## MONTE CHRISTO OFFSET PROPOSAL

**PROJECT** Monte Christo

PREPARED FOR Santos GLNG, Australia Pacific LNG and Queensland

Curtis LNG

PREPARED BY Ecofund

**DATE** 8 August 2013

**DOCUMENT NO.** 3301-GLNG-4-1.3-0049



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## **EXECUTIVE SUMMARY**

## Background

Three liquefied natural gas (LNG) projects are being developed near Gladstone in central Queensland: the Queensland Curtis LNG Project (QCLNG), the Santos GLNG Project (GLNG) and the Australia Pacific LNG Project. Each project involves the development of:

- an LNG and export facility on Curtis Island
- associated marine facilities on Curtis Island and the mainland, Gladstone
- a gas transmission pipeline (GTP) from Curtis Island to central Queensland, including crossing of The Narrows
- CSG fields in central Queensland.

QCLNG<sup>1</sup>, GLNG<sup>2</sup> and Australia Pacific LNG<sup>3</sup> (the LNG proponents) have received conditional approval from the Queensland and Australian Governments to progress their respective LNG projects. Environmental offsets are required as part of the approvals process. The LNG proponents have invested significant time and resources in identifying, mapping and assessing different offset options and solutions to acquit the environmental offset requirements of the projects. Due to the complexities of delivering offsets for projects of such a large scale, the identification of offset options has involved considerable input from the Queensland Government, including assistance with the identification of offset options through the protected areas for the future program.

## Monte Christo Property

The Monte Christo property (Lot 4 CP860403, Lots 297 and 298 DT4023) is located wholly within the Great Barrier Reef World Heritage Area on Curtis Island, north of the city of Gladstone in central Queensland. The property was identified as a priority offset option by the Queensland Government through the protected areas for the future program and also fulfils Australian Government requirements regarding locating offsets within a World Heritage Area.

## Monte Christo Offset Proposal

The LNG proponents propose to collaboratively deliver the Monte Christo Offset Proposal (the Proposal) to acquit the environmental offset requirements for the:

- LNG plants and marine facilities on Curtis Island for each of the LNG proponents
- respective GTP right-of-ways on Curtis Island
- the GTP marine crossings of the Kangaroo Island Wetlands

<sup>&</sup>lt;sup>1</sup> QGC a BG Group Business.

<sup>&</sup>lt;sup>2</sup> PAPL (Downstream) Pty Limited, Total GLNG Australia, KGLNG LIQUEFACTION PTY LTD, SANTOS GLNG

<sup>&</sup>lt;sup>3</sup> Australia Pacific LNG Pty Limited.

The Narrows crossing for each GTP of the LNG proponents (i.e. the Proposal Scope).

The Proposal applies to all approvals relevant to the Proposal Scope, including those yet to be granted. Given the extent and the exceptional nature of the ecological values contained within the Proposal, there is sufficient capacity to address additional offset requirements for the LNG proponents, particularly those relating to the mainland GTPs. The acquittal of these additional offset values will be subject to further consultation and approval from both the Queensland and Australian Governments.

## The Proposal involves:

- acquisition and surrendering of legal interests over substantial areas of Curtis Island
- dedication by the Queensland Government of specified areas of Curtis Island as national park or conservation park under the Nature Conservation Act 1992 (QLD; NC Act), including some of the acquired areas and part of land within the Island Environmental Management Precinct (CIEMP)
- removal of cattle grazing from the acquired areas, and
- financial contributions for the "island wide" management of the protected areas.

principle support for the Proposal acknowledging the outstanding conservation values of the Monte Christo property and the complexity of satisfying offset outcomes of this scale and magnitude (Shane Geddes pers comm. 12 July 2013; Barry Broe Coordinator-The Australian and Queensland Governments have provided the LNG proponents in-General pers comm. 5 November 2012).

The Proposal comprises:

## Monte Christo Property

- Lots 297 and 298 conservation park (709.50 ha) (new) the purchase of Lots 297 and 298 DT4023 (freehold), transfer to the Queensland Government and subsequent dedication as part of the Curtis Island Conservation Park under the NC Act.
- Lot 4 conservation park (2,852.60 ha) (new) the purchase of Lot 4 CP860403 (leasehold) including its subsequent dedication as part of the Curtis Island Conservation Park under the NC Act following relinquishment of the current grazing lease to the Queensland Government. The lease commenced 26 November 1999 for a 75 year period and is due to expire 25 November 2074.

# **Curtis Island Conservation Park**

- Lot 2 national park (2,257 ha) (upgrade) the purchase and surrender of the existing lease over Lot 2 CP860403. Lot 2 is presently part of Curtis Island Conservation Park but is leased to a private party for grazing purposes for a term of 75 years that expires on 30 June 2078. The lease will be surrendered, grazing removed from the land and its protection tenure subsequently upgraded to national park under the NC Act.
- **Lot 5 removal of grazing pressure (3,895 ha)** amendment of a lease over 3,895 ha of the Curtis Island Conservation Park on Lot 5 CP860403 to remove cattle The grazing lease has been issued for a term of 75 years and expires on 30 June 2078. The management plan for this area of Curtis Island Conservation Park will be amended to prohibit cattle grazing.

## **Curtis Island State Forest**

Lots 1 and 7 - removal of grazing pressure (13,900 ha) - the purchase and surrender of 13,900 ha of grazing permits (with 30 year terms) over the Curtis Island State Forest. Leases issued over Lots 1 CP860403 and 7 CP860403 commenced on 2 May 2004 and expire on 1 May 2034.

## **Curtis Island Environmental Management Precinct**

- CIEMP national park (1,912 ha) (new) the dedication of 1,912 ha of the Curtis Island Environmental Management Precinct (CIEMP) as national park<sup>4</sup>.
- CIEMP conservation park (1,010) (new) the dedication of 1,010 ha of the CIEMP as conservation park<sup>5</sup>.
- CIEMP contribution of funding of up to \$34.5 million (AUD) over 25 years for the management of the CIEMP and surrounding protected area estate on Curtis Island.

See Figure 3 for a map showing the location of the areas that make up the Proposal.

Monte Christo Offsets Proposal Compliance with Offset Conditions

The primary aim of the Proposal is to meet the offset approval requirements of the three LNG projects outlined in the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and Queensland Coordinator-General (QLD CG) approval conditions. To fulfil these requirements the Proposal is compliant with the EPBC Act approval conditions listed in Table ES1, Queensland Government Environmental Offsets Policy 2008 (Table ES2) and Fish Habitat Management Operational Policy (FHMOP 005). None of these policies or the approval conditions restricts the use of remnant vegetation as an offset. Consideration has also been given to a document developed by the Queensland Government entitled 'State rationale for the selection of direct land based offsets' (Table ES2).

To maximise environmental outcomes, the LNG proponents have taken guidance from the Policy for Vegetation Management Offsets 2009 and the Policy for Biodiversity Offsets - Consultation Draft 2008, neither of which apply to the three projects.

Through ongoing discussions with the Queensland Government since September 2012 the LNG proponents have used their best endeavours to secure the Proposal through the highest order conservation tenure available. Consequently the Proposal will result, subject to formal acceptance by the Queensland Government, in the protection of more than 8,700 ha of land either as newly declared conservation park or national park, or the upgrade of existing protected areas to national park under the NC Act.

<sup>&</sup>lt;sup>4</sup> 1,434 ha of the declared National Park can contribute to the LNG Proponents' World Heritage Offset requirements in accordance with each LNG Proponent's EPBC Approval.

<sup>&</sup>lt;sup>5</sup> 757 ha of the declared Conservation Park can contribute to the LNG Proponents' World Heritage Offset requirements in accordance with each LNG Proponent's EPBC approval

<sup>&</sup>lt;sup>6</sup> The Policy for vegetation management offsets 2009 does not apply to petroleum activities. The Policy for Biodiversity Offsets - Consultation Draft 2008, being a draft at the time of project approval, does not apply, except in the instance of NC Act clearing permits which must provide protected plant offsets 'generally in accordance with the Policy for Biodiversity Offsets - Consultation Draft 2008'.

The proponents have developed an Interim Offset Area Management Plan (OAMP) for undertaken based on the following threatening process identified within the property: Monte Christo property that details recommended management actions to

- pest plants
- pest animals
- habitat loss and destruction from feral and domestic stock
- inappropriate fire management
- conflicting land uses including grazing enterprises.

Government, the LNG proponents intend for the Interim OAMP to assist with the Curtis Island protected areas and forests (DNPRSR undated). The DNPRSR management Once the Monte Christo property is transferred and surrendered to the Queensland for the Monte Christo property into the current draft DNPRSR statement of management intent for the framework will also incorporate management plans, as required, for each new protected area under the NC Act and plans for threatened fauna species that are present or actions prescriptions and contain potential habitat within the Monte Christo property. integration of the management principles,

Table ES1: Summary EPBC Act approval conditions addressed by the Monte Christo Offset Proposal

OCLNG	EPBC No 2008/4402: 12	13a – c 14a,b,e – h	13a - c 16 19	22c 32d	EPBC No 2008/4399: 8 28 29	EPBC No 2008/4401: 16d	EPBC No 2008/4405: 1d(v)
AUSTRALIA PACIFIC LNG	EPBC No 2009/4997: 13	14a – c 15a, b, e – h	10a - c 17 20	48d	EPBC No 2009/4976: 19	-	
GLNG	EPBC No 2008/4057: 12	13a – c 14a,b,e – h	15a - c 16 19	22c 32d	EPBC No 2008/4096: 8 16 17 28 29	EPBC No 2008/4058: 13d 17	
APPROVAL	LNG Facility				GTP	Marine facilities	Shipping activities

Table ES2: Compliance of the Proposal with the Queensland Government Environmental Offsets Policy 2008 and the State rationale for the selection of land based offsets

APPROVAL/POLICY	COMPLIANT
Consistency with the Queensland Government Environmental Offsets Policy (QLD CG recommendation)	Yes. The Proposal is consistent with the principles of the Queensland Government Environmental Offsets Policy. Better environmental outcomes are achieved. The Proposal contains the same environmental values as those being impacted. There is minimal time lag. The Proposal involves the removal of threatening processes from protected environmental values. Proponents aim to protect offset areas as conservation park with a long term view to transition to national park and workin with Queensland Government to deliver. Management measures have been developed with DNPRSR.
State rationale for the selection of direct land based offsets (Department of Environmental and Heritage Protection undated)	Yes. The Proposal: provides offsets for impacts on endangered and of concern regional ecosystems, essential habitat, threatened specie habitat and marine fish habitat is generally in accordance with key specific issue offset policies: Mitigation and Compensation for Works and Activities Causing Marine Fish Habitat Loss 2002 Policy for Vegetation Management Offsets 2009 Queensland Government's Policy for Biodiversity Offsets – Consultation Draft Dec 2008 consists of remnant vegetation, high value regrowth vegetation and unprotected vegetation communities is located within 15 km of the impacted values within the same subregion as the impacted values employs a strategic approach achieves like for like to the greatest extent possible, with all values impacted being offset will enable higher levels of protection through the removal of impediments/secondary interests, such as grazing and development rights over offset areas acquits Queensland and Australian Government offset requirements, and terrestrial and marine impacts.  The Monte Christo property: is subject to threatening processes. DNPRSR Officers have expressed concern that continuation of the current managemer regime (including grazing) will degrade the property, noting a decrease in ecological condition over the last 30 year (Kershaw (DNPRSR) 2012 pers. comm. 25 June). exceeds ecological equivalence. Ecological surveys performed under Due Diligence provisions of the Put and Call Optio were conducted in November 2012, and confirm that the Monte Christo property exceeds ecological equivalence in relatio to the of concern and endangered regional ecosystems cleared for the LNG developments. The report also concluded tha unrestricted and ongoing grazing activities over the property will continue to have detrimental impacts on ecological condition if intervention strategies are not implemented (QGC 2013a).

The Proposal includes funding for management actions to ensure that ecological values of the Monte Christo property are enhanced and maintained. The LNG proponents will contribute funds towards the offset management program for the Monte Christo property via the combined financial contributions arising from the LNG proponents freehold land will be surrendered to the Queensland Government. The LNG proponents propose to contribute a total of \$ 616,340 phased over five years from the EMPCM Deed to manage the Monte Christo Property. This funding initiative will be used to supplement the Queensland Governments island-wide conservation management program for Curtis Island that will incorporate the newly acquired Monte Christo property. The acquisition of the Monte Christo property will assist with the establishment Deeds (EMPCM Deed); however, control over the tenures and subsequent management of the lease and of a whole-of-island management approach to improve management outcomes and Environmental Management Precinct Contribution and Maintenance reduce management costs across the island.

The delivery of the Proposal will protect and enhance:

- World and National Heritage values of the Great Barrier Reef
- natural connectivity in the landscape
- endangered and of concern regional ecosystems
- habitat for threatened fauna species
- significant marine and fish habitat areas
- migratory shorebird habitat and declared wetlands.

mechanisms and the ongoing management of the area for conservation purposes. The Proposal will result in the protection of over 44% of the whole of Curtis Island which is approximately 58,000 ha in size. Combined with the existing Curtis Island National Park conservation management strategy that is consistent with the islands inherent natural values and management priorities. This will benefit environmental values that are impacted by the LNG proponents' projects as well as additional values such as the The Proposal offers the conservation of more than 25,700 ha of offsets in perpetuity a combination of removal of threatening processes, enabling of protection (8,640 ha), more than 59% of Curtis Island will be actively managed under an island-wide critically endangered yellow chat (Epthianura crocea macgregori).

outcome that would otherwise not be available to Government for protected area protection for at least 136 years, outside of direct acquisition. This follows international The protection of areas on Curtis Island has been a long standing priority for the Queensland Government. The Proposal will bring about a strategic conservation recognition of the need to protect Curtis Island - in March 2012 UNESCO identified that due to the significant increase in developments in Gladstone Harbour, Curtis Island warranted significant protection.

work together to deliver significant environmental outcomes and guarantee no net loss of biodiversity. These outcomes will ensure that impacts are not only addressed but will doing so, offsets can be used to address higher level objectives such as the Australian Government's goal of increasing the size of the National Reserve System to 125 million The Proposal highlights the capacity for the LNG proponents and offset regulators to hectares by 2013 and contribute to the long term protection and enhancement of the also provide for offset solutions that 'go beyond' just meeting policy requirements. World Heritage values of the Great Barrier Reef.

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# **ACRONYMS AND ABREVIATIONS**

DEHP's Biodiversity Assessment and Mapping Methodology BAAM

Curtis Island Environmental Management Precinct CIEMP

CSG coal seam gas

Department of Agriculture, Fisheries and Forestry DAFF

Department of Employment, Economic Development and Innovation DEEDI

Department of Environment and Heritage Protection DEHP

Department of National Parks, Recreation, Sport and Racing DNPRSR

Environmental Management Precinct Contribution and Maintenance **EMPCM Deed** 

Deed

Environment Protection and Biodiversity Conservation Act 1999 (Cwlth) EPBC Act

Fish Habitat Management Operational Policy FHMOP 005

GBRWHA Great Barrier Reef World Heritage Area

GBRMPA Great Barrier Reef Marine Park Authority

GLNG Santos Gladstone LNG

GTP gas transmission pipeline

Ha hectares

HAT highest astronomical tide

HVR high value regrowth

LNG liquefied natural gas

NC Act Nature Conservation Act 1992 (QLD)

OCLNG Oueensland Curtis LNG

RE regional ecosystem

Population Environment, Water, Sustainability, of Department SEWPaC

Communities

OLD CG Queensland Coordinator- General

ROW right-of-way

RSLM Reserve for Strategic Land Management

VM Act Vegetation Management Act 1999 (QLD)

United Nations Educational, Scientific and Cultural Organisation UNESCO

## 1 INTRODUCTION

## Purpose and scope

QCLNG<sup>7</sup>, Santos GLNG<sup>8</sup> and Australia Pacific LNG<sup>9</sup> (the LNG proponents) are each developing a liquefied natural gas (LNG) project near Gladstone in central Queensland: the Queensland Curtis LNG Project (QCLNG), the Santos GLNG Project (GLNG) and the Australia Pacific LNG Project (the projects). The LNG proponents propose to collaboratively deliver the Monte Christo Offset Proposal (the Proposal) to acquit the projects' environmental offset requirements.

