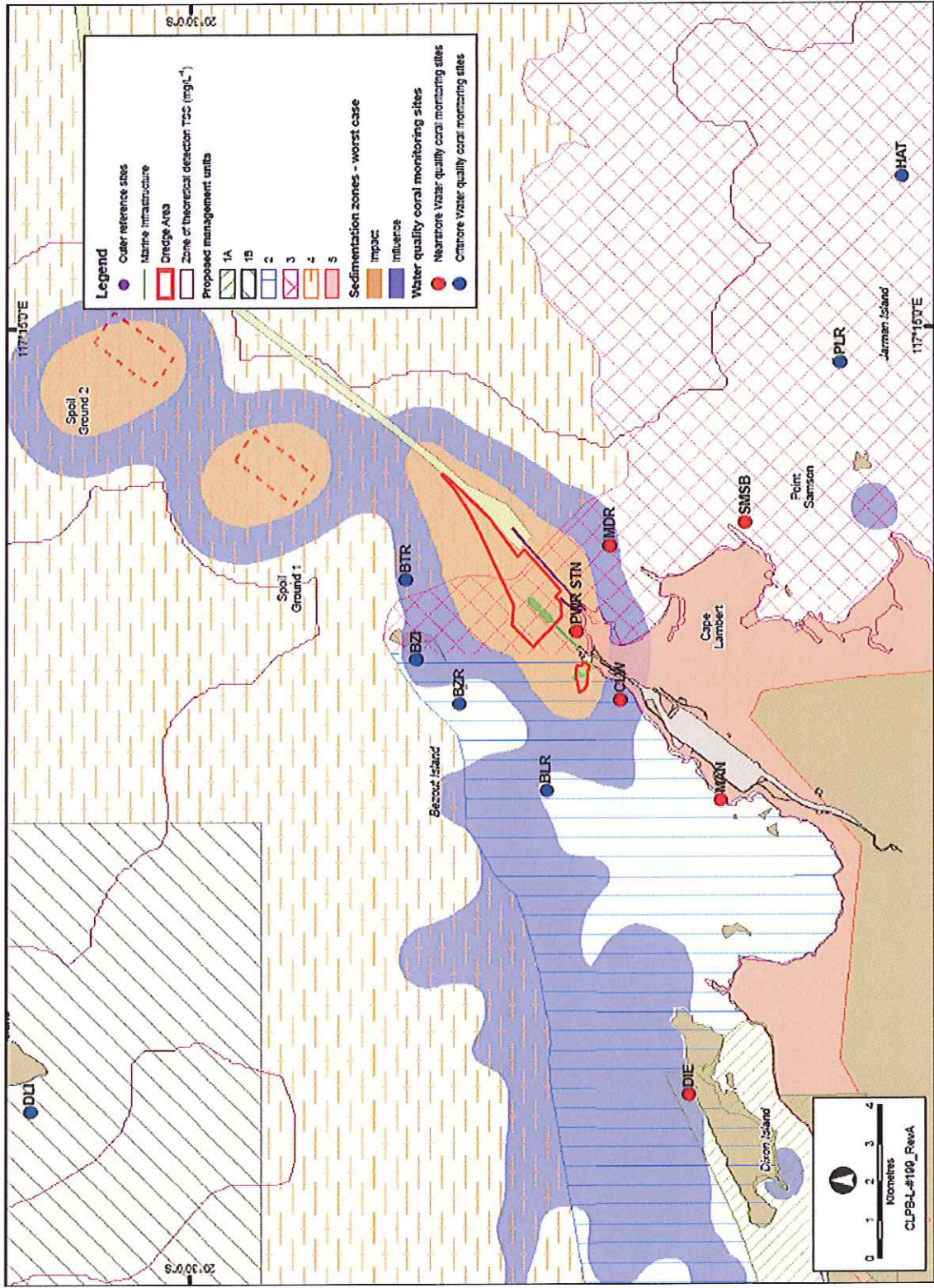


Figure 4b: Predicted Dredging Impacts and Monitoring Sites

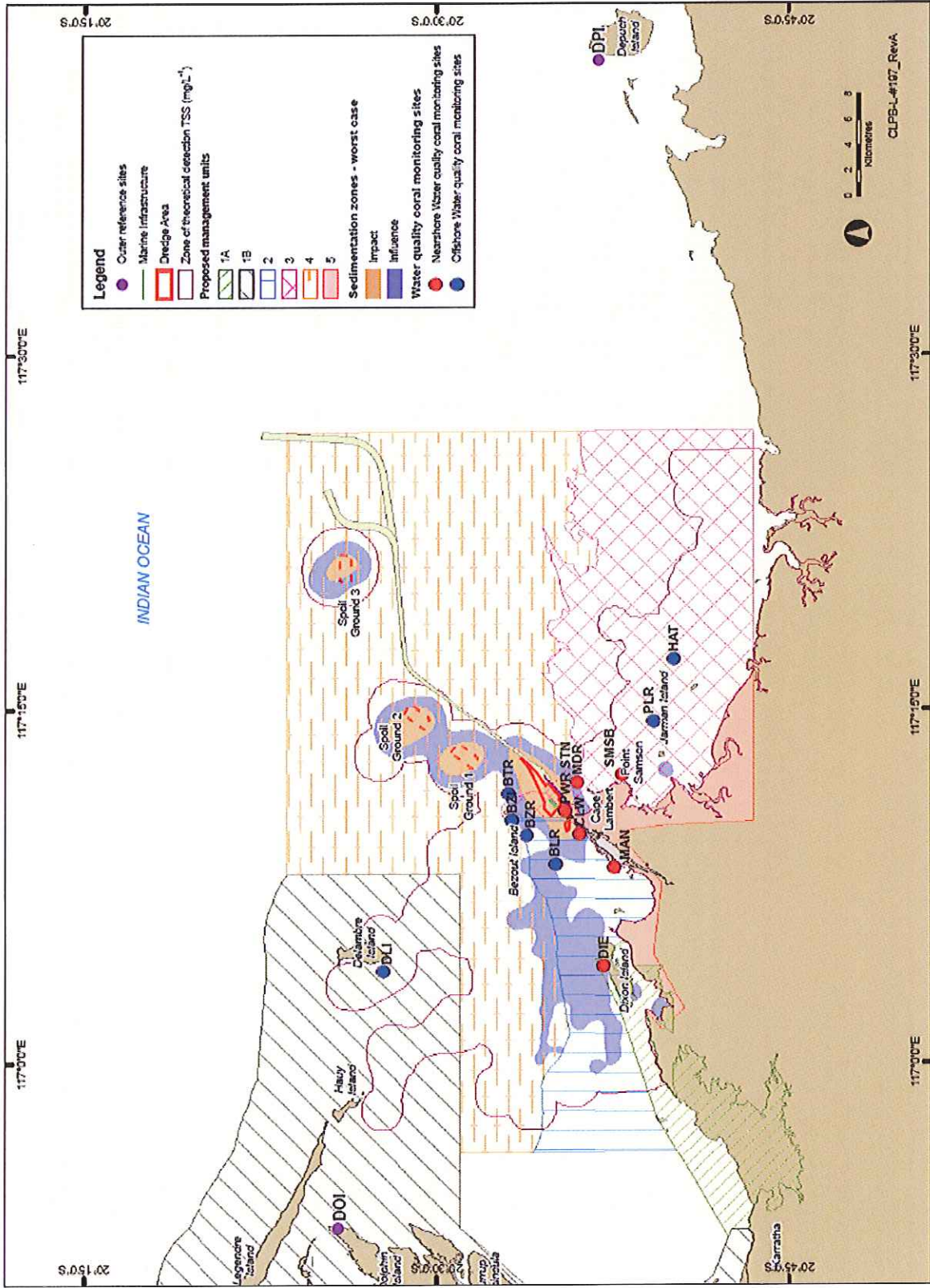


Figure 4c: Predicted Dredging Impacts and Monitoring Sites

Table 2 Coordinates of terrestrial footprint

Easting	Northing
518063	7722744
518056	7722736
518037	7722691
518223	7722610
518248	7722565
518195	7722537
518090	7722468
517904	7722309
517858	7722254
517771	7722125
517650	7721875
517610	7721767
517283	7721100
517261	7721054
517340	7721054
517350	7720945
517254	7720835
517181	7720855
516888	7720466
516952	7720428
516962	7720378
516906	7720059
516870	7720025
516797	7720025
516657	7720117
516304	7719578
516231	7719462
514996	7717800
514884	7717554
514817	7717274
514920	7717170
514752	7717002
514681	7716707
514557	7716519
514659	7716232
514601	7716212
514549	7716270
514536	7716279
514416	7716305

Easting	Northing
513211	7714469
512996	7714608
513125	7714807
512962	7714997
513175	7715333
513505	7715369
514082	7716157
514188	7716567
514140	7716607
514122	7716622
514107	7716637
514078	7716671
514074	7716691
514076	7716711
514087	7716741
514156	7716818
514172	7716853
514191	7716887
514219	7716927
514352	7717197
514409	7717414
514407	7717457
514406	7717497
514399	7717562
514400	7717601
514406	7717641
514425	7717705
514457	7717807
514480	7717887
514715	7718096
514786	7718227
514794	7718308
514797	7718339
514793	7718371
514782	7718393
514731	7718360
514666	7718316
514641	7718301
514626	7718326

Easting	Northing
514655	7718343
514694	7718365
514711	7718384
514722	7718410
514729	7718466
514705	7718511
514671	7718580
514655	7718619
514662	7718690
514671	7718729
514689	7718767
514909	7719067
514891	7719156
514807	7719287
514951	7719484
515153	7719446
515279	7719469
515523	7719690
515619	7719834
515672	7719983
515646	7719997
515602	7720010
515582	7720030
515590	7720056
515613	7720052
515622	7720065
515668	7720054
515753	7720008
515919	7720234
515909	7720317
515773	7720417
515853	7720526
516013	7720585
516114	7720660
516647	7721154
516785	7721195
517044	7721309
517101	7721385
517134	7721488

Easting	Northing
517237	7721544
517334	7721785
517438	7722032
517543	7722282
517666	7722348
517676	7722359
517693	7722377
517724	7722431
517691	7722451
517741	7722532
517711	7722535
517714	7722541
517773	7722614
517767	7722632
517757	7722658
517758	7722684
517766	7722690
517774	7722686
517784	7722668
517790	7722660
517808	7722657
517810	7722666
517829	7722692
517828	7722709
517818	7722709
517791	7722710
517790	7722719
517799	7722758
517795	7722776
517797	7722786
517827	7722805
517844	7722836
517868	7722866
517946	7722965
517967	7722998
517984	7723003
517993	7723002
518008	7722985
518010	7722976
517999	7722947

Easting	Northing
518003	7722939
518012	7722946
518025	7722965
518033	7722969
518067	7722970
518075	7722966
518082	7722958
518087	7722924
518085	7722905
518059	7722863
518043	7722835
518018	7722805
518015	7722785
518028	7722768
518046	7722759
518063	7722744

Table 3 Coordinates of potential impact areas in *Lerista neviniae* habitat

Polygon intersection number- corresponds with map	Easting	Northing
1	513614	7715517
1	513635	7715521
1	513666	7715537
1	513701	7715552
1	513727	7715571
1	513754	7715596
1	513815	7715625
1	513856	7715664
1	513891	7715699
1	513910	7715922
1	513913	7715736
1	513923	7715906
1	513935	7715880
1	513935	7715854
1	513940	7715804
1	513940	7715804
2	514087	7716741
2	514129	7716788
2	514156	7716818
2	514156	7716818
3	514426	7717660
3	514430	7717625
3	514431	7717703
3	514434	7717732
3	514442	7717622
3	514457	7717807
3	514469	7717634
3	514480	7717887
3	514489	7717659
3	514493	7717734
3	514495	7717791
3	514502	7717689
3	514523	7717862
3	514558	7717919
3	514599	7717973
3	514615	7717986
3	514625	7717999
3	514630	7718020
3	514630	7718020
4	514718	7718102
4	514727	7718112
4	514740	7718142
4	514742	7718137
4	514742	7718137
5	514707	7718089