The following report has been prepared to:

- illustrate how the Proposal fulfils relevant approval conditions
- outline the impacts of the projects on environmental values that are to be offset by the Proposal
- present the offset requirements to be acquitted by the Proposal
- describe the environmental and offset values of the Proposal
- demonstrate how the Proposal fulfils the identified offset requirements
- identify offset surplus / balances
- describe indicative management actions for the Monte Christo property
- outline potential tenure arrangements and legally binding security mechanisms to provide long term protection of environmental values
- outline the next steps to securing the Proposal.

## 1.2 Santos GLNG Project

GLNG is developing a LNG export facility at Gladstone in central Queensland to commercialise their coal seam gas (CSG) resources. The project involves extraction of CSG from CSG fields operated by Santos, which will be used as feed gas for an LNG facility located on the south-west section of Curtis Island.

The 25 year GLNG Project has the following major components:

- CSG fields around Roma and Injune with potential to provide 5,300 PJ of CSG
- a 420 km Gas Transmission Pipeline (GTP) from the CSG fields to Gladstone
- an LNG liquefaction and export facility on Curtis Island with initial capacity of 3 4 Mtpa but will have the potential for later expansion to a nominal 10 Mtpa.

Further detail on the project is available at http://www.santosglng.com/.

<sup>&</sup>lt;sup>7</sup> QGC a BG Group Business.

<sup>&</sup>lt;sup>8</sup> PAPL (Downstream) Pty Limited, Total GLNG Australia, KGLNG LIQUEFACTION PTY LTD, SANTOS GLNG

<sup>&</sup>lt;sup>9</sup> Australia Pacific LNG Pty Limited.

## 1.3 Australia Pacific LNG Project

Australia Pacific LNG is developing a multibillion dollar, world-class CSG to LNG export project in Queensland. Origin Energy (Origin), ConocoPhillips and Sinopec are joint venture partners in Australia Pacific LNG. The 30 year project has the following objectives:

- development of the Walloons Gas Fields (the Gas Fields) in the Surat Basin in southern central Queensland with up to 10,000 CSG wells
- construction and operation of an approximately 530 km main GTP to connect the Walloons Gas Fields with the LNG facility near Laird Point
- construction and operation of a LNG facility near Laird Point on Curtis Island near Gladstone for production and export of approximately 20 Mtpa of LNG.

Further detail on the project is available at <a href="http://www.aplng.com.au/">http://www.aplng.com.au/</a>.

## 1.4 **Queensland Curtis LNG Project**

QCLNG is developing CSG in the Surat Basin of southern Queensland for domestic and export markets through its QCLNG Project. This project involves:

- expanding QGC's existing CSG production in the Surat Basin of southern Queensland
- building a 540 km buried natural gas pipeline network linking the gas fields to Gladstone
- constructing a natural gas liquefaction plant on Curtis Island, near Gladstone, where the gas will be converted to LNG for export.

The project's first stage will comprise two processing units, known as LNG trains, at the Curtis Island plant. These trains, which have a design life of at least 20 years, will produce a combined 8.5 million tonnes of LNG a year. Further detail on the project is available at http://www.ggc.com.au/gclng-project.

## KEY APPROVAL REQUIREMENTS 2

Ecofund has summarised the key conditions for relevant Queensland and Australian Government approvals granted to date. The compliance matrices provided below demonstrate how each proponent addressed its approval conditions. Table 1 details key complete list of all EPBC Act approval conditions is included in Appendix A. Table 2 details Queensland Government approvals including the Queensland Coordinator-General's (QLD CG) conditions, development approvals and environmental authorities. Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) approvals. A

## Table 1: EPBC Act approvals compliance matrix

	APPROVAL CONDITIONS BY PROJECT		1 Daniella
GLNG <sup>10</sup>	AUSTRALIA PACIFIC LNG <sup>11</sup>	QCLNG	ADDRESSED
00	EPBC Act approval: I		
12. An Environmental Offsets Plan to offset the loss of habitat and associated World Heritage and National Heritage values caused by the construction and operation of the LNG Facility, must be developed.	13. An Environmental Offsets Plan to offset the loss of habitat and associated World Heritage and National Heritage values caused by the construction and operation of the LNG Facility, must be developed.	12. An Environmental Offsets Plan to offset the loss of habitat and associated World Heritage and National Heritage values caused by the construction and operation of the LNG Facility, must be developed.	Australia Pacific LNG - The Offset Program submitted 21 November 2011 constitutes the required Environmental Offset Plan.  GLNG - The LNG Facility Environmental Offsets Plan was submitted in April 2011.  QCLNG – The LNG Facility Environmental
			Offset Plan was submitted 29 April 2011.
13a. The Offset Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:	14a. The Offset Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:	13a. The Offset Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:	Section 6 of this Monte Christo Offsets Proposal is proposed to update the above Environmental Offsets Plans provided to SEWPaC.
The development and operation of the LNG Facility.	The development and operation of the LNG Facility.	The development and operation of the LNG Facility.	
13b. The Offset Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:	14b. The Offset Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:	13b. The Offset Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:	Section 6 of this Monte Christo Offsets Proposal is proposed to update the above Environmental Offsets Plans provided to SEWPaC.
Other activities on Curtis Island that are associated with the LNG Facility (including workers' accommodation facilities, port of works for the project, and ancillary works); and	Other activities on Curtis Island that are associated with the LNG Facility (including workers' accommodation facilities, port works for the project, and ancillary works); and	Other activities on Curtis Island that are associated with the LNG Facility (including workers' accommodation facilities, port of works for the project, and ancillary works); and	
13c. The Offset Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:  Increased risks to biodiversity values of the World Heritage and National Heritage property arising from increased shipping movements and other subsequent or indirect impacts beyond the immediate development site such as	14c.The Offset Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:  Increased risks to biodiversity values of the World Heritage and National Heritage property arising from increased shipping movements and other subsequent or indirect impacts beyond the immediate development site such as	13c. The Offset Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:  Increased risks to biodiversity values of the World Heritage and National Heritage property arising from increased shipping movements and other subsequent or indirect impacts beyond the immediate development site such as	The LNG proponents are in advanced discussions with the Great Barrier Reef Marine Park Authority (GBRMPA) to develop a strategy which will offset indirect impacts that includes specific funding agreements and identification of priority projects for the GBRMPA.
water quality impacts and increased recreational access arising from the development and operation of the LNG Facility.	water quality impacts and increased recreational access arising from the development and operation of the LNG Facility.	water quality impacts and increased recreational access arising from the development and operation of the LNG Facility.	
14a. The Offset Plan must detail the principles adopted in the plan. These principles must reflect the objective of identifying, protecting, conserving, presenting, transmitting to future generations and, if necessary, rehabilitating, the World Heritage and National Heritage values of the Great Barrier Reef property.	15a. The Offset Plan must detail the principles adopted in the plan. These principles must reflect the objective of identifying, protecting, conserving, presenting, transmitting to future generations and, if necessary, rehabilitating, the World Heritage and National Heritage values of the Great Barrier Reef property.	14a. The Offset Plan must detail the principles adopted in the plan. These principles must reflect the objective of identifying, protecting, conserving, presenting, transmitting to future generations and, if necessary, rehabilitating, the World Heritage and National Heritage values of the Great Barrier Reef property.	Section 4 of this Monte Christo Offsets Proposal relates to offset principles.
14b. The Offset Plan must detail the predicted total loss (in extent and type) of areas of ecological and aesthetic value (including remnant vegetation, high value regrowth, significant conservation species, habitat, biodiversity corridors, scenic vistas of outstanding national beauty).	15b. The Offset Plan must detail the predicted total loss (in extent and type) of areas of ecological and aesthetic value (including remnant vegetation, high value regrowth, significant conservation species, habitat, biodiversity corridors, scenic vistas of outstanding national beauty).	14b. The Offset Plan must detail the predicted total loss (in extent and type) of areas of ecological and aesthetic value (including remnant vegetation, high value regrowth, significant conservation species, habitat, biodiversity corridors, scenic vistas of outstanding national beauty).	Section 6 of this Monte Christo Offsets Proposal.
14e. The Offset Plan must detail relevance to any Australian or Queensland Government requirements for offsets.	15e. The Offset Plan must detail relevance to any Australian or Queensland Government requirements for offsets.	14e. The Offset Plan must detail relevance to any Australian or Queensland Government requirements for offsets.	Section 7 of this Monte Christo Offsets Proposal.
14f. The Offset Plan must detail in relation to any land retained at the time of preparation of the Plan, the location, size and environmental values of the offsets.	15f. The Offset Plan must detail in relation to any land retained at the time of preparation of the Plan, the location, size and environmental values of the offsets.	14f. The Offset Plan must detail in relation to any land retained at the time of preparation of the Plan, the location, size and environmental values of the offsets.	Section 8 of this Monte Christo Offsets Proposal.

<sup>10</sup> Conditions extracted from GLNG's LNG Facility Environmental Offset Plan and the GTP Environmental Offset Plan.
11 Conditions extracted from the Australian Pacific LNG Environmental Offset Program (November 2011).
12 GLNG - EPBC Act approval 2008/4057, Australia Pacific LNG – EPBC Act approval 2009/4997, QCLNG – EPBC Act approval 2008/4402.

	ADDRESSED		
GLNG <sup>10</sup>	AUSTRALIA PACIFIC LNG <sup>11</sup>	QCLNG	ADDRESSED
14g. The Offset Plan must detail in relation to any land retained at the time of preparation of the Plan, the management measures, including funding, required to secure, maintain and enhance the values of the proposed offset (land).	15g. The Offset Plan must detail in relation to any land retained at the time of preparation of the Plan, the management measures, including funding, required to secure, maintain and enhance the values of the proposed offset (land).	14g. The Offset Plan must detail in relation to any land retained at the time of preparation of the Plan, the management measures, including funding, required to secure, maintain and enhance the values of the proposed offset (land).	Section 10 and Appendix B of this Monte Christo Offsets Proposal.
14h. The Offset Plan must detail a system for reporting to the Minister on offset arrangements, their management and how offset values are being maintained.	15h. The Offset Plan must detail a system for reporting to the Minister on offset arrangements, their management and how offset values are being maintained.	14h. The Offset Plan must detail a system for reporting to the Minister on offset arrangements, their management and how offset values are being maintained.	Sections 11 of this Monte Christo Offsets Proposal.
15a. The Environmental Offsets Plan must, as a minimum, offset direct impacts by securing an offset property that contains attributes or characteristics at least corresponding with those of the LNG Facility site at a ratio of no less than 5:1 of the LNG Facility site area (that is, a property of at least 1,200 hectares (ha)).	16a. The Environmental Offsets Plan must as a minimum include: to offset direct impacts, the securing by the proponent of an offset property: that contains attributes or characteristics at least corresponding with those of the LNG Facility site; and ii. at a ratio of no less than 5:1 of the LNG Facility site area, excluding the proposed reclamation area (that is, a property of at least 1,153 ha in total area);	15a. The Environmental Offsets Plan must include as a minimum include: to offset direct impacts, the securing by the proponent of an offset property: that contains attributes or characteristics at least corresponding with those of the LNG Facility site; and ii) at a ratio of no less than 5:1 of the LNG Facility site area (that is, a property of at least 1,375 ha in total area).	Section 8 – Environmental values of the Proposal Section 9 – Offset values of the Proposal
15b. The Environmental Offsets Plan must show a commitment to use best endeavours to secure National Park status for the offset property, or at a minimum ensure the retention and management of the offset property for conservation purposes under a secure permanent land tenure arrangement, of the property.	16b .The Environmental Offsets Plan must as a minimum include: a commitment by the proponent to use its best endeavours to secure National Park status for the offset property. At a minimum the proponent must ensure the retention and management for conservation purposes, under a secure permanent land tenure arrangement, of the offset property.	15b. A commitment by the proponent must use its best endeavours to secure National Park status for the offset property. At a minimum the proponent must ensure the retention and management for conservation purpose, under a secure permanent land tenure arrangement, of the offset property	Section 11 of this Monte Christo Offsets Proposal.
15c. To offset indirect impacts a contribution of \$200,000 per annum for the life of the project and in addition \$100,000 per annum for each operating LNG Train to be provided to the Australian and QLD Government joint program of field management for GBRWHA.	16c. to offset indirect impacts, a strategy for contributions to field management and visitor awareness of the Great Barrier Reef World Heritage area. The strategy must: provide for activities to support field management to address the increased pressures on the Great Barrier Reef World Heritage area, including but not limited to, pressures on populations of vulnerable species, increased risks from shipping and increased use of the Area; be developed in consultation with the Great Barrier Reef Marine Park Authority, to give priority to objectives for the protection of the Great Barrier Reef Marine Park and World Heritage area identified (from time to time), which may include (without limitation) patrols, support for incident response planning and preparedness, data collection, and assistance in visitor management; provide for the submission of periodic reports to the Great Barrier Reef Marine Park Authority on the activities conducted; (iv) provide for a budget of at least \$200,000 per annum for the life of the project (indexed at CPI) and in addition \$100,000 per annum (indexed at CPI) for each operating LNG Train (commencing on commissioning of the relevant Train) to support implementation of the strategy.	15c. to offset indirect impacts, a strategy for contributions to field management and visitor awareness of the Great Barrier Reef World Heritage area. The strategy must: provide for activities to support field management to address the increased pressures on the Great Barrier Reef World Heritage area, including but not limited to, pressures on populations of vulnerable species, increased risks from shipping and increased use of the Area; be developed in consultation with the Great Barrier Reef Marine Park Authority, to give priority to objectives for the protection of the Great Barrier Reef Marine Park and World Heritage area identified (from time to time), which may include (without limitation) patrols, support for incident response planning and preparedness, data collection, and assistance in visitor management; provide for the submission of periodic reports to the Great Barrier Reef Marine Park Authority on the activities conducted; provide for a budget of at least \$200,000 per annum for the life of the project (indexed at CPI) and in addition \$100,000 per annum (indexed at CPI) for each operating LNG Train (commencing on commissioning of the relevant Train) to support implementation of the strategy.	GBRMPA and SEWPaC have agreed in principle for all three proponents to enter into a common agreement with GBRMPA to fulfil multiple objectives within the joint program for field management within the Mackay / Capricorn section of the GBRWHA. Funding from the proponents will be directed towards the region's highest priority projects defined and agreed to within the Program. The LNG proponents and GBRMPA have made good progress in establishing binding Funding Agreements that will among other things represent a strategy for contributions to field management and visitor awareness of the Great Barrier Reef World Heritage Area including but not limited to, pressures on populations of vulnerable species, increased risks from shipping and increased use of the area.  The LNG proponents anticipate finalising the Funding Agreements by the third quarter of 2013.
16. Subject to condition 17, any property that is purchased or otherwise retained under a secure land tenure arrangement for the purposes of the Environmental Offsets Plan must be located within the Great Barrier Reef World Heritage area, preferably on Curtis Island or nearby.	17. Subject to condition 18, any property that is purchased or otherwise retained under a secure land tenure arrangement for the purposes of the Environmental Offsets Plan must be located within the Great Barrier Reef World Heritage area, preferably on Curtis island or nearby.	16. Subject to condition 17, any property that is purchased or otherwise retained under a secure land tenure arrangement for the purposes of the Environmental Offsets Plan must be located within the Great Barrier Reef World Heritage area, preferably on Curtis Island or nearby.	The Monte Christo property, the associated tourism and grazing leases and the CIEMP are located wholly within Great Barrier Reef World Heritage area).  Section 8 – Environmental values of the Proposal.
19. Within 6 months of the date of this approval, the	20. Within 6 months of the final investment decision to	19. Within 6 months of the final investment decision to	Australia Pacific LNG - The Offset Program