Polygon intersection number- corresponds with map	Easting	Northing
5	514707	7718089
5	514708	7718090
5	514708	7718090
6	514645	7718337
6	514645	7718324
6	514647	7718312
6	514655	7718343
6	514658	7718312
6	514669	7718322
6	514669	7718351
6	514671	7718348
6	514675	7718334
6	514675	7718334
7	514700	7718372
7	514707	7718379
7	514709	7718374
7	514709	7718374
8	514655	7718619
8	514662	7718690
8	514671	7718580
8	514671	7718729
8	514689	7718767
8	514705	7718511
8	514710	7718502
8	514710	7718506
8	514710	7718508
8	514722	7718411
8	514722	7718529
8	514725	7718413
8	514728	7718817
8	514728	7718821
8	514728	7718498
8	514729	7718466
8	514730	7718434
8	514730	7718811
8	514730	7718462
8	514734	7718490
8	514746	7718555
8	514747	7718792
8	514766	7718594
8	514774	7718598
8	514784	7718764
8	514788	7718594
8	514797	7718598
8	514797	7718622
8	514797	7718634

Polygon intersection number- corresponds with map	Easting	Northing
8	514799	7718605
8	514805	7718747
8	514807	7718668
8	514826	7718698
8	514828	7718728
8	514829	7718715
8	514829	7718715
9	514750	7718851
9	514770	7718846
9	514774	7718851
9	514775	7718866
9	514781	7718872
9	514792	7718872
9	514808	7718868
9	514826	7718844
9	514857	7718991
9	514858	7718998
9	514859	7718970
9	514864	7718823
9	514884	7718943
9	514891	7718823
9	514902	7718924
9	514914	7718904
9	514930	7718840
9	514933	7718897
9	514936	7718875
9	514937	7718890
9	514937	7718890
10	515298	7719486
10	515312	7719490
10	515404	7719490
10	515466	7719510
10	515523	7719690
10	515549	7719528
10	515555	7719531
10	515578	7719553
10	515582	7720030
10	515585	7720038
10	515591	7720035
10	515592	7719560
10	515602	7720010
10	515613	7719567
10	515619	7719834
10	515625	7719563
10	515629	7720028
10	515646	7719997

Polygon intersection number- corresponds with map	Easting	Northing
10	515657	7719575
10	515671	7719591
10	515673	7719983
10	515674	7720012
10	515688	7719608
10	515714	7719616
10	515716	7719988
10	515752	7719968
10	515764	7719635
10	515784	7719952
10	515803	7719652
10	515813	7719934
10	515829	7719918
10	515841	7719690
10	515846	7719888
10	515860	7719851
10	515865	7719721
10	515867	7719731
10	515869	7719826
10	515872	7719797
10	515872	7719797
11	515589	7720051
11	515590	7720056
11	515599	7720046
11	515613	7720052
11	515622	7720065
11	515623	7720041
11	515650	7720035
11	515668	7720054
11	515675	7720025
11	515723	7719996
11	515753	7720008
11	515774	7719970
11	515797	7720047
11	515798	7720059
11	515799	7720023
11	515801	7720005
11	515803	7720067
11	515807	7720000
11	515815	7719945
11	515816	7720074
11	515831	7719933
11	515837	7719996
11	515840	7720099
11	515846	7719950
11	515848	7719914

Polygon intersection number- corresponds with map	Easting	Northing
11	515850	7720123
11	515851	7719935
11	515853	7719970
11	515856	7719996
11	515857	7720137
11	515866	7719982
11	515866	7719992
11	515867	7719863
11	515869	7719916
11	515870	7720155
11	515874	7719856
11	515879	7720176
11	515879	7720177
11	515884	7720186
11	515892	7719857
11	515898	7719888
11	515901	7719878
11	515901	7719878

Table 4 Coordinates of Dredging Footprint

Large dredge area

Easting	Northing
520600	7724434
519582	7723470
519445	7723619
519294	7723477
518953	7723457
518563	7723837
518561	7723871
518214	7724194
518747	7724765
519231	7724720
520994	7725604
521556	7725896
522061	7726246
522452	7726605
522479	7726580
522092	7726119
521360	7725348
520431	7724612
520600	7724434

Small Dredge Area

Easting	Northing
517085	7723000
517391	7723061
517403	7723083
517601	7723084
517736	7723072
517741	7722935
517827	7722886
517741	7722725
517564	7722786
517269	7722789
517163	7722868
517085	7723000

Table 5 Coordinates of Western Australian State Waters Spoil Disposal Site

Coordinates	
Easting	Northing
522842	7732018
523570	7731490
522453	7729953
521725	7730481

Table 6 Coordinates of Dredging Impact Monitoring Sites

Site No.	Site Code	Site name	Site Category	Site Location	
				Latitude	Longitude
1	PWR STN	Power Station	Impact	20° 35.440'S	117° 10.685'E
2	BTR	Boat Rock	Indicator	20° 33.750'S	117° 10.621'E
3	BZI	Bezout Island	Indicator	20° 33.213'S	117° 10.311'E
4	BZR	Bezout Rock	Indicator	20° 33.823'S	117° 09.682'E
5	CLW	Cape Lambert West	Indicator	20° 36.090'S	117° 09.756'E
6	MDR	Middle Reef	Indicator	20° 35.817'S	117° 11.862'E
7	BLR	Bells Reef	Influence	20° 35.052'S	117° 08.456'E
8	DIE	Dixon Island East	Influence	20° 37.084'S	117° 04.143'E
9	MAN	Mangrove point	Influence	20° 37.555'S	117° 07.988'E
10	PLR	Pelican Rock	Influence	20° 39.249'S	117° 14.415'E
11	SMSB	Samson Beach	Influence	20° 37.337'S	117° 11.890'E
12	DLI	Delambre Island	Reference	20° 27.736'S	117° 03.916'E
13	HAT	Hat Rock	Reference	20° 40.105'S	117° 17.136'E
14	DPI	Depuch Island	Contingency reference	20° 36'52.40"S	117° 42'29.09"E
15	DOI	Dolphin Island	Contingency reference	20° 25'811"S	116° 53.011"E