	APPROVAL CONDITIONS BY PROJECT		ADDRESSED
GLNG <sup>10</sup>	AUSTRALIA PACIFIC LNG <sup>11</sup>	QCLNG	ADDRESSED
Environmental Offsets Plan must be submitted in writing for approval of the Minister. The approved plan must be implemented.	proceed with the proposed action, the Environmental Offsets Plan must be submitted in writing for the approval of the Minister. The approved plan must be implemented.	proceed with the proposed action, the Environmental Offsets Plan must be submitted in writing for the approval of the Minister. The approved plan must be implemented.	submitted 21 November 2011 constitutes the required Environmental Offset Plan.  GLNG - The LNG Facility Environmental Offsets Plan was submitted in April 2011.  QCLNG - The LNG Facility Environmental
			Offset Plan submitted 29 April 2011.
32d. Water mouse Environmental Management Plan must be prepared. If impacts on the water mouse or its potential habitat are unavoidable, propose offsets to compensate for the impacts (EPBC Act Approval 2008/4058).	48d. If impacts on the water mouse or its potential habitat are unavoidable, propose offset to compensate for the impacts.	32 d If impacts on the Water Mouse or its potential habitat are unavoidable, propose offsets to compensate for the impacts.	GLNG - There are no impacts to water mouse or its potential habitat as a result of the development and operation of the LNG Facility such that offsets pursuant to condition 32(d) are applicable13.  Australia Pacific LNG and QCLNG – offsets for impacts on water mouse habitat are proposed Section 9.2 – Summary of offset acquittal
22c. Where a listed ecological community, threatened species or migratory species or their habitat, is found during the verification surveys and is not exempted under the Approval, the proponent must submit a Management Plan proposing offsets to compensate for the impact on the population of the species' habitat or ecological community.		22c. If a listed threatened species or migratory species or their habitat, is found during the verification surveys undertaken as required by condition 2, and is not specified in conditions 32-39 inclusive, the proponent must submit a separate management plan for each such species, ecological community or other MNES, to manage the impacts of construction and operation of the LNG facility. Each such plan must be submitted before the commencement of construction of the LNG facility. Each plan must include: where impacts are unavoidable, and if an impacted species is not specified in conditions 32-39 inclusive, propose offsets to compensate for the impact on the population or impact on the species habitat	No offset requirement identified in the verification surveys
	EPBC Act approv		
8. Where a listed threatened species or migratory species or their habitat, or a listed ecological community is encountered during the pre-clearance surveys for the pipeline ROW and it is not exempted under the Approval, the proponent must submit a Management Plan proposing offsets to compensate for the impact on the population of the species' habitat or ecological community.		8. If a listed threatened species or migratory species or their habitat, or a listed ecological community is encountered during the surveys undertaken as required by condition 5 and is not specified in the Table 1 or 2 at condition 11 and 12, the proponent must submit a separate management plan for each species or ecological community to manage the unexpected impacts of clearing.	No offset requirement identified in the pre- clearance surveys
16. The Offset Plan must include details of the timing and		-	Sections 11 and 12
arrangements for property acquisition.			
16. The Offset Plan must include details of the offset area including maps and site description.	-	-	Section 8 – Environmental values of the Proposal
16. The Offset Plan must include details of the offset area	_	_	Section 8 – Environmental values of the
including environmental values relevant to matters of national environmental significance.			Proposal
16. The Offset Plan must include details of the offset area including connectivity with other habitats and biodiversity corridors.			Section 8 – Environmental values of the Proposal
16. The Offset Plan must include details of the offset area including a rehabilitation program.	-	-	Section 10 and Appendix B
17. The Offset Plan must be submitted for the approval of the	-	_	
Minister within 12 months of the commencement of gas field development. The approved Offset Plan must be			

<sup>&</sup>lt;sup>13</sup> Impacts upon water mouse are not anticipated (BAAM, 2012), however the Proposal contains habitat for the water mouse or is likely to support suitable habitat for the water mouse (QGC, 2013b). <sup>14</sup> GLNG - EPBC Act approval 2008/4096, Australia Pacific LNG – EPBC Act approval 2009/4976, QCLNG – EPBC Act approval 2008/4399.

	ADDRESSED		
GLNG <sup>10</sup>	AUSTRALIA PACIFIC LNG <sup>11</sup>	QCLNG	ADDRESSED ADDRESSED
implemented within 30 business days of approval.			
28. To offset the unavoidable impacts on listed migratory birds within the ROW at the Kangaroo Island wetlands west of The Narrows, the proponent must contribute at least \$250,000 to the Gladstone Ports Corporation's migratory bird research study required by conditions for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).	19. If a bundled pipeline crossing of The Narrows is not pursued then to offset the unavoidable impacts on listed migratory birds within the ROW at Kangaroo Island wetlands west of The Narrows, the proponent must contribute at least \$250,000 to the Gladstone Ports Corporation migratory bird research study required by conditions for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).	19. If a bundled pipeline crossing of The Narrows is not pursued then to offset the unavoidable impacts on listed migratory birds within the ROW at Kangaroo Island wetlands west of The Narrows, the proponent must contribute at least \$250,000 to the Gladstone Ports Corporation migratory bird research study required by conditions for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).	QGC - To date, QGC paid the sum of \$266,894 to Gladstone Ports Corporation Limited (GPC) in accordance with condition 28 of QGC's Pipeline Approval (EPBC 2008/4399) as a financial contribution to GPC's Migratory Shorebirds program required under the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).  GLNG – The Santos GTP now avoids impacts to migratory shorebird habitat as it avoids the Kangaroo Island Wetlands. Therefore, GLNG will seek to have this condition varied as there are no impacts to this MNES.  Australia Pacific LNG – As a bundled pipeline crossing has been pursued the wording of the
29. The EMP for the Narrows Crossing must include the proposed offsets to compensate for the unavoidable impacts of the action on listed threatened species and ecological communities, listed migratory species and values of the World and National Heritage-listed Great Barrier Reef.		29. The proponent must prepare an Environmental Management Plan for the crossing of the Narrows. This must include:  b. a construction method which, in the opinion of the Minister, will result in minimal surface disturbance to the Kangaroo Island Wetlands and minimal disturbance to the area of the estuary of the Narrows (preferably achieved by horizontal directional drilling or tunnelling);  v. proposed offset measures to compensate for unavoidable impacts on listed threatened species and ecological communities, listed migratory species and values of the	condition exempts APLNG from any payment.  Section 9 – Offset values of the Proposal
		World and National Heritage-listed Great Barrier Reef;	
40.1.71	EPBC Act Approval – M		
13d. The proponent must prepare a Shipping Activity Management Plan which includes a comprehensive outline of mitigation measures and controls for each of the types of shipping activities to minimise their impact on the species mentioned in condition 13(a), including a feasible and beneficial offsets strategy in the event of any impacts.		16d. To protect the Water Mouse (Xeromys myoides), the proponent must submit to the Minister an Environmental Management Plan (the Water Mouse Environmental Management Plan) which must include if impacts on the Water Mouse or its potential habitat are unavoidable, propose offsets to compensate for the impacts.	No offsets required by the Shipping Activity Management Plan 16
17d. The proponent must submit to the Minister an Environmental Management Plan which must include, if impacts on the Water Mouse or its potential habitat are unavoidable, propose offsets to compensate for the impacts.	-		GLNG - There are no impacts to water mouse or its potential habitat as a result of the development and operation of the LNG Facility such that offsets pursuant to condition 17(d) are not applicable 17.
	EPBC Act Approval – Sh		
		1d. The proponent must prepare a Shipping Activity Management Plan ('the Plan')	No offsets required by the Shipping Activity Management Plan19

<sup>&</sup>lt;sup>15</sup> GLNG – EPBC Act Approval 2008/4058.

<sup>16</sup> N.B. the impacts on marine values (mainly seagrass) identified in Section 6 are related to construction of the LNG Facilities and GTP crossings, and are not associated with shipping activities. The bulk of these impacts are temporary in nature as seagrass will recolonise areas of disturbance following construction.

<sup>&</sup>lt;sup>17</sup> Impacts upon water mouse are not anticipated (BAAM, 2012), however the Proposal contains habitat for the water mouse or is likely to support suitable habitat for the water mouse (QGC, 2013b).

<sup>&</sup>lt;sup>18</sup> QCLNG – EPBC Act Approval 2008/4405.

<sup>19</sup> N.B. the impacts on marine values (mainly seagrass) identified in Section 6 are related to construction of the LNG Facilities and GTP crossings, and are not associated with shipping activities. The bulk of these impacts are temporary in nature as seagrass will recolonise areas of disturbance following construction.

	APPROVAL CONDITIONS BY PROJECT					
GLNG <sup>10</sup>	AUSTRALIA PACIFIC LNG <sup>11</sup>	QCLNG	ADDRESSED			
		which includes a comprehensive outline of mitigation measures and controls for each of the types of shipping activities to minimise their impact on the species mentioned in condition 1 (a), including actions to:  v. proposed remedial action in the event of any impacts directly attributable to the proponent's shipping activities on the species specified in condition 1(a), and the habitats identified in condition 1(b), including a feasible and beneficial offsets strategy.				

## Table 2: Queensland Government approvals compliance matrix

	ADDRESSED		
GLNG <sup>20</sup>	AUSTRALIA PACIFIC LNG <sup>21</sup>	QCLNG	ADDRESSED
	Coordinator-General Ap	proval Conditions	
CG App 1 Part 2 Condition 13 - Proponent will consult with DERM to identify, assess and mitigate impacts to terrestrial and aquatic ecosystems and develop an Environmental Management Plan ("EMP") for design and construction of environmental offset and mitigation measures associated with road and access track works, including assessment of any proposed offsets.			No offsets required by the EMP
CG App 4 Part 3 Condition 4 / App 3 Part 3 Condition 6 - An Environmental Offsets Program, consistent with the Queensland Government Environmental Offset Policy 2008 and specific issue policies must be provided to the CG and approved by the CG before the finalisation of environmental authorities covering gas field development, pipeline construction and LNG Facility construction and operation. The program must address, but not be limited to, impacts on vegetation and biodiversity arising from: a. construction and operation of the LNG Facility and associated GTP, b. construction of marine infrastructure and c. other activities (e.g. workers' accommodation facilities, port works for the project, ancillary works).	CG App 1 Part 1 Condition 5-1 Submit an Environment Offsets Strategy which addresses the Queensland Government Environmental Offset Policy 2008 and associated specific issue policies and includes requirements for listed/scheduled species under the Nature Conservation Act 1992.	CG App 1 Part 1 Condition 7 - 1. An Environment Offsets Program, consistent with the Queensland Government Environmental Offset Policy 2008 and specific issue policies, must be provided to the CG and administering authority covering gas field development, pipeline construction and LNG Facility construction and operation.	Australia Pacific LNG - The Offset Program submitted 21 November 2011 constitutes the required Environmental Offset Plan.  GLNG - The LNG Facility Environmental Offsets Plan was submitted in April 2011.  QCLNG – Currently in discussion with Queensland and Australian Governments
CG App3 Part 2 Condition 17i - Preconstruction surveys of the activities in gas fields and the final GTP corridor must identify koala habitat as defined under the Nature Conservation (Koala) Conservation Plan 2006. Specific mitigation measures and habitat offsets for residual impacts to koala habitat must be provided.	-		GLNG - Mitigation measures are not addressed in this document. Specific mitigation measures are outlined in the GTP Construction EMP (GLNG 2011) and Significant Species Management Plans (SSMP) (3380-GLNG-4-1.3-0104). The Monte Christo Offset Proposal addresses offsets for residual impacts to koala habitat.

<sup>&</sup>lt;sup>20</sup> Conditions extracted from GLNG's LNG Facility Environmental Offset Plan and the GTP Environmental Offset Plan. <sup>21</sup> Conditions extracted from the Australian Pacific LNG Environmental Offset Program (November 2011).

1	ADDRESSED		
GLNG <sup>20</sup>	AUSTRALIA PACIFIC LNG <sup>21</sup>	QCLNG	ADDRESSED
GLNG Environmental Authority No. PEN101623910 – LNG Facility	Australia Pacific LNG Environmental Authority No. PEN101701810	QCLNG Operating Company Pty Ltd Environmental Authority No. PEN100725510 (Vegetation Clearing)	
BF1 A total maximum area of 172.1 ha of vegetation can be cleared within the boundary of PFL10, refer to plan Appendix 2 – Figure 4: LNG Facility Regional Ecosystems, comprising of: a maximum cleared area of 34.1 ha of endangered RE 12.3.3 a maximum cleared areas of 32.8 ha of concern RE 12.11.14 a maximum cleared area of 0.6 ha of saltpan vegetation RE 12.1.2 a maximum cleared area 0.1 ha of mangrove shrubland RE 12.1.3 e) a maximum 104.5 ha of Corymbia citriodora and Eucalyptus crebra open forest RE 12.11.6.	F222. Disturbance to Land – General The holder of this environmental authority when carrying out petroleum activities must:  avoid, minimise or mitigate (in order of preference), any impacts on areas of vegetation or other areas of ecological value. F7. Disturbance to Land – Environmentally Sensitive Areas A total maximum area of 297.77 hectares of vegetation can be cleared within the boundary of PFL20, comprising of:  a maximum cleared area of 28.5 hectares of Of Concern Regional ecosystem 12.3.11 a maximum cleared area of 44.86 hectares of Of Concern Regional Ecosystem 12.11.14 a maximum cleared area of 34.07 hectares of saltpan vegetation Regional Ecosystem 12.1.2 a maximum cleared area of 1.38 hectares of Queensland Blue Gum, Pendulous Paperbark, Melaleuca fluviatilis, fringing forest Regional Ecosystem 12.3.7 a maximum cleared area of 19.66 hectare of mangrove shrubland Regional Ecosystem 12.1.3 a maximum 169.3 hectares of Corymbia citriodora and Eucalyptus crebra open forest Regional Ecosystem 12.11.6.	F12. A total area of 191 ha of vegetation can be cleared within the boundary of PFL11, comprising: a maximum cleared area of 45 ha of vegetation with an 'endangered' biodiversity status as follows: i. RE 12.3.3 (45ha).  A maximum cleared area of 49 ha of vegetation with an 'of concern' biodiversity status as follows: i. RE 12.3.11 (2 ha); ii RE 12.11.14 (2ha); iii. RE12.11.6/12.11.14 (45 ha).  A maximum cleared area of 97 ha of vegetation with a 'no concern at present' biodiversity status as follows: i. RE12.1.2 (9ha); RE 12.1.3 (5ha); and iii. RE 12.11.6 (83 ha).	GLNG – Section 6 – Summary of impacts  Australia Pacific LNG – Section 6 – Summary of impacts  QCLNG – Section 6 – Summary of impacts

<sup>&</sup>lt;sup>22</sup> Note: Reflects only part of condition F2.