Table 7 Boundary Coordinates of Predicted Worst Case Dredging Impacts

Easting	Northing
517352	7724632
518593	7725884
518858	7725901
520146	7726812

Table 8 Seaward Boundary Coordinates of Shaded Area on Bell's Beach

Easting	Northing
515669	7720662
515806	7720702
515965	7720793
516124	7720918
516241	7721045
516363	7721187
516400	7721241

Table 9 Coordinates of Area of Direct Light at Bell's Beach

Easting	Northing
515651	7720592
515683	7720605
515703	7720607
515705	7720602
515721	7720604
515736	7720608
515742	7720608
515742	7720606
515738	7720603
515747	7720604
515755	7720605
515762	7720600
515775	7720599
515777	7720593
515749	7720582
515747	7720577
515751	7720574
515751	7720570
515742	7720568
515737	7720571
515728	7720567
515729	7720563
515717	7720558
515682	7720547
515666	7720562
515651	7720592



Environmental Protection Authority

A396135
The Atrium,
Level 8, 168 St Georges Terrace,
Perth, Western Australia 6000.
Telephone: (08) 6467 5000.
Facsimile: (08) 6467 5557.

Postal Address: Locked Bag 33,
Cloisters Square, Perth, Western Australia 6850.
Website: www.epa.wa.gov.au

Mr Tim Eckersley
General Manager, Approvals and Risk Assessment
Rio Tinto Iron Ore
152-158 St Georges Terrace
PERTH WA 6000

Our Ref: OEPA2010/001186-A357348
Enquiries: Jose Villamizar (6467 5438)
Email: Jose.Villamizar@epa.wa.gov.au

Dear Mr Eckersley

CAPE LAMBERT PORT B DEVELOPMENT (MINISTERIAL STATEMENT 840) – SECTION 45C APPLICATION

Thank you for your letter of 22 December 2010 requesting approval of a change to the above proposal under section 45C of the *Environmental Protection Act 1986*.

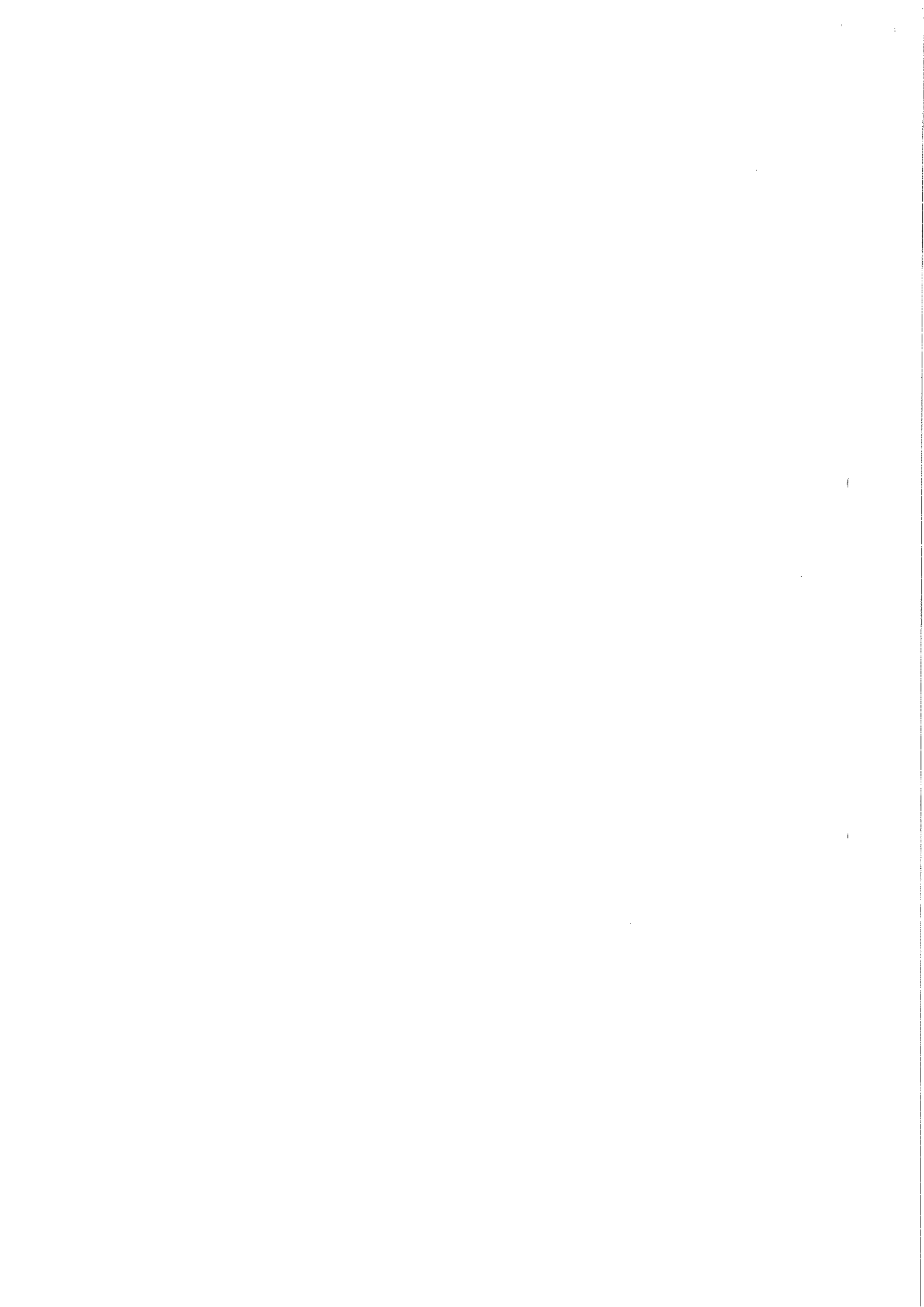
Under section 45C of the *Environmental Protection Act 1986* I am able to approve a change or changes to a proposal without a revised proposal being submitted to the Environmental Protection Authority. I consider that the change(s) described in Attachment 1 to Ministerial Statement 840 will not result in a significant, detrimental, environmental effect in addition to, or different from, the effect of the original proposal.

Approval of the change(s) to the proposal is therefore granted under section 45C of the *Environmental Protection Act 1986*. You are reminded that this approval shall be implemented in accordance with the implementation conditions in Ministerial Statement 840, and also that this approval does not replace any responsibilities you may have for seeking approvals from other government agencies to implement the change.

Yours sincerely

Dr Paul Vogel
CHAIRMAN

12 May 2011



Attachment 1 to Ministerial Statement 840

Change to Proposal

Proposal: Cape Lambert Port B Development, Shire of Roebourne

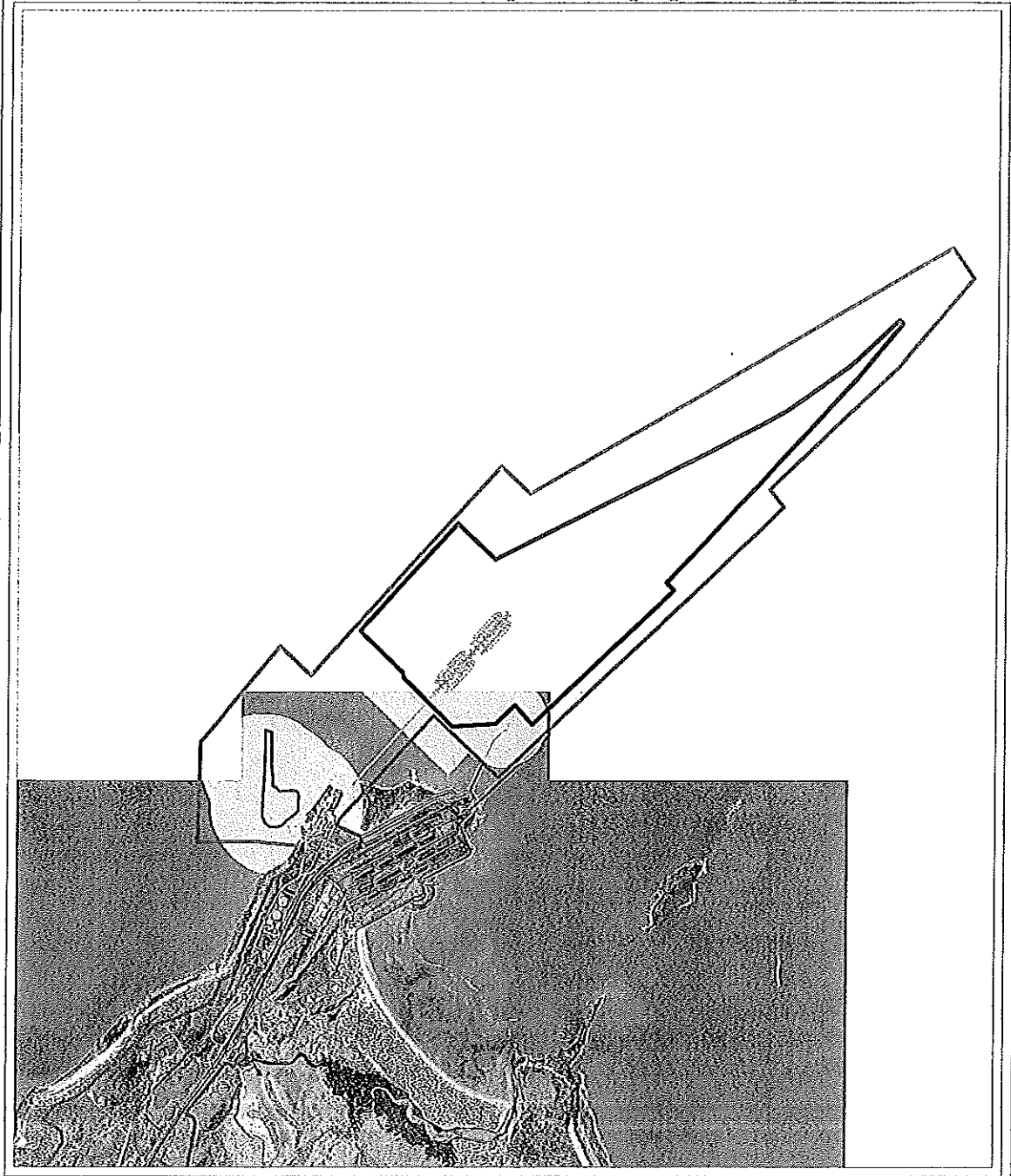
Proponent: Pilbara Iron Pty Ltd

Change: Change to the Tug Harbour Extension dredging footprint area (i.e. updated Table 4 and Figures 2, 4b and 4c).

Table 10 – Coordinates of Dredging Footprint – Small Dredge Area (datum and projection: GDA 1994 MGA zone 50)

Easting	Northing
517519	7723412
517474	7723426
517522	7723209
517528	7723077
517531	7722998
517585	7722954
517723	7722950
517734	7722932
517735	7722902
517734	7722819
517625	7722706
517476	7722707
517452	7722758
517519	7723179
517699	7722959
517732	7722865
517732	7722805
517713	7722783
517631	7722717
517593	7722688
517560	7722678
517516	7722681
517454	7722874
517470	7723139

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Figure 5 : Amended Marine Component of proposal footprint