GLNG <sup>23</sup>		AUSTRA	APPROVAL CONDITION LIA PACIFIC LNG <sup>24</sup>	IS BY PROJ	ECT		QCLNG		ADDRESSED
GLNG Environmental Authority No. PEN102664411 – Mainland GTP	AUSTRALIA	PACIFIC LNG Envi	ronmental Authority No. PEN10	01718310	QCLNG Pipeline Pty Ltd Environmental Authority No. PEN101591310 (Schedule C)			01591310	
D24 A maximum area of environmentally sensitive areas vithin the pipeline ROW and	162 boundary for t	62 boundary for the authorised petroleum activities, as detailed in Schedule C –			the authorised petr	vegetation may be cleared with oleum activities, as detailed in Siring Authorised.		GLNG – Section 6 – Summary of impacts	
urnaround bays may be cleared	Pipeline	RE class	RE descriptor	Area	Pipeline	RE class	RE descriptor	Area	Australia Pacific LNG -
comprising:	section			(ha)	section		· ·	(ha)	Section 6 – Summary of
p to 10.46 ha of endangered					Phillipies	Of concern	11.3.26/11.3.4/11.11.15a	5.63	impacts
emnant regional ecosystems	Phillipies	Of concern	11.3.26/11.3.4/11.11.15a	6.6	Landing	Not of	11.11.3	0.04	
o to 53.34 ha of endangered	Landing	_			Road	concern			QCLNG – Section 6 –
igh value regrowth regional	Road	Not of	11.11.3	3.7	(ROW)	Non-	n/a	0.58	Summary of impacts
cosystems	Right of	concern				remnant			
p to 32.20 ha of concern	Way	Non-	n/a	3.3		vegetation			
emnant regional ecosystems	(APLNG)	remnant				Sub-total		6.25	
6.36 ha of concern high value		vegetation		10.4	Phillipies	Of concern	11.3.26/11.3.4/11.11.15a	37.00	
egrowth regional ecosystems ) up to 6.965 ha of		Sub-total		13.6	Landing	Not of	11.1.2a; 11.11.3	0.17	
c) up to 6.965 ha of essential habitat for coastal	Phillipies	Of concern	11.3.26/11.3.4/11.11.15a	43.36	Road	concern			
heath-tailed bat	Landing	_			Section	Non-	n/a	4.19	
neath-tailed bat	Road	Not of	11.1.2a; 11.11.3	1.06	1.06	remnant			
	Section	concern				vegetation			
		Non-	n/a	4.58		Sub-total	==:	41.36	
		remnant			Creek Section	Of concern	11.3.26/11.3.4/11.11.15a	0.19	
		vegetation				Not of	11.1.2a; 11.1.4a;	8.72	
		Sub-total	11.0.04/11.0.1/11.11.15	49		concern	11.1.4d; 11.5.9d		
	Creek Section	Of concern	11.3.26/11.3.4/11.11.15a	0.19		Sub-total	11.10.11.1	8.91	
	Section	Not of	11.1.2a; 11.1.4a; 11.1.4d;	8.81	Marshland	Not of	11.1.2a; 11.1.4c	9.68	
		concern	11.5.9d	0.01	Section	concern		0.70	
		Sub-total	11.5.74	9		Sub-total	11 1 2-, 12 1 2, 12 11 /	<b>9.68</b> 0.45	
	Marshland	Not of	11.1.2a; 11.1.4c	9.81	Narrows Section	Not of	11.1.2a; 12.1.3; 12.11.6	0.45	
	Section	concern	11.1.2a, 11.1.4C	7.01	Section	concern		0.45	
	Section	Sub-total		9.81	Curtis	Sub-total	12.11.6	<b>0.45</b> 6.02	
	Narrows	Not of	11.1.2a; 12.1.3; 12.11.6	2.32		Not of	12.11.0	6.02	
	Section	concern	11.1.24, 12.1.3, 12.11.0	2.02	Island (Landing)	concern	1.	6.02	
	Section	Sub-total		2.32	(Landing) Curtis	Sub-total Endangered	12.3.3; 12.3.3/12.3.7	1.10	
	Curtis	Not of	12.11.6	5	Island	Of concern	12.3.3; 12.3.3/12.3./	6.67	
	Island	concern	.2.11.0	J	(ROW)	Of concern	12.11.0/12.11.14;	0.07	
(Landir Curtis Island Right o Way	(Landing)	Sub-total		5	(INOVV)	Not of	12.3.11	13.28	
		<b>Curtis</b> Of concern 12.11.6/12.11.14; 12.3.11 1	1.6		concern	12.11.0	13.20		
			1.0		Sub-total		21.05		
	Right of Not of	12.11.6	7.3	Curtis	Endangered	12.3.3; 12.3.3/12.3.7	2.67		
		concern	.2		Island	Of concern	12.3.3, 12.3.3/12.3.7	6.76	
	(APLNG)	Sub-total	1	8.9	(Other)	Orconcern	12.11.6/12.11.14;	0.70	
	, =,	Not of	12.11.6	7.92	(Caller)	Not of	12.11.6	7.92	
		concern	.20	, . , _		concern	12.11.0	1.72	
		Sub-total		17.35	-	Sub-total		17.35	
		Jun total		17.00		Jub-total		17.33	

<sup>&</sup>lt;sup>23</sup> Conditions extracted from GLNG's LNG Facility Environmental Offset Plan and the GTP Environmental Offset Plan. <sup>24</sup> Conditions extracted from the Australian Pacific LNG Environmental Offset Program (November 2011).

	ADDRESSED		
GLNG <sup>25</sup>	AUSTRALIA PACIFIC LNG <sup>26</sup>	QCLNG	ADDRESSED
GLNG Environmental Authority	-	-	
No.PEN102968511 – Curtis Island GTP  D25 A maximum area of environmentally sensitive areas within the pipeline ROW and turnaround bays may be cleared comprising:  Up to 1.81 ha of endangered remnant regional ecosystems  c) up to 7.91 ha of concern remnant regional ecosystems  e) up to 1.81 ha of essential habitat for			GLNG – Section 6 – Summary of impact
Phascolarctos cinereus			
	Marine works	approvals	
DEEDI Approval 2011DB0082 - Approval for the removal, destruction or damage of marine plants – construction of MOF (incl dredging works), Pioneer MOF, a haul road and stormwater outlets – 8 April 2011	DEEDI Approval 2011CA0204 Operational works that is the removal, destruction or damage of marine plants	DEEDI Approval 2010DB0114 Operational Works- Prescribed Tidal Works (including the disturbance of marine plants) for initial site access I construction dock.	
C18. Agreement for fish habitat offsets is to be entered into between DEEDI and GLNG. The impacted marine fish habitat outlined in the approval is to be offset in a manner acceptable to Fisheries Queensland and relevant government policies. The offset/s will preferably be documented within a strategic offset package for the GLNG Project in its entirety.	C8. A Deed, or other formal written agreement, for fish habitat offsets is to be entered into between The State of Queensland, acting through its agency the Department of Employment, Economic Development and Innovation (DEEDI) and Australia Pacific LNG (Shared Facilities) Pty Limited. The impacted marine fish habitat outlined in Condition 1 is to be offset in a manner that is acceptable to Fisheries Queensland and compliant with the Queensland Government Environmental Offsets Policy and Fisheries Habitat Management Operational Policy FHMOP 005: Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss. The offset Deed must be executed by both parties within twelve (12) months of the issue of the decision notice for this approval.	C14. Disturbance to fish habitats as a result of this development must be offset in accordance with the Queensland Government Environmental Offset Policy and sub-policy. 'Fisheries Habitat Management Operational Policy- Mitigation and Compensation for Works or Activities Causing Marine Habitat Loss'. The offset must be included in a deed. or other formal written agreement between the State of Queensland. acting through the Department of Employment, Economic Development and Innovation and QCLNG Pty Ltd.  As the Department of Employment. Economic Development and Innovation recognises the preference of both parties to produce a strategic offset package for the Queensland Curtis LNG Project. incorporating the offset for fish habitat and the complexities involved with such an arrangement QCLNG Pty Ltd must ensure the offset Deed, or other formal written arrangement, must be executed by both parties prior to 31 December 2012 unless otherwise agreed to in writing by both parties.	GLNG - Section 6 – Summary of impacts.  Australia Pacific LNG - Section 6 – Summary of impacts  QCLNG - Section 6 – Summary of impacts
C19. When potential disturbance caused by incidental damage is actualised and those impacts quantified, an additional agreement for fish offsets is to be entered into.			Impacts: Section 6 – Summary of impacts and Appendix C. Offsets: see Sections 7 and 9

<sup>&</sup>lt;sup>25</sup> Conditions extracted from GLNG's LNG Facility Environmental Offset Plan and the GTP Environmental Offset Plan. <sup>26</sup> Conditions extracted from the Australian Pacific LNG Environmental Offset Program (November 2011).

LT.	ADDRESSED		
GLNG <sup>25</sup>	AUSTRALIA PACIFIC LNG <sup>26</sup>	QCLNG	ADDITESSED
DAFF Approval 2012CA0347 – Approval for the removal, destruction or damage of a marine plants – Area 15 shore protection works – 24 May 2012	DEEDI Approval 2011DB0080 Operational works that is the removal, destruction or damage of marine plants associated with the construction of a liquefied natural gas facility.	DEEDI Approval 2010DB0292 Operational works that is the removal, destruction or damage of marine plants	
	C12. A Deed, or other formal written agreement, for fish habitat offsets is to be entered into between The State of Queensland, acting through its agency the Department of Employment, Economic Development and Innovation (DEEDI) and Australia Pacific LNG (Shared Facilities) Pty Limited. The impacted marine fish habitat outlined in Condition 1 is to be offset in a manner that is acceptable to Fisheries Queensland and compliant with the Queensland Government Environmental Offsets Policy and Fisheries Habitat Management Operational Policy FHMOP 005: Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss.  The offsets will preferably be documented within a strategic offset package for the Australia. Pacific LNG Project in its entirety and may include: direct offsets through inputs for the protection, creation or enhancement of fish habitats and fisheries resources; or indirect offset financial contribution to be allocated to fish habitat projects for the protection, creation or enhancement of fish habitats and fisheries resources; or, c) a combination of a) and b).	C15. Disturbance to fish habitats as a result of this development must be offset in accordance with the Queensland Government Environmental Offset Policy and sub-policy, 'Fisheries Habitat Management Operational Policy - Mitigation and Compensation for Works or Activities Causing Marine Habitat Loss: The offset must be included in a deed, or other formal written agreement, between the State of Queensland, acting through the Department of Employment, Economic Development and Innovation, and QCLNG Pty Ltd.  As the Department of Employment, Economic Development and Innovation recognises the preference of both parties to produce a strategic offset package for the Queensland Curtis LNG Project, incorporating the offset for fish habitat, and the complexities involved with such an arrangement, QCLNG Pty Ltd must ensure the offset Deed, or other formal written arrangement, must be executed by both parties prior to 31 December 2012, unless otherwise agreed to in writing by both parties.	GLNG - Section 6 – Summary of impacts and Appendix C.  Australia Pacific LNG - Section 6 Summary of impacts  QCLNG - Section 6 – Summary of impacts
	DEEDI approval 2012MA0191 Prescribed tidal works- LNG Loading Platform including access Jetty and Associated Walkways. Operational works that is the removal, destruction or damage of marine plants and constructing or raising waterway barrier works	DEEDI Approval 2011CA0597 Operational works that is the removal, destruction or damage of marine plants	
	C5. On-site or off-site mitigation measures for any loss of fish habitat must be undertaken in accordance with the Environmental Offsets Strategy for the Australian Pacific LNG Project approved by the Coordinator-General. In addition, relevant sub-plans of the Australian Pacific LNG Project Environmental Management Plan must be followed as they are aimed at mitigating degradation of the marine plant communities. Fisheries Queensland is to be notified of the final agreed offset areas and sites	C5. Disturbance to fish habitats as a result of this development must be offset in accordance with the Queensland Government Environmental Offset Policy and sub-policy, -Fisheries Habitat Management Operational Policy- Mitigation and Compensation for Works or Activities Causing Marine Habitat Loss". The offset must be included in a deed, or other formal written agreement, between the State of Queensland, acting through the Department of Employment, Economic Development and Innovation. and QCLNG Pty Ltd.  As the Department of Employment, Economic Development and Innovation recognises the preference of both parties to produce a strategic offset package for the Queensland Curtis LNG Project, incorporating the offset for fish habitat, and the complexities involved with such an arrangement, QCLNG Pty Ltd must ensure the offset Deed, or other formal written arrangement, must be executed by both parties prior to 31 December 2012, unless otherwise agreed to in writing by both parties.	GLNG - See Section 6 and Appendix C.  Australia Pacific LNG - Section 6 – Summary of impacts  QCLNG - Section 6 – Summary of impacts
	DEEDI approval 2011CA0480 Operational works that is the removal, destruction or damage of marine plants	DEEDI Approval 2011DB0101 Development Application for Operational Works - Prescribed Tidal Works (including the disturbance of marine plants) for Tidal Area Infrastructure.	

	ADDRESSED		
GLNG <sup>25</sup>	AUSTRALIA PACIFIC LNG <sup>26</sup>	QCLNG	ADDRESSED
GLNG <sup>25</sup>	C6. On-site or off-site mitigation measures for any loss of fish habitat must be undertaken in accordance with the Environment Offsets Strategy for the Australian Pacific LNG Project approved by the Coordinator-General. In addition, relevant sub-plans of the Australia Pacific LNG Project Environmental Management Plan must be followed as they are aimed at mitigating degradation of the marine plant communities. DEEDI is to be notified of the final agreed offset areas and sites.	C12. Disturbance to fish habitats as a result of this development must be offset in accordance with the Queensland Government Environmental Offset Policy and sub-policy, 'Fisheries Habitat Management Operational Policy - Mitigation and Compensation for Works or Activities Causing Marine Habitat Loss'. The offset must be included in a deed, or other formal written agreement, between the State of Queensland, acting through the Department of Employment, Economic Development and Innovation, and QCLNG Pty Ltd.  As the Department of Employment, Economic Development and Innovation recognises the preference of both parties to produce a strategic offset package for the Queensland Curtis LNG Project, incorporating the offset for fish habitat, and the complexities involved with such an arrangement, QCLNG Pty Ltd must ensure the offset Deed, or other formal written arrangement, must be executed by both parties prior to 31 December 2012, unless otherwise agreed to in writing by both parties.  DEEDI Approval 2010D8019 Operational works that is the removal, destruction or damage of marine plants associated with the construction of a temporary beach landing  C10. A Deed, or other formal written agreement, for fish habitat offsets is to be entered into between The State of Queensland, acting through its agency the Department of Employment, Economic Development and Innovation (DEEDI) and QCLNG Operating Company Pty Ltd. The impacted marine fish habitat outlined in Condition 1 is to be offset in a manner that is acceptable to Fisheries Queensland and compliant with the Queensland Government Environmental Offsets Policy and Fisheries Habitat Management Operational Policy FHMOP 005: Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss. The offset/s will preferably be documented within a strategic offset package for the Queensland Curtis LNG project in its entirety and may include: direct offset financial contribution to be allocated to fish habitat projects for the protection, creation or enhancement	AUDRESSED  Australia Pacific LNG - Section 6 – Summary of impacts  QCLNG - Section 6 – Summary of impacts  QCLNG - Section 6 – Summary of impacts
		with the timeframe detailed in Fisheries Queensland Operational Works approval number 2010DB0114.  DEEDI Approval 2011MA0842 Operational works that is the	

and the same of th	ADDRESSED		
GLNG <sup>25</sup>	AUSTRALIA PACIFIC LNG <sup>26</sup>	QCLNG	ADDRESSED
		C6. Disturbance to fish habitats as a result of this development must be offset in accordance with the Queensland Government Environmental Offset Policy and sub-policy, "Fisheries Habitat Management Operational Policy- Mitigation and Compensation for Works or Activities Causing Marine Habitat Loss". The offset must be included in a deed, or other formal written agreement, between the State of Queensland, acting through the Department of Employment, Economic Development and Innovation, and QCLNG Pty Ltd.  As the Department of Employment, Economic Development and Innovation recognises the preference of both parties to produce a strategic offset package for the Queensland Curtis LNG Project, incorporating the offset for fish habitat, and the complexities involved with such an arrangement, QCLNG Pty Ltd must ensure the offset Deed, or other formal written arrangement, must be executed by both parties prior to 31 December 2012, unless otherwise agreed to in writing by both parties.  DEEDI Approval 2011CA0409 Operational works that is the removal, destruction or damage of marine plants, Operational works that is constructing or raising waterway barrier works	QCLNG - Section 6 – Summary of impacts
		C8. Disturbance to fish habitats as a result of this development must be offset in accordance with the Queensland Government Environmental Offset Policy and sub-policy, 'Fisheries Habitat Management Operational Policy- Mitigation and Compensation for Works or Activities Causing Marine Habitat Loss'. The offset must be included in a deed, or other formal written agreement, between the State of Queensland, acting through the Department of Employment, Economic Development and Innovation, and QCLNG Pty Ltd.  As the Department of Employment, Economic Development and Innovation recognises the preference of both parties to produce a strategic offset package for the Queensland Curtis LNG Project, incorporating the offset for fish habitat, and the complexities involved with such an arrangement, QCLNG Pty Ltd must ensure the offset Deed, or other formal written arrangement, must be executed by both parties prior to 31 December 2012, unless otherwise agreed to in writing by both parties.  DAFF Approval 2012MA0330 Operational works that is the removal, destruction or damage of marine plants	QCLNG - Section 6 – Summary of impacts

	ADDRESSED		
GLNG <sup>25</sup>	AUSTRALIA PACIFIC LNG <sup>26</sup>	QCLNG	ADDRESSED
		C8. Disturbance to fish habitats as a result of this development must be offset in accordance with the Queensland Government Environmental Offset Policy and sub-policy, 'Fisheries Habitat Management Operational Polley - Mitigation and Compensation for Works or Activities Causing  Marine Habitat Loss'. The offset must be included in a deed, or other formal written agreement, between the State of Queensland, acting through the Department of Agriculture, Fisheries and  Forestry (DAFF) and QCLNG Pty Ltd.  As DAFF recognises the preference of both parties to produce a strategic offset package for the Queensland Curtis LNG Project, incorporating the offset for fish habitat, and the complexities involved with such an arrangement, OCLNG Pty Ltd must ensure the offset Deed, or other formal written arrangement, must be executed by both parties prior to 31 December 2012, unless otherwise agreed to In writing by both parties.	QCLNG - Section 6 – Summary of impacts

## 3 THE MONTE CHRISTO OFFSET PROPOSAL

The primary aim of the Proposal is to deliver a meaningful conservation outcome that will meet the approval requirements of the three LNG projects outlined in the EPBC Act and QLD CG approval, Environmental Authority and Development Approval conditions (see Table 2). To fulfil these requirements the Proposal aims to be compliant with the relevant EPBC Act approval conditions, Queensland Government Environmental Offsets Policy 2008 and Fish Habitat Management Operation Policy (FHMOP 005). Neither of these policies or the approval conditions restricts the use of remnant vegetation as an offset. To maximise environmental outcomes, the LNG proponents have taken guidance from the Policy for Vegetation Management Offsets 2009 and the Policy for Biodiversity Offsets - Consultation Draft 2008, neither of which apply to the three projects<sup>27</sup>. As a result, the Proposal has been developed to be generally in accordance with the criteria of these policies.

The Proposal is located wholly within the Great Barrier Reef World Heritage Area (GBRWHA) on Curtis Island, north of the city of Gladstone in central Queensland (Figure 1). The Proposal is intended to acquit all environmental offset requirements of the LNG plants and marine facilities on Curtis Island, the respective GTP right-of-ways (ROW) on Curtis Island, and the GTP marine crossings of the Kangaroo Island Wetlands and The Narrows (Proposal scope; Figure 2). Given the extent and the exceptional nature of the ecological values contained within the Proposal, there is sufficient capacity to address additional offset requirements for the LNG proponents, particularly those relating to the mainland gas transmission pipelines. The acquittal of these additional offset values will be subject to further consultation and approval from both Queensland and Commonwealth departments.

As shown in Figure 3, the Proposal comprises the following:

## **Monte Christo Property**

- Lots 297 and 298 conservation park (709.50 ha) (new) the purchase of Lots 297 and 298 DT4023 (freehold), transfer to the Queensland Government and subsequent dedication as part of the Curtis Island Conservation Park under the NC Act.
- Lot 4 conservation park (2,852.60 ha) (new) the purchase of Lot 4 CP860403 (leasehold) including its subsequent dedication as part of the Curtis Island Conservation Park under the NC Act following relinquishment of the current grazing lease to the Queensland Government. The grazing lease commenced 26 November 1999 for a 75 year period and is due to expire 25 November 2074. Under the current lease renewal process, the Queensland Government would not be able to realise future conservation area outcomes until after the term of the subsequent lease renewal approximately 136 years from now.

<sup>&</sup>lt;sup>27</sup> The Policy for vegetation management offsets 2009 does not apply to petroleum activities. The Policy for Biodiversity Offsets - Consultation Draft 2008, being a draft at the time of project approval, does not apply, except in the instance of NC Act clearing permits which must provide protected plant offsets 'generally in accordance with the Policy for Biodiversity Offsets - Consultation Draft 2008'.

## **Curtis Island Conservation Park**

- Lot 2 national park (2,257 ha) (upgrade) the purchase and surrender of the existing lease over Lot 2 CP860403. Lot 2 is presently part of Curtis Island Conservation Park but is leased to a private party for grazing purposes for a term of 75 years, due to expire 30 June 2078. As part of the Proposal, this lease will be surrendered to the Queensland Government, grazing removed from the land and its protection tenure subsequently upgraded to national park under the NC Act. Consequently, the Proposal generates a conservation outcome at least 65 years earlier than would otherwise be available. .
- Lot 5 removal of grazing pressure (3,895 ha) amendment of a lease over 3,895 ha of the Curtis Island Conservation Park on Lot 5 CP860403 to remove cattle grazing. The grazing lease has been issued for a term of 75 years and expires on 30 June 2078. The management plan for this area of Curtis Island Conservation Park will be amended to prohibit cattle grazing.

## **Curtis Island State Forest**

Lots 1 and 7 - removal of grazing pressure (13,900 ha) - the purchase and surrender of 13,900 ha of grazing permits (with 30 year terms) over the Curtis Island State Forest. Leases issued over Lots 1 and 7 CP860403 commenced on 2 May 2004 and expire on 1 May 2034. The Proposal will remove 21 years of potential grazing impacts from the State Forest area. The removal of the grazing leases would also enable the Queensland Government to subsequently upgrade these lots to a higher order conservation tenure at a later date once all commercial timber rights over this State Forest have been relinguished.

## **Curtis Island Environmental Management Precinct**

- CIEMP national park (1,912 ha) (new) the dedication of 1,912 ha of the Curtis Island Environmental Management Precinct (CIEMP) as national park<sup>28</sup>.
- CIEMP conservation park (1,010) (new) the dedication of 1,010 ha of the CIEMP as conservation park<sup>29</sup>.
- CIEMP contribution of funding of up to \$34.5 million (AUD) over 25 years for the management of the CIEMP and surrounding protected area estate on Curtis Island.

The Proposal will result in the protection of more than 8,700 ha of land either as newly declared conservation park or national park or the upgrade of existing protected areas to National Park (i.e. Queensland's strongest form of conservation tenure) under the NC Act as part of the Curtis Island Conservation Park

The Department of Environment and Heritage Protection (DEHP) has indicated that the Monte Christo property will be declared as future protected area tenures (i.e. either conservation park and/or national park under the NC Act) after the Monte Christo property is transferred and surrendered to the Queensland Government (Barry Broe Coordinator-General pers comm. 5 November 2012; Appendix D). It is on this basis that the LNG proponents maintain that they have used their best endeavours to secure national park status for the Monte Christo property. The LNG proponents acknowledge that the formal nomination and declaration process of any protected area within Queensland remains at the sole discretion of the Queensland Government.

<sup>&</sup>lt;sup>28</sup> 1,434 ha of the declared National Park can contribute to the LNG Proponents' World Heritage Offset requirements in accordance with each LNG Proponent's EPBC Approval.

<sup>&</sup>lt;sup>29</sup> 757 ha of the declared Conservation Park can contribute to the LNG Proponents' World Heritage Offset requirements in accordance with each LNG Proponent's EPBC approval

The Proposal involves the removal of threatening processes, including cattle grazing, not only from the Monte Christo property but from the Curtis Island Conservation Park and State Forest. In addition, a lack of fencing around grazed areas allows cattle to access the adjacent Curtis Island National Park. Cattle grazing presents a significant risk to the threatened and sensitive ecological values of these areas and to the surrounding waterways of the Great Barrier Reef. In March 2012, UNESCO undertook a monitoring mission at the Great Barrier Reef to assess the impact of developments along the east coast of Queensland. One of UNESCO's key conclusions was that, due to the significant increase of developments in Gladstone Harbour, Curtis Island warranted significant protection (UNESCO 2012).

Removing the associated impacts from domestic cattle grazing over the Monte Christo property, including the surrounding conservation park, state forest and CIEMP, will produce both direct and indirect benefits to the protection and management of those ecological communities critical for supporting the variety of flora and fauna dependant on these systems. These benefits include:

- threat removal
- increased protection status and management
- coordinated management under an island-wide conservation management regime.

Removing domestic cattle grazing pressures and reducing feral pig numbers on the Monte Christo property and the surrounding Curtis Island Conservation Park and State Forest areas will directly contribute to the natural regeneration and restoration of habitat previously impacted by domestic cattle and pigs. Cattle and feral pigs tend to create the greatest disturbance and impact on the sediments, shrub and ground layers within native vegetation communities and consequently affect those flora and fauna species dependent upon the condition, floristic structure and composition in these areas. Removing domestic cattle from these areas will also:

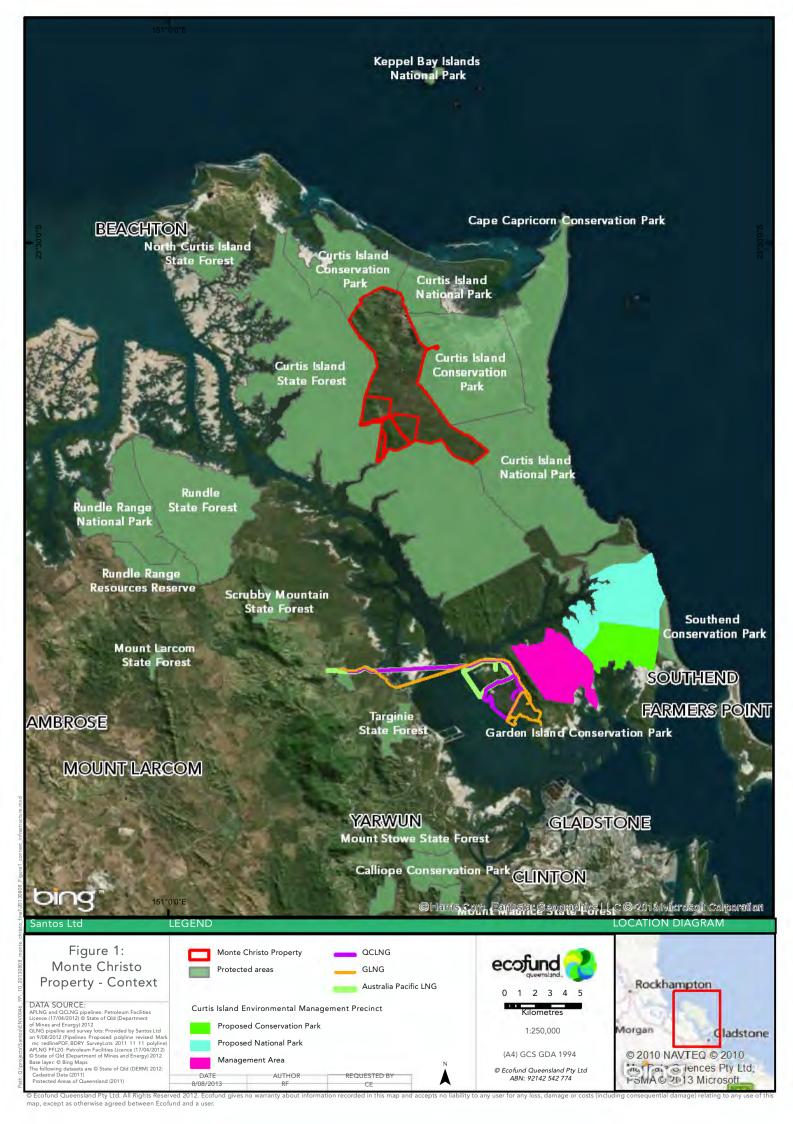
- restore natural competition and lifecycle dynamics and make available more resources (particularly macrophyte production) otherwise consumed by domestic stock
- eliminate inappropriate fire regimes including within the fragile supralittoral zone
- eliminate nutrient, sediment, erosion and compaction risks generated by domestic stock
- improve hydrological function across the coastal and intertidal areas
- decrease the risk of continued invasion of pest plants and animals resulting from cattle grazing enterprises.