<p>Legend</p> <ul style="list-style-type: none"> Amended Tug Harbour - Dredge area (2011) Approved dredge area (2010) Infrastructure (2010) Cape Lambert Port B Development Envelope (2010) <p>Ecological Protection Levels (2010)</p> <p>Moderate</p>	<p style="text-align: center;">  Projection: Geographic Coordinate System Datum: Geocentric Datum of Australia, 1984 Scale: 1:4,000 </p> <p>Data Source</p> <ul style="list-style-type: none"> Tug Harbour - Dredge area (Rio Tinto 2011) Infrastructure (Rio Tinto 2011) Cape Lambert Port B Development Envelope (Rio Tinto 2010) Approved dredge area (Rio Tinto 2010) Ecological Protection Levels (Rio Tinto 2010) Mapbox: Cape Lambert (2009) <p>Analysis</p> <p>none</p> <p>Presentation</p> <ul style="list-style-type: none"> Creation Date: 19/04/2011 Created by: Michele Strain Map location: Cape Lambert 	<p>This map is produced for the Environmental Protection Authority. This map depicts the Cape Lambert Port B Development amended Tug harbour dredge area according to a section 45C change to Ministerial Statement 840.</p> <p><small>Disclaimer: This map is intended as a generalised interpretation of environmental bases. The information contained on this map is to be considered indicative only and is no warranty of the Environmental Protection Authority is liable for any omissions or consequential damages resulting from use of the material.</small></p> <p><small>© Copyright Environmental Protection Authority 2011. All Rights Reserved. All words and information employed are subject to Copyright. For the reproduction or publication beyond that permitted by the Commonwealth Copyright Act 1968 written permission must be sought from the Authority.</small></p>
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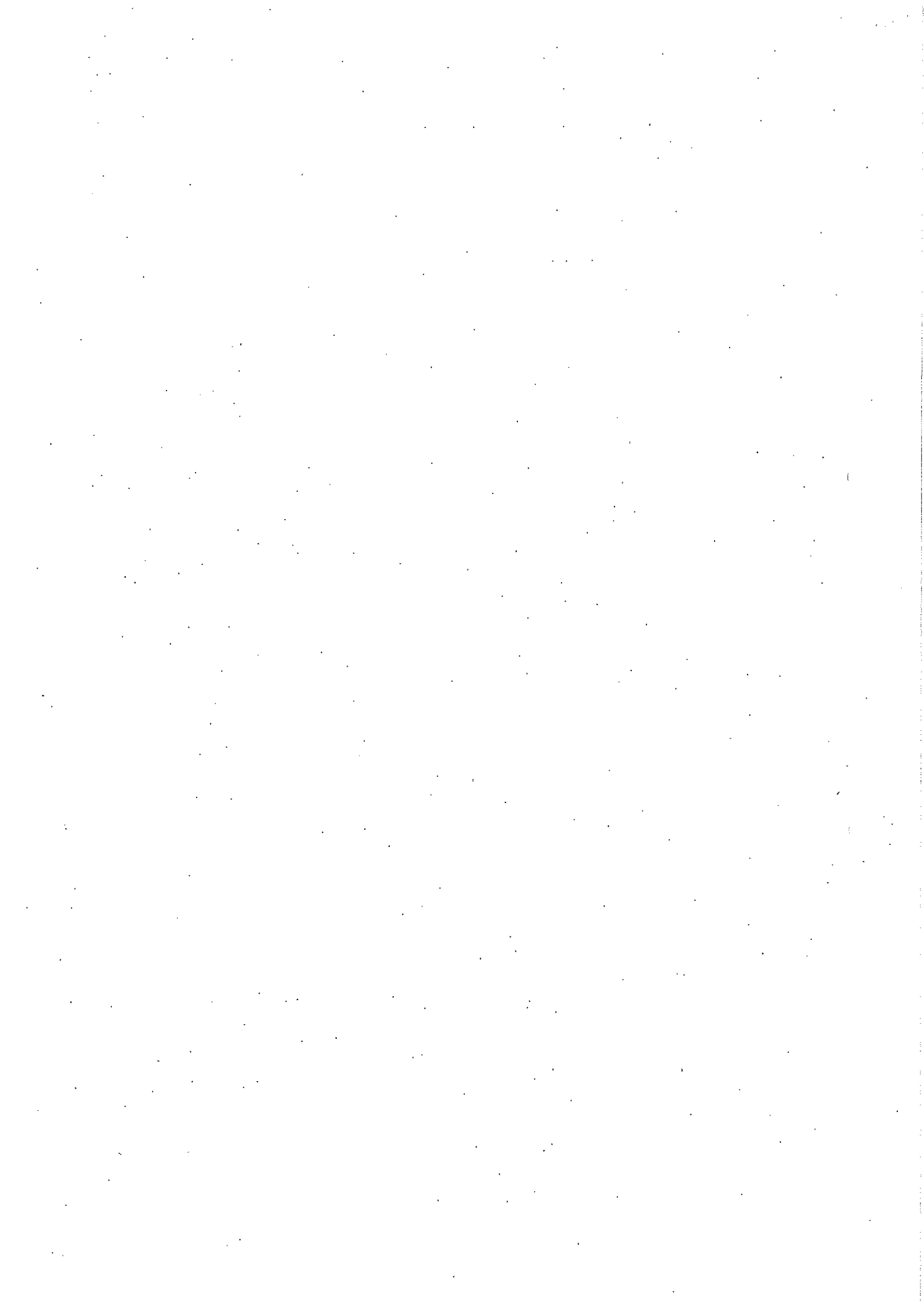
Figure 5 – Marine Component of Proposal Footprint

Note: No changes to the Key Proposal Characteristic table of the Cape Lambert Port
B Development are required.

A handwritten signature in black ink, appearing to read 'P. Vogel', written over a horizontal line.

Dr Paul Vogel
CHAIRMAN
Environmental Protection Authority
under delegated authority

Approval date: 12 May 2011





MINISTER FOR ENVIRONMENT; WATER

Statement No. **000876**

**STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL
(PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE
ENVIRONMENTAL PROTECTION ACT 1986)**

**CAPE LAMBERT PORT B DEVELOPMENT –
SHIRE OF ROEBOURNE**

Proposal: Refer to Ministerial Statement 840
Proponent: Pilbara Iron Pty Ltd
Proponent Address: Level 22, Central Park, 152-158 St George's Terrace, Perth
WA 6000
Previous Statement Number: Statement No. 840

Report of the Environmental Protection Authority: Report 1412

The implementation of the proposal to which the above reports of the Environmental Protection Authority relate is subject to the conditions and procedures contained in Ministerial Statement No. 840, as amended by the following:

1. Condition 8-1 replaced

Condition 8-1 of Ministerial Statement 840 is deleted and replaced with:

"8-1 The proponent shall ensure that the implementation of the proposal does not cause a direct loss of Benthic Primary Producer Habitat in excess of 1.4 hectares. Benthic Primary Producer Habitat is shown on Figure 4a."