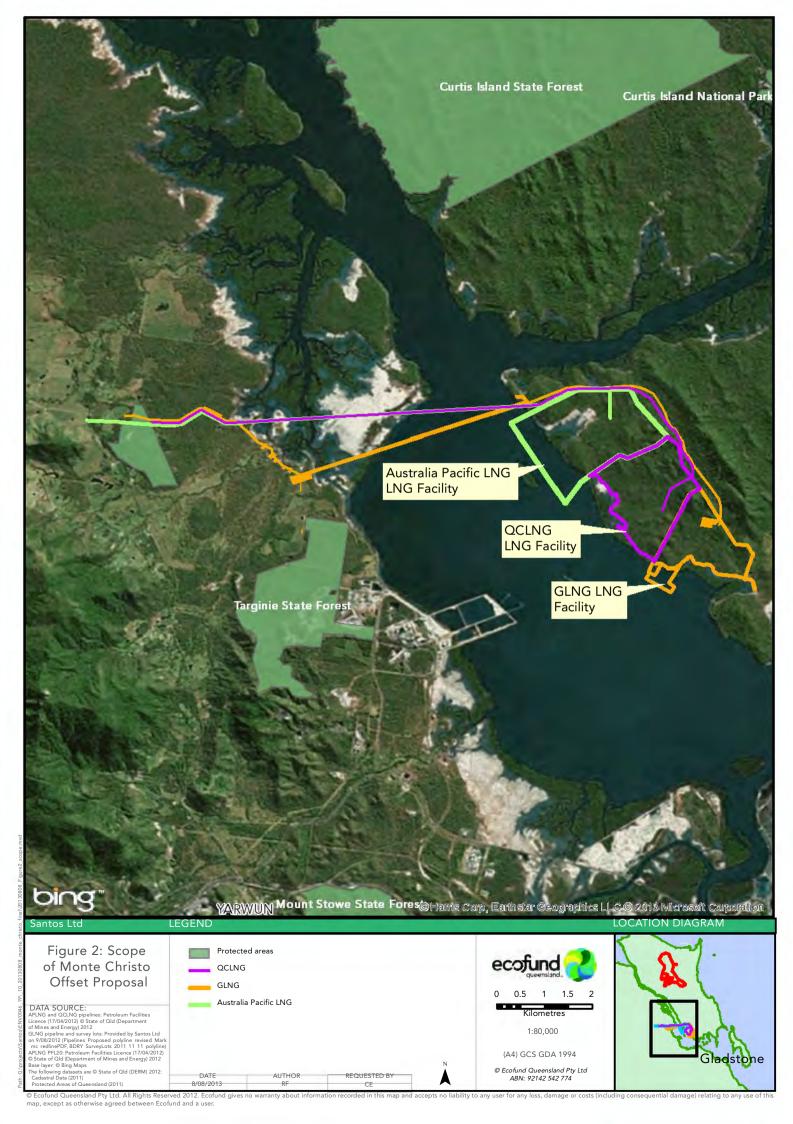
Current land management practices on the Monte Christo property are focused on productive grazing and limited tourism enterprises as opposed to conservation management. The permitted activities on the residual retained area of the Monte Christo property are limited to low impact horseback riding and four wheel driving on existing tracks. The Proposal represents an opportunity to establish management regimes for conservation purposes and ensure the ongoing protection of these areas within the conservation estate. The Proposal will also allow for the implementation of a whole-ofisland management approach to improve management outcomes and reduce management costs across the island.

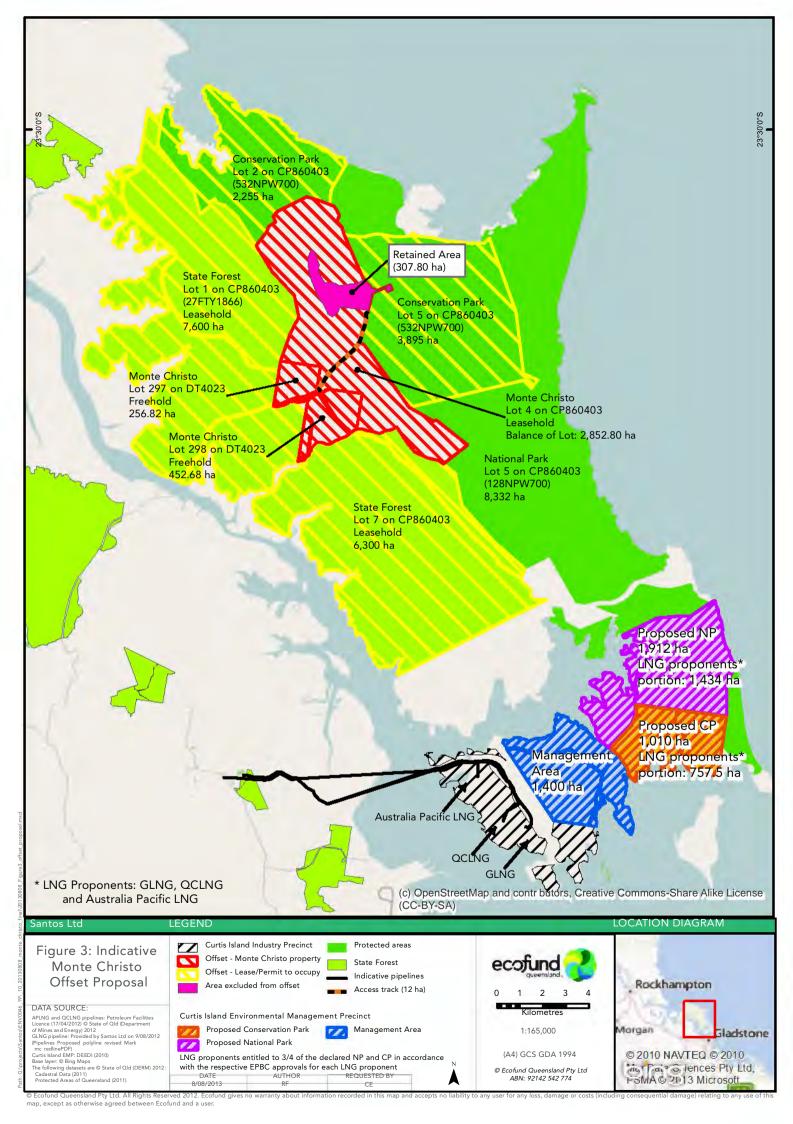
In summary, the delivery of the Proposal will protect and enhance:

- World and National Heritage values of the Great Barrier Reef
- natural connectivity in the landscape
- endangered and of concern regional ecosystems
- habitat for threatened fauna species
- significant marine and fish habitat areas
- migratory shorebird habitat and declared wetlands.

The Proposal offers the conservation of more than 25,700 ha of offsets in perpetuity through a combination of removal of threatening processes, enabling of protection mechanisms and provides for ongoing management for conservation purposes.







### **OFFSET PRINCIPLES**

### 4.1 Approach to offset delivery

The LNG proponents have adopted a strategic approach to environmental offsets with the aim of maximising conservation outcomes through the delivery of larger, more strategically located areas of land that achieve a like for like outcome to the greatest extent possible. This approach relies on improving ecological resilience and ecosystem function by enhancing connectivity in the landscape and implementing appropriate management and monitoring efforts. The strategic approach is consistent with the principles underpinning key environmental offset policies produced by the Queensland and Australian Governments.

# 4.2 Consistency with Queensland Governments Environmental Offset Policy 2008

Principle 1: Offsets will not replace or undermine existing environmental standards or regulatory requirements, or be used to allow development in areas otherwise prohibited through legislation or policy.

The projects have all received conditional approval from the Queensland and Australian Governments including requirements to provide environmental offsets.

Principle 2: Environmental impacts must first be avoided, then minimised, before considering the use of offsets for any remaining impact.

Through the adoption of best practice the proponents have developed projects which avoid and minimise impacts to the greatest extent possible. Offsets are only proposed for unavoidable residual impacts.

Principle 3: Offsets must achieve an equivalent or better environmental outcome

The Monte Christo Offset Proposal will achieve outstanding environmental outcomes through the establishment of approximately 25,700 ha of environmental offsets. The Proposal will result in the enhancement, protection and ongoing management of World and National Heritage values of the Great Barrier Reef, endangered and of concern regional ecosystems, habitat for threatened flora and fauna species, marine fish habitat and Great Barrier Reef wetlands.

The removal of threatening processes on the Monte Christo property and the adjacent Curtis Island State Forest and Conservation Park will enable the long term restoration of the environmental values within these areas. Current grazing practices within the Curtis Island Conservation Park and State Forest place significant pressure on the threatened and sensitive ecological values of these areas and the surrounding waterways of the Great Barrier Reef. In particular, the saltwater couch and marine plain areas of the Curtis Island Conservation Park are currently experiencing significant impacts from grazing (Kershaw (DNPRSR) pers. comm. 16 July 2012; QGC 2013a).

Securing the Monte Christo property and the associated tourism and grazing leases as an environmental offset will ensure the establishment of complimentary management regimes to enhance ecological and landscape function between Curtis Island National Park, Curtis Island Conservation Park and Curtis Island State Forest. The ongoing management of the

Monte Christo property will ensure that environmental values are enhanced and maintained over time and will allow for the implementation of a whole-of-island management approach to improve management outcomes and reduce management costs across the island.

Principle 4: Offsets must provide environmental values as similar as possible to those being lost

The Proposal is located in close proximity to the impact sites of each LNG project (the Monte Christo property is within 15 km and the CIEMP is located less than 5 km away). In addition, the Proposal adequately represents those environmental values impacted by the projects as it consists of intertidal habitats and marine plains through to hills and lowlands. Ecological surveys undertaken in November 2012 identified that the vegetation communities and related biodiversity values at the Monte Christo property are comparable to those being cleared and are generally in good condition, with the exception of marine plains which are being adversely impacted by grazing operations (QGC 2013a)

Based on comprehensive analysis of the Monte Christo property it has been determined that the offset areas contain:

- World and National Heritage values of the Great Barrier Reef
- endangered and of concern regional ecosystems
- essential habitat for threatened fauna
- habitat for threatened fauna species
- marine fish habitat
- Great Barrier Reef wetlands.

The Curtis Island Conservation Park and State Forest contain similar environmental values to those being impacted by the LNG projects. These values include World Heritage values, saltpan and mangrove vegetation, endangered regional ecosystem (12.3.3), of concern regional ecosystems (12.3.11 and 12.11.14) and suitable habitat for species such as the water mouse (Xeromys myoides), koala (Phascolarctos cinereus), glossy black-cockatoo (Calyptorhynchus lathami), powerful owl (Ninox strenua), beach stone curlew (Esacus magnirostris), sooty oystercatcher (Haematopus fuliginosus) and migratory shorebirds.

The LNG proponents have developed an RE-based model of suitable water mouse habitat within the Proposal, CIEMP and adjacent intertidal areas on Curtis Island based on research findings including field based observations of the LNG Project impact sites and radio tracking associated with water mouse surveys conducted within the Port Curtis region (See Section 5.3.2; QGC 2013b). The Department of Environment and Heritage Protection's Essential Habitat Database was also interrogated to refine applicable regional ecosystem within the Southeast Queensland Bioregion that satisfies habitat preferences of water mouse. Suitable water mouse habitat has been categorised as "core", "essential" and "general", based on DEHP's Biodiversity Assessment and Mapping Methodology (BAMM) habitat type definitions (EPA, 2002). The Proposal and adjacent intertidal areas contain over 10,100 ha of suitable habitat, including essential, core and general, for the water mouse (Xeromys myoides) (Figure 4; Table 3; see Sections 8.1.7 & 8.14). Delivery of the Proposal will result in the indirect protection of intertidal water mouse habitat located adjacent to the Proposal and CIEMP areas. The Proposal will enable these adjoining lands to be managed under an island wide management program for the future protected area estate run by the DNPRSR.

Table 3: Suitable water mouse habitat within the Proposal and adjacent intertidal areas

HABITAT	MONTE CHRISTO	CONSERVATION STATE FO		CIEMP		
ПАБІТАТ	PROPERTY (ha)	WITHIN (ha)	INTERTIDAL (ha)	WITHIN (ha)	INTERTIDAL (ha)	
Essential	305.86	1,586.96	65.35	6.11	0.42	
Core	0.79	881.32	4,956.00	48.21	1,023.17	
General	195.89	698.80	5.62	-	-	
Total	502.54	3,167.08	5,026.97	54.32	1,023.59	

Because of the similarities, the Proposal offers a like for like offset to the greatest extent possible and exceeds the no net loss obligations of the LNG proponents by conserving over 25,700 ha of offsets for environmental and conservation purposes. Details of the environmental values of proposed offsets are outlined in Section 8.

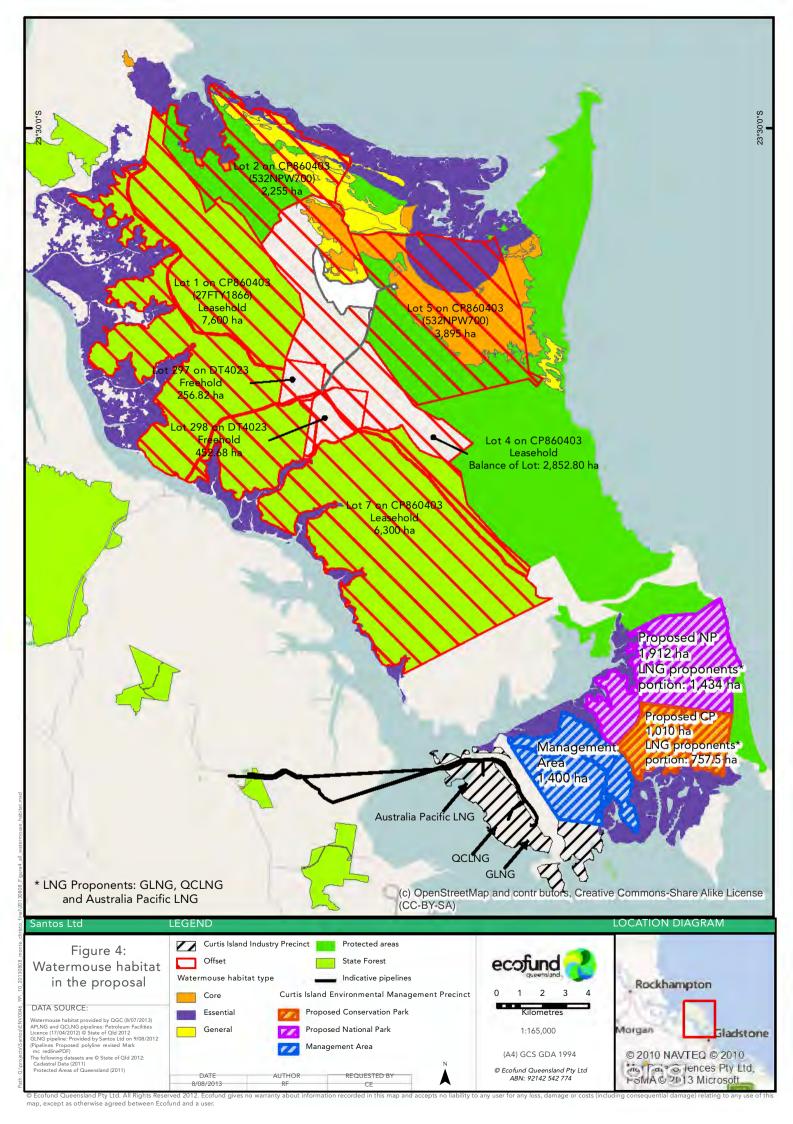
Principle 5: Offset provision should minimise the time-lag between the impact and delivery of the offset

The Proposal will be delivered as soon as practicable based on agreement of all parties (see Section 12).

Principle 6: Offsets must provide additional protection to environmental values at risk, or additional management actions to improve environmental values

As outlined in Sections 10 and 11, through a combination of improved management measures, removal of threatening processes and the application of legally-binding protection mechanisms for significant parts of the area, the LNG proponents propose to enable protection measures to enhance the unique values of the area, thus, providing additional conservation management to the environmental values currently at risk. The unique ecological and landform values of the Monte Christo property and the Curtis Island Conservation Park and State Forest are considered to be at risk from threatening processes including: pest plants and animals; habitat loss and destruction from feral and domestic stock; inappropriate fire and land management practices and conflicting land uses including cattle grazing.

Department of National Parks, Recreation, Sport and Racing (DNPRSR) Officers have expressed concern that persistence of the current management regime, with a focus on productive enterprises, will degrade these values (particularly sensitive marine plains), noting a decrease in ecological condition of these areas over the last 30 years (Kershaw (DNPRSR) 2012 pers. comm. 25 June). While ecological surveys conducted in November 2012 have confirmed, like any commercial grazing enterprise on mostly marginally productive land, that the current land management practices at Monte Christo are having a detrimental effect on sensitive environmental values, particularly marine plains, they also revealed that large areas of the property are in good ecological condition (QGC 2013a) Those areas in better condition tended to be those furthest from artificial water points, feed supplement stations and other property infrastructure relating to the grazing enterprise.