**HON BILL MARMION MLA
MINISTER FOR ENVIRONMENT; WATER**

31 OCT 2011

Published on



Mr Tim Eckersley
General Manager
Approvals and Risk Management
Rio Tinto Iron Ore
152-158 St Georges Terrace
PERTH WA 6000

Our Ref: OEPA2011/000731; A425500
Enquiries: Mary Buttfield (6467 5546)
Email: mary.buttfield@epa.wa.gov.au

Attention: Peter Royce

Dear Mr Eckersley

**CAPE LAMBERT PORT B DEVELOPMENT, SHIRE OF ROEBOURNE
(MINISTERIAL STATEMENT 840) – SECTION 45C APPLICATION**

Thank you for your letter of 25 August 2011 requesting approval of a change to the above proposal under section 45C of the *Environmental Protection Act 1986*.

Under section 45C of the *Environmental Protection Act 1986*, I am able to approve a change or changes to a proposal without a revised proposal being submitted to the Environmental Protection Authority.

I consider that the changes described in Attachment 3 to Ministerial Statement 840 will not result in a significant, detrimental, environmental effect in addition to, or different from, the effect of the original proposal.

Approval of the changes to the proposal is therefore granted under section 45C of the *Environmental Protection Act 1986*. You are reminded that this approval shall be implemented in accordance with the implementation conditions in Ministerial Statement 840, and, also, that this approval does not replace any responsibilities you may have for seeking approvals from other government agencies to implement the change.

Yours sincerely

Dr Paul Vogel
CHAIRMAN

22 December 2011

Attachment 3 to Ministerial Statement 840

Change to Proposal

Proposal: Cape Lambert Port B Development, Shire of Roebourne

Proponent: Pilbara Iron Pty Ltd

Change: Additional dredging – increase in “large dredge area” and “tug harbour dredge area” (replaced Figure 5, Table 4 and Key Characteristics Table).

Key Characteristics Table:

Element	Description of proposal	Description of approved change to proposal
Life of Project	At least 50 years	At least 50 years
Iron ore throughput capacity	up to 130 Mtpa	up to 130 Mtpa
Stockyard capacity	Storage to accommodate up to 130 Mtpa	Storage to accommodate up to 130 Mtpa
Total footprint of land-based activities	340 ha	340 ha
Total area of vegetation clearing within the footprint	300 ha	300 ha
<p>Dredging: Volume of sea bed to be dredged for berth pockets, turning basins, departure channel, service wharf B and tug harbour extension: Area of sea bed to be dredged: Dredging depths;</p> <ul style="list-style-type: none"> • berth pockets; • approach/departure channel; and • turning basins. 	<p>Up to 14 Mm³</p> <p>Up to 320 hectares</p> <ul style="list-style-type: none"> • 20 metres Chart Datum; • 16 metres Chart Datum; and • 10 metres Chart Datum. 	<p>Up to 14.545 Mm³</p> <p>Up to 346 hectares</p> <ul style="list-style-type: none"> • 20 metres Chart Datum; • 16 metres Chart Datum; and • 10 metres Chart Datum
Duration of dredging program:	Approximately 52 weeks	Approximately 64 weeks

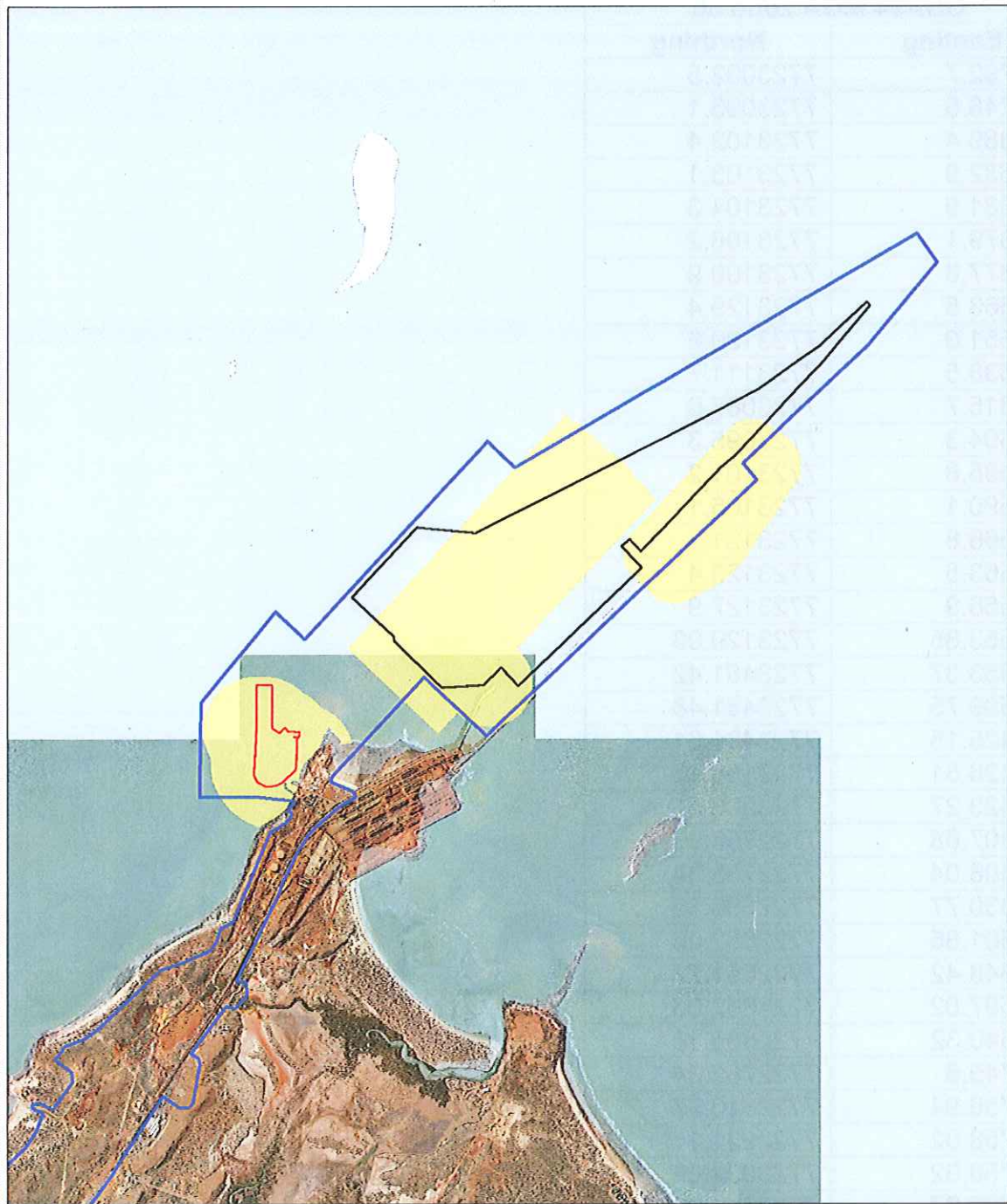
Dredge disposal:		
number of spoil grounds in State waters:	1	1
Dimensions of spoil ground:	2 km long by 1 km wide	2 km long by 1 km wide
Volume of dredge spoil to be disposed of in Western Australian State Waters:	6.06 Mm ³	6.605 Mm³
Amount of dredge spoil to be disposed of onshore	0 Mm ³	0 Mm ³
Duration of pile driving operation	Approximately 52 weeks	Approximately 52 weeks
Access jetty and wharf:		
Design:	Open trellis design allowing water flow beneath	Open trellis design allowing water flow beneath
Length:	Up to 2.2 km (from conveyor junction on land to end of wharf).	Up to 2.2 km (from conveyor junction on land to end of wharf).
Number of ship loading berths:	Up to 4	Up to 4
Major plant components:		
Car dumpers:	3	3
Screenhouses (lump rescreening plants):	2	2
Sample stations/systems:	2	2
Stackers:	3 or 4	3 or 4
Reclaimers:	3	3
Shiploaders:	2	2