An important component of the Proposal is the effective protection of intertidal areas that contain suitable habitat values for EPBC Act listed species that are below highest astronomical tide. The ecological condition of these intertidal areas is heavily influenced by the way adjacent terrestrial systems are managed (e.g. runoff, access, etc; QGC 2013a) as the effects of this do not stop at an arbitrary administrative barrier (i.e. cadastral boundary). Consequently, the Proposal involves substantial changes to the way these surrounding terrestrial systems are managed (e.g. restricting access by herbivores and reducing pest animal numbers; see Section 10) which will result in progressive improvements to the condition of associated intertidal areas through the removal of threatening processes and conflicting land uses. In addition, by allowing for higher order protection (as detailed in Section 11), the Proposal will effectively remove 'resource entitlement' - necessary to receive approval under Queensland Government legislation - and prevent tidal works and prescribed tidal works occurring in these intertidal areas (Department of Environment and Heritage Protection 2012a).

Principle 7: Offsets must be legally secured for the duration of the offset requirement

The Proposal will result in the protection of more than 8,700 ha of land either as newly declared conservation park or national park or existing protected areas upgraded to national park (i.e. Queensland's strongest form of conservation tenure) under the NC Act as detailed in Section 11.

# Consistency with state rationale for the selection of direct land based offsets

The Proposal has been developed to address DEHP's 'State rationale for the selection of direct land based offsets' (Appendix E). Table 4 outlines responses to key issues raised in the rationale.

Table 4: Consistency with state rationale for the selection of direct land based offsets

GENERAL RATIONALE	COMPLIANT
	State values to be offset
Endangered / of concern regional ecosystems	Yes The proponents are offsetting all impacts on endangered and of concern RE (Section 9.2).  In general accordance with the Policy for Vegetation Management Offsets 2009, the Proposal includes vegetation that is: the same broad vegetation management group; and an endangered or of concern RE that has the same conservation status as the area proposed for placeing.
Essential habitat	Yes The proponents are offsetting all impacts on mapped essential habitat (Section 9.2).  In general accordance with the Policy for Vegetation Management Offsets 2009, the Proposal includes vegetation that: is the same broad vegetation group as those impacted; and includes at least three essential habitat factors for the protected wildlife including any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database.
Wetlands	Not applicable
Conservation significant fauna and flora habitat	Yes The proponents are offsetting all impacts on threatened species habitat (Section 9.2).  In general accordance with the Policy for Biodiversity Offsets - Consultation Draft 2008, the Proposal includes vegetation that is: the same RE as those impacted; RE that constitute suitable habitat for relevant threatened species located within the metapopulation/s of relevant threatened species.
Protected Plants	Not applicable
Marine Plants and Fish Habitat	Yes The proponents are offsetting all impacts on marine fish habitat (Section 9.2).  As per the Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss, 2002, the Proposal:

GENERAL RATIONALE	COMPLIANT
	seeks to offset losses through Land exchange/Land acquisition of productive wetlands (links should be made to FHA program and/ or Acquisition Program) involves creation of replacement/alternate fish habitat and monitoring of the effectiveness of habitat.
Offset requirements	
Metrics to be derived from relevant specific issue policies	Yes  The proponents have completed an ecological equivalence assessment of the Monte Christo property based on those of concern and endangered REs impacted by LNG development activities. Although the use of Ecological Equivalence and/or other offset metrics is not mandatory under the Queensland Government Environmental Offsets Policy 2008, the results of this assessment demonstrate the Monte Christo property is more than ecologically equivalent to the impact sites.
	In addition, the Proposal is based on the recommended metrics for determining offset requirements that have been derived based on guidance from Queensland Government offset policies. These policies include: Queensland Government Environmental Offset Policy 2008 Policy for Vegetation Management Offsets 2009 <sup>30</sup> Fish Habitat Management Operation Policy (FHMOP 005) - Mitigation and Compensation for Works and Activities Causing Marine Fish Habitat Loss 2002 Queensland Government's Policy for Biodiversity Offsets - Consultation Draft 2008 <sup>31</sup> .
Offsets should in part focus on the securing of unprotected vegetation reflective of impacted values	Yes  The majority of the offset area is mapped as remnant vegetation, high value regrowth vegetation and unprotected vegetation communities. Proposed changes to Queensland's vegetation management legislation may expose more areas of the Monte Christo Property to future land clearing / ongoing sustainable development opportunities.
Location of offsets is preferably within the same subregion, adjoining subregions or bioregion as the impacted value	Yes The Monte Christo Offset Proposal is located within 15 km of the impacted values within the same subregion as the impacted values. It is located wholly within the Great Barrier Reef World Heritage area on Curtis Island, north of the city of Gladstone in central Queensland in the northern most tip of the South East Queensland Bioregion (Figure 1).

The Policy for Vegetation Management Offsets does not apply to petroleum activities.

The Queensland Government's Policy for Biodiversity Offsets - Consultation Draft 2008 does not apply to the three projects as it was a draft policy at the time of project approval.

# **GENERAL RATIONALE**

### COMPLIANT

# Strategic approach

Rather than the acquisition of multiple individual parcels, a smaller number of larger parcels should be acquired which offer significant strategic values in terms of landscape connectivity, contiguity, resilience and/or other ecological criteria.

### Yes

The LNG proponents have adopted a strategic approach to environmental offsets with the aim of maximising conservation outcomes through the delivery of larger, more strategically located areas of land that achieve a like for like outcome to the greatest extent possible. This approach relies on improving ecological resilience and ecosystem function by enhancing connectivity in the landscape and implementing appropriate management and monitoring efforts. The strategic approach is consistent with the principles underpinning key environmental offset policies produced by the Queensland and Australian Governments.

# Outcomes reflect 'Like for Like' to the greatest extent possible

Given that a more strategic approach is to be adopted, the acquisition of parcels which provide a precise 'like for like' outcome, is not required. However, the selection and final acceptance of parcels should still focus significantly upon those which acquit to the greatest extent the impacted values (in a like for like manner);

Notwithstanding, and particularly in the event that a selection of parcels that contain the greater portion of impacted values cannot be acquired, parcels which do not contain like for like values but which house either values of a similar conservation status, or are of significant ecological value (and which meet the other rationale included in this document) may be considered.

### Yes

All of the environmental values impacted by the three projects are also found on the offset areas ensuring a like for like outcome to the greatest extent possible (Section 9.2). The Monte Christo property is located less than 15 km from the impact sites of each LNG project. Based on comprehensive analysis of the property it has been determined that the offset areas contain similar environmental values to those impacted by the LNG projects including: World and National Heritage values of the Great Barrier Reef endangered and of concern regional ecosystems essential habitat for threatened fauna habitat for threatened fauna species marine fish habitat Great Barrier Reef wetlands.

In addition, the Curtis Island Conservation Park and State Forest contain similar environmental values to those being impacted by the LNG projects. These values include World Heritage values, saltpan and mangrove vegetation, endangered RE (12.3.3), of concern RE (12.3.11 and 12.11.14) and habitat for species such as the water mouse (Xeromys myoides), koala (Phascolarctos cinereus), glossy black-cockatoo (Calyptorhynchus lathami), powerful owl (Ninox strenua), beach stone curlew (Esacus magnirostris), sooty oystercatcher (Haematopus fuliginosus) and migratory shorebirds. Because of these similarities the Monte Christo Offset Proposal offers a like for like offset to the greatest extent possible and exceeds the no net loss obligations of the LNG proponents by securing over 25,700 ha of offsets for environmental and conservation purposes. Details of the environmental values of proposed offsets are outlined in Section 8.

GENERAL RATIONALE	COMPLIANT
Preferred protection mechanism	
Consideration of impediments/secondary interests over parcels and the subsequent impacts on securing the preferred conservation mechanism: National Park, Conservation Park, Forest Reserve, Nature Refuge, Covenant or other means.	Yes The removal of impediments/secondary interests such as grazing and development rights will enable, subject to agreement by all parties, that:  Lots 297 and 298 – conservation park (709.50 ha) (new) – the purchase of Lots 297 and 298 DT4023 (freehold) and transfer to the Queensland Government and subsequent dedication of thi area as part of the Curtis Island Conservation Park under the NC Act.  Lot 4 – conservation park (2,852.60 ha) (new) – the purchase of Lot 4 CP860403 (leasehold) including its subsequent dedication as part of the Curtis Island Conservation Park under the NC Act following relinquishment of the current grazing lease to the Queensland Government. The lease commenced 26 November 1999 for a 75 year period and is due to expire 25 November 2074.  Lot 2 - national park (2,257 ha) (upgrade) - the purchase and surrender of the existing lease over Lot 2 CP860403. Lot 2 is presently part of Curtis Island Conservation Park but is leased to a private party for grazing purposes for a term of 75 years that expires on 30 June 2078. The lease will be surrendered, grazing removed from the land and its protection tenure subsequently upgraded to national park under the NC Act.  CIEMP - national park (1,912 ha) (new) - the dedication of 1,912 ha of the CIEMP as national park <sup>32</sup> .  CIEMP - conservation park (1,010) (new) - the dedication of 1,010 ha of the CIEMP as conservation park. <sup>33</sup>
	These measures will provide for the perpetual security of the Proposal and deliver an outstanding conservation outcome for future generations.

<sup>&</sup>lt;sup>32</sup> 1,434 ha of the declared National Park can contribute to the LNG Proponents' World Heritage Offset requirements in accordance with each LNG Proponent's EPBC Approval.

<sup>&</sup>lt;sup>33</sup> 757 ha of the declared Conservation Park can contribute to the LNG Proponents' World Heritage Offset requirements in accordance with each LNG Proponent's EPBC approval.

GENERAL RATIONALE	COMPLIANT
Miscellaneous	
Where possible, proposed parcels should acquit both state and federal requirements;	<b>Yes</b> The Monte Christo Offset Proposal acquits both Queensland and Australian Government offset requirements.
Preferably, parcels which acquit both terrestrial and marine impacts are preferred, as they provide a greater level of security and protection at the interface of the marine/terrestrial environ;	Yes The Monte Christo Offset Proposal acquits both terrestrial and marine impacts. Table 16 outlines the capacity of each area within the Proposal to acquit environmental offset requirements for all Queensland and Australian Government approvals of the LNG plants and marine facilities on Curtis Island, the respective GTP ROWs on Curtis Island, the GTP marine crossings of the Kangaroo Island Wetlands and The Narrows.
Parcels and associated values which are already afforded a significant level of protection under legislation, or through a legally binding mechanism should generally not be considered as suitable offsets. Furthermore, some legislated arrangements and tenure afford protection to values (i.e. as does state land under licence with appropriate management in place), and such areas are generally not considered appropriate as offset proposals.	<ul> <li>Yes The Monte Christo offset property and associated values are not afforded a significant level of protection as: <ul> <li>it is not protected on the property title by a legally binding mechanism</li> <li>it is of Leasehold (lot 4 CP860403) and Freehold (lots 297 and 298 DT4023) tenure</li> <li>remnant vegetation can be cleared with a valid clearing permit and as such cannot be considered to have a significant level of protection</li> <li>existing unmapped vegetation associations may be subject to further disturbance and clearing placing additional pressure on adjoining remnant communities and increasing fragmentation</li> <li>it, along with the conservation park and state forest, is subject to threatening processes - DNPRSR Officers have expressed concern that continuation of the current management regime (including grazing) will degrade the property, noting a decrease in ecological condition over the last 30 years (Kershaw (DNPRSR) 2012 pers. comm. 25 June).</li> </ul> </li> </ul>

# **Ecological equivalence**

Ecological Equivalence measures and compares ecological attributes between an area proposed to be impacted by development (the clearing area) and an area being offered in exchange for the potential impact (the offset area). Ecological condition and special features scores for the impact area and the offset area are determined by evaluating a series of 14 ecological attribute indicators. For the offset area and clearing area to be deemed ecologically equivalent, the offset area ecological condition and special features score must equal or exceed the clearing area ecological condition and special features score. Ecological equivalence assessments of the Monte Christo property based on the Queensland Government Ecological Equivalence Methodology have been undertaken (QGC 2013a).

Ecological Equivalence assessments of the Monte Christo property were undertaken to satisfy the ecological due diligence of the Monte Christo Put and Call Option Agreement. Ecological assessments were conducted in accordance with the Ecological Equivalence Methodology Guideline - Policy for Vegetation Management Offsets, Old Biodiversity Offset Policy (Version 1). An assessment of the ecological condition of the clearing area was done based on an assessment of data from the proponent's preclearance surveys ecological assessments.

Seven ecological assessment units consisting of endangered and of concern REs were assessed to determine the suitability of vegetation communities present on the Monte Christo property to acquit offset requirements of LNG projects. Assessment units within endangered and of concern REs were identified based on Ecological Equivalence assessment methodology requirements, site accessibility and available field time.

The study area in particular shows high level of ecosystem integrity and connectivity, remarkable for a large coastal area with over 100 years of agricultural activity. The study area is shown to include a largely intact hydrological system that includes forested catchment areas, riverine wetlands and streams, floodplain swamps and estuarine wetlands (salt marshes, flats and intertidal wetlands; total about 507 ha in the study area). The ecosystems have self-organised to use more run-off in terrestrial areas. This infers higher productivity and autocatalytic material storages at the centre of the network that link the hilly areas with downstream conservation areas and national parks.

To help clarify this, the ecological equivalence assessment results were further synthesized using a systems ecology methodology. The systems model overview helps qualify the degree of integrity and connectivity between all the REs over the greater study area for comparison with the clearing areas.

Based on these assessments, the following four conclusions can be drawn:

- 1) There is a greater diversity of ecosystems across the study area (15 REs) compared to the clearing area (six REs). Network (ecosystems) power (values) would be expected to increase with increases in diversity of ecosystems, species richness, the complexity of interactions among species and total energy flow through the network.
- 2) The systems model shows the 'work' of floodplain forests and coastal wetlands particularly in the greater study area results in significant storages of materials that perform important and valuable ecological services to society including fisheries and hydrological regulation.

- 3) The study area is likely to benefit significantly from the removal of threatening processes; especially too frequent fire regimes, cattle and feral species grazing and disruption of hydrological systems.
- 4) Ecosystem values and services are dynamic over time. Mature ecosystems are the results of decades of ecosystem services and natural capital accrual. The forested uplands may take a century or more whereas the coastal wetlands are likely to have been accumulating more natural capital over longer time periods (turnover times are longer based on the largest storage and structure the organic sediments in the geologic basin).

These assessments demonstrate that the Monte Christo property is mostly in good condition with areas exposed to pastoral use in average condition (Table 5; see also Section 8.1.10). While RE 12.3.11 scored lower at Monte Christo than the clearing site, the presence of two endangered and three of concern RE (including a EPBC Act listed critically threatened ecological community) will be used to supplement the offsets for this RE.

Table 5: Ecological equivalence of the Monte Christo property

REGIONAL	VM ACT CTATUS	CLEARING	AREA	MONTE CH OFFSE	
ECOSYSTEM	VM ACT STATUS	Ecological condition	Special features	Ecological condition	Special features
RE 12.3.3	Endangered	54.63		132.15	
RE 12.3.11	Of concern	27.93	641	16.05	1,454
RE 12.11.14	Of concern	72.71		75.31	

#### 5 **METHODS**

#### **Project impacts** 5.1

Impacts of the Australia Pacific LNG project as presented in Section 6 are based on information contained in:

- Table 3, Table 4 and Appendix C of the Australia Pacific LNG Offset Strategy Version 8 (Appendix F)
- results of revised LNG Facility and GTP disturbance footprints (specifically for the water

Impacts of the QCLNG project as presented in Section 6 are based on information contained in the:

- latest construction footprints provided by QCLNG (19 June 2012; see Appendix G)
- disturbance limits set out in environmental authorities (see Table 2).

Impacts of the GLNG project as presented in Section 6 are based on the following information:

- the latest construction footprints provided by GLNG (GTP: 25 May 2012; development approvals for related marine facilities such as plant and port: 3 July 2012; Appendix H)
- Table 6.2 of GLNG Gas Transmission Pipeline Significant Species Management Plan
- the disturbance limits set out in environmental authorities (see Table 2).

Due to changes in construction footprints the impacts of the GLNG project on habitat for threatened fauna species was revised based on desktop modelling. This includes impacts on the koala (Phascolarctos cinereus), glossy black cockatoo (Calyptorhynchus lathami), shorebirds, powerful owl (Ninox strenua), eastern curlew (Numenius madagascariensis), beach stone curlew (Esacus magnirostris), sooty oystercatcher (Haematopus fuliginosus) and coastal sheathtail bat (Taphozous australis). The extent of habitat impacted was estimated using the latest construction footprints in conjunction with REs which provide potential habitat for the species. Habitat suitability, and the subsequent selection of REs, was determined by reviewing habitat descriptions and listings in the Queensland Government Essential Habitat database (DNRM 2012).

### 5.2 Offset requirements

Offset requirements for the three LNG projects have been determined based on:

- an assessment of all relevant Queensland and Australian Government approval conditions concerning the LNG plants and marine facilities on Curtis Island, the GTP ROWs on Curtis Island and the GTP marine crossings of the Kangaroo Island Wetlands and The Narrows, including but not limited to those approvals listed in Appendix A.
- guidance from Queensland and Australian Government offset policies including:
  - Queensland Government Environmental Offset Policy 2008
  - Policy for Vegetation Management Offsets 2009
  - Fish Habitat Management Operation Policy (FHMOP 005) Mitigation and Compensation for Works and Activities Causing Marine Fish Habitat Loss 2002

- Queensland Government's Policy for Biodiversity Offsets Consultation Draft 2008
- Draft Policy Statement: Use of environmental offsets under the Environmental Protection and Biodiversity Conservation Act 1999.

Note: The Policy for Vegetation Management Offsets 2009 does not apply to petroleum activities and the Policy for Biodiversity Offsets - Consultation Draft 2008 was only a draft policy at the time of project approval. The projects were approved prior to commencement of Queensland Biodiversity Policy 2011 and are not subject to this policy.

### 5.3 Offset identification and acquittal

#### Offset identification 5.3.1

Where possible, offset requirements for environmental values that naturally co-occur have been collocated and include remnant and high value regrowth vegetation and cleared areas. For example, offsets for threatened species and marine and fisheries values have been collocated within the same area. Habitat suitability of potential offset areas has been estimated based on a review of habitat descriptions and listings in the Queensland Government Essential Habitat database (DNRM 2012) and on the presence of REs where the species is likely to occur. The offsets also include the permanent removal of threatening processes from the otherwise protected environmental value through the relinquishment of grazing and/or reduction in tourism leases.

#### Water mouse habitat 5.3.2

As part of the development of the three LNG projects, extensive surveys have been undertaken at each LNG project site on Curtis Island (i.e. within 15 km of the Proposal). These surveys included broad assessments as part of environmental impact studies followed by intensive targeted surveys for the water mouse and key determinants of its presence which have informed final project design to minimise impacts on the species. The results of these surveys have been disseminated amongst the scientific community in Queensland and contributed valuable information to what was previously a limited understanding of the ecology of the water mouse.

Water mouse habitat modelling of areas within the Proposal including the CIEMP and adjacent intertidal areas identifies sufficient capacity for the Proposal to address offset requirements for water mouse habitat. REs identified as suitable and important habitat for water mouse include mangrove communities and other intertidal communities including saltpan vegetation comprising Sporobolus virginicus and coastal freshwater wetlands with intact hydrology, prey resources and other natural features to enable the construction of nests identified within the draft Significant Impact Guidelines for the Vulnerable Water Mouse, EPBC Act Policy Statement 3.20.

Water mouse habitat modelling has been categorised into 'core', 'essential' and 'general' habitat based on DEHP's BAMM habitat type definitions (EPA, 2002):

Essential habitat - an area containing resources that are considered essential for the maintenance of populations of the species (e.g. potential habitat for breeding, roosting, foraging, shelter, for either migratory or non-migratory species). Essential habitat is defined from known records and/or expert advice.

- Core habitat consists of essential habitat in which the species is known and the habitat is recognised under relevant recovery plans or other relevant plans/policies/regulations. Also included within this category are populations that are limited geographically within the region.
- General habitat an area that has been used by transient individuals or where a species has been recorded but there is insufficient information to assess the area as essential/core. Also defined from known records or considered potential habitat according to expert knowledge of habitat relationships, and may include areas of suboptimal habitat for the species.

RE 12.1.3 (Mangrove shrub land to low closed forest on marine clay plains and estuaries) is considered essential habitat for the water mouse as it contains important foraging habitat within intertidal zones associated with high abundances of food sources including small crustaceans. An important habitat feature for water mouse includes suitable nest building habitat that is adjacent or in close proximity to foraging grounds. Areas of RE 12.1.2 (Saltpan vegetation including grassland and herb land on marine clay plains), within the Proposal and CIEMP, at the supralittoral limits (above HAT (highest astronomical tide)) offer protection from large tidal ranges within Port Curtis and provide below ground nesting opportunities within close proximity to intertidal foraging grounds of RE 12.1.3.

Water mouse generally have a small home range estimated at 0.8 ha for males and 0.6 ha for females and may be linked to the quality of its habitat and the abundance of diverse prey species (Van Dyck et al, 2003). Water mouse home range consists of nesting habitat in areas above HAT and follows the receding tide out through the supralittoral areas and into mangroves and intertidal areas where they forage. Of these areas, Sporobolus virginicus grassland on marine clay plains (RE 12.1.2) has been the most severely impacted since European settlement, principally due to habitat modification, removal and destruction, resulting in a loss of approximately 50% of its pre-clearing extent (Table 6; SEWPaC 2013a).

Table 6: Comparison of pre-clearing and 2005 extent of key water mouse habitats present in the Proposal (modified from SEWPaC 2013a)

DESCRIPTION	ANALOGOUS REGIONAL ECOSYSTEM	PRE CLEARING EXTENT (ha)	EXTENT REMAINING IN 2005 (ha)	CLEARING (PRE CLEARING TO 2005) (ha)	PROPORTION OF PRE- CLEARING EXTENT LOST <sup>34</sup> (%)
Mangrove vegetation of marine clay plains and estuaries.	12.1.1	41 024	40 248	776	2
Sporobolus virginicus grassland on marine clay plains	12.1.2	35 008	17 633	17 375	50
Mangrove shrubland to low closed forest on marine clay plains and estuaries.	12.1.3	53 499	50 483	3016	6

<sup>&</sup>lt;sup>34</sup> Clearing up to 2005 compared to pre-clearing extent, rounded to nearest whole number.

Water mouse habitat modelling associated areas of RE 12.1.2 within 1 km of RE 12.1.3 as 'essential habitat' while areas of 12.1.2 beyond 1 km of RE 12.1.3 are generally regarded as 'core habitat' (QGC 2013b). Table 7 provides a description of the REs present within the Proposal, CIEMP and adjacent intertidal areas that are considered to provide suitable habitat for water mouse.

The LNG proponents will undertake further targeted field surveys for water mouse within the Monte Christo property in addition to the field surveys already committed to by Australia Pacific LNG within the CIEMP. The results of these surveys will be used to confirm suitable habitat requirements for the water mouse on Curtis Island and validate the current water mouse habitat mapping.

Table 7: Regional Ecosystems associated with the Water Mouse Habitat Model

REGIONAL ECOSYSTEM	REGIONAL ECOSYSTEM DESCRIPTION	HABITAT ATTRIBUTES FOR WATER MOUSE (X. MYOIDES)	HABITAT TYPE (ACCORDING TO QLD BAMM HABITAT DEFINITIONS)
12.1.1	Estuarine wetlands. Casuarina glauca open forest on margins of marine clay plains	Nesting habitat primarily especially along supra- littoral banks. Also key foraging habitat.	Core
12.1.2	Saltpan vegetation including grassland and herb land on marine clay plains	Nesting habitat primarily especially along supralittoral banks. Also important foraging habitat	Essential <1km of 12.1.3 Core >1km of 12.1.3
12.1.3	Mangrove shrub land to low closed forest on marine clay plains and estuaries	Important nesting and foraging habitat. Nests maybe found in raised area near highest astronomic tide.	Essential
12.2.5	Corymbia spp., Banksia integrifolia, Callitris columellaris, Acacia spp. open forest to low closed forest on beach ridges	Mainly support area but seaward edges of wetlands may provide nesting habitat.	General
12.2.6	Eucalyptus racemosa woodland on dunes and sand plains	Possible nesting habitat if adjacent to foraging areas.	Core
12.2.7	Melaleuca quinquenervia or M. viridiflora open forest to woodland on sand plains	Seaward edges may be nesting habitat. Possible secondary foraging habitat.	Core
12.2.8	Eucalyptus pilularis open forest on parabolic high dunes	Possible support area for water mouse (but didn't notice any of the RE in the study area though).	General
12.2.9	Banksia aemula woodland on dunes and sand plains	Support areas/possible nesting if adjacent to marine plaints. This RE is more likely to occur in the environmental precinct in South of Curtis Island.	Core
12.2.10	Mallee Eucalyptus spp. and Corymbia spp. low woodland on dunes and sand plains	Mainly a support area	General

REGIONAL ECOSYSTEM	REGIONAL ECOSYSTEM DESCRIPTION	HABITAT ATTRIBUTES FOR WATER MOUSE (X. MYOIDES)	HABITAT TYPE (ACCORDING TO QLD BAMM HABITAT DEFINITIONS)
12.2.11	Corymbia spp., Eucalyptus spp., Acacia spp. open forest to low closed forest on beach ridges in northern half of bioregion	Mainly a support area	General
12.2.12	Closed heath on seasonally waterlogged sand plains	Possible nesting/limited foraging habitat	General
12.2.13	Open heath on dunes and beaches	Possible nesting habitat but mainly a support area	Core
12.2.15	Swamps with Baumea spp., Juncus spp. and Lepironia articulata	Possible nesting habitat. Support area.	Core
12.3.5	Melaleuca quinquenervia open forest on coastal alluvium	Possible nesting habitat. Support area.	General

#### 5.3.1 Offset balance and acquittal

The offset balance has been determined based on the available offset area minus the offset requirement for each environmental value. The offset requirement has been determined to be acquitted where the offset balance is positive.

Offset acquittal has been tabularised to clearly show how the proponents' requirements have been met. Due to the array of environmental values that are covered it is not possible to present this information spatially in an intelligible manner. Tabulation of values, as provided, is the most effective means to reflect offset requirements against the environmental values within each parcel of land subject to offset consideration.

impacts on shorebird habitat include mangroves and saltpan).



#### SUMMARY OF IMPACTS 9

Governments to address the amendments. Impact areas are not cumulative as some protected matters occur within the same area (e.g. construction methodology or subsequent route realignments, the LNG proponents will engage with both Queensland and Australian crossings across the Kangaroo Island Wetlands and The Narrows. In the event of changes to impact areas due to amendments in associated with the LNG plants and marine facilities on Curtis Island, the respective GTP ROWs on Curtis Island, and the GTP marine Table 8 outlines the impacts of the three projects on environmental values that are to be offset by the Proposal. Impact values are

-	-	-	-	-	-	26.51	01.831	Powerful owl
-	-	-	-	-	-	26.51	01.831	Glossy black-cockatoo (Calyptorhynchus lathami)
-	-	44.00	-	11.82	-	2.26	۲9.۲٤	Koala (Phascolarctos cinereus)
-	4.88	00.62	17.11	18.72	3.04		-	Shorebirds
-	88.4	41-	15.60	3.10		45.0	1	Water mouse (Xeromys myoides)
54.32	12.00	-	06.2	15.42	95.9	-	-	Bare substrate
62.9	3.94	-	2.80	13.09	2:35	-	-	Seagrass
12.21	07.7	ZE.7	14.11	18.72	96.0	%Z88E.0	-	nedtle2
1.92	2.14	3.20	98.£	2.60	2.09	-	-	Мапдгоves
_	38.40	275.00	35.50	230.60	-	19.52	240.00	World Heritage
		psodo i rasilo o	actino amontant	uguo na sano ag o	וווובוומו אמומב		au io sandiii :	o algal
		eagnord tealto or	the Monte Christ	o be offset through	t souley letaema	orivae ao etseiora	Pd+ to stream!	8 AINeT

samphires, and other intertidal sedges. No stands of mature mangrove are present. 38 Refer to Appendix D for breakdown of impacts at specific locations. Impact areas are sparsely vegetated and contain marine couch, scattered mangrove seedlings and 37 Marine impact figures have been incorporated into the LNG Facility impact areas.



(Ninox strenua)

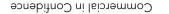
 $<sup>^{35}</sup>$  These impacts are based on Marine Crossing GTP (PPL 167) and Curtis Island GTP (PPL 168).

 $<sup>^{36}</sup>$  Includes marine disturbance associated with LMG Facility – see **Appendix D** for details.

(stsabom sabıA		4.03					
Sreat egret		4.03			T I'm		
Cattle egret (Ardea ibis)	-	60.0	-	-	-	-	-
pquatter pigeon Geohaps scripta scritpa)	-	71.22	-	-	-	-	-
Gerna tern Sterna caspia)	1 -	0.05	-	-	-	-	-
n'et tern Sternula albitions)	-	0.05	-	-	-	-	-
Haliaeetus leucogaster)		/7:0	_		1 12	_	
White-bellied sea-eagle		3.29					
Merops ornatus)		00:77		_	1 1		
Rainbow bee-eater		29.03					
Erythrotriorchis radiatus)	_	60.6					
уед дограм <sub>к</sub>		8 0 3					
Taphozous australis)							
ted listrates letseot	-	4.35	-	-	-	-	-
rof tatidad laitnese							
Phascolarctos cinereus)	79.75	27.0		11.82		00.44	
Essential habitat for koala	L7 LC	62.0		11 00		00 77	
(silerteus auosodqeT		40.00	3.04			00.6	
siznəinsəsegeberr Sed listrifeədə letseo		00 07	700			000	
astern curlew Numenius	-	-	3.04	18.72	17.11	-	-
Tusked frog Adelotus brevis)	-	24.00	-	-	-	-	-
ooty oystercatcher Haematopus fuliginosus)	-	-	3.04	-	-	-	-
Esacus magnirostris)		1	+0.0	10:72	1 1 1 1 1		
Seach stone curlew			40.€	15.75	17.11	-	-

Migratory woodland

)f concern RE 12.11.14	42.95	28.7	-	42.25	90.0	12.8	3.37	-
11.6.21 ∃A nasonos f	-	91.0	-	99.72	99.0	39.1	27.9	•
indangered RE 12.3.3	79.78	۷۱٬۱	-	-	-	42.76	3.77	
nustralian painted anipe Rostratula australis)	-	60.0	-	-	-	-	-	
(sutaeiled noibne								
astern osprey	-	60.0	-	-	-	-	-	
eiletnəiro sumotsynu								
ollarbird				1				
Cuculus optatus)	1	+		1				
Oriental cuckoo								
lietnet euotu! Rhibidura ru