Abbreviations

Mtpa	million tonnes per annum
ha	hectares
Mm ³	million cubic metres
km	kilometre

Note: Text in **bold** in the Key Characteristics Table, indicates change/s to the proposal.

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- Legend**
- Cape Lambert Port B Development Envelope (2010)
 - Tug Harbour Dredge Area
 - Large Dredge Area
 - Ecological Protection Level (2010)**
 - Moderate

0 1 2 km

Projection: Geographic Coordinate System
Datum: Geocentric Datum of Australia, 1994
Scale: 1:15,000

Data Source
Cape Lambert Port B Development Envelope (Rio Tinto 2010)
Dredge Areas (Rio Tinto 2011)
Ecological Protection Levels (Rio Tinto 2010)
Imagery: Cape Lambert (2005)

Analysis
none

Presentation
Environmental Protection Authority
(2011)

This map is produced for the Environmental Protection Authority. This map depicts the Cape Lambert Port B Development including the proposed wharf and dredge areas along with the ecological protection levels.

Disclaimer: This map is intended as a generalised interpretation of environmental issues. The information contained on this map is to be considered indicative only and in no event shall the Environmental Protection Authority be liable for any incident or consequential damages resulting from use of the material.

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Figure 6: Marine Component of Proposal Footprint

Table 11a. Coordinates of Dredging Footprint – Tug Harbour (Small Area)

GDA94 MGA zone 50	
Easting	Northing
517782.7	7723092.5
517748.5	7723096.1
517689.4	7723102.4
517682.9	7723103.1
517681.9	7723104.3
517679.1	7723108.2
517677.8	7723109.9
517663.5	7723129.4
517651.0	7723120.6
517638.5	7723111.7
517615.7	7723087.6
517604.3	7723095.3
517595.8	7723101.2
517590.1	7723105.1
517566.8	7723121.1
517563.5	7723123.4
517556.9	7723127.9
517553.85	7723129.99
517553.37	7723481.42
517509.75	7723481.48
517425.15	7723481.61
517426.51	7723158.12
517423.27	7723068.5
517407.08	7722756.97
517408.04	7722736.34
517430.77	7722686.32
517501.85	7722652.46
517548.42	7722651.77
517597.02	7722662.66
517640.32	7722685.16
517745.6	7722782.34
517756.94	7722810.97
517758.02	7722921.1
517758.62	7723054.68
517736.27	7723054.68
517742.3	7723058.3
517778	7723053.5
517779.9	7723067.7
517780.4	7723071.4

Table 11b. Coordinates of Dredging Footprint – Large Area

GDA94 MGA zone 50	
Easting	Northing
522478.59	7726579.50
522451.57	7726605.30
522061.36	7726245.82
521556.30	7725895.80
520994.19	7725603.64
519230.92	7724720.37
518746.58	7724765.10
518214.33	7724194.32
518560.79	7723871.24
518563.05	7723836.54
518952.74	7723456.85
519293.94	7723476.57
519445.02	7723618.78
519582.47	7723470.36
520599.83	7724434.00
520431.26	7724611.98
520499.88	7724666.36
520592.20	7724568.29
521247.80	7725259.07
521359.69	7725347.73
522091.70	7726118.85



Dr Paul Vogel
CHAIRMAN
Environmental Protection Authority
under delegated authority

Approval date: 22.12.11

Appendix D Cetacean and Marine Fauna Survey Form

Cetacean and Marine Fauna Survey Form

1. Observer

Details

Observer:

Vessel/Organisation:

Monitoring Program:

2. Location and Time

Date (dd/mm/yyyy):

Time (24hrs):

Latitude: degrees min South

Longitude: degrees min East

Name of Location (Closest Reference site): Water depth: meters

Habitat (Open water, reef, nearshore):

3. Sighting Details

Whale Dolphin Dugong Turtle

Other...

Common name (+ Scientific if known):

Number of Individuals: Approx Certain Size of Individual/s

Brief description of sighting and animal behaviour (ie breaching, mating, feeding, travelling, etc):

Photos available No/Yes

4. Weather and Sea State Condition

Wind direction and speed:

Sea State:

Cloud Cover:

Overall Visibility:

5. Notes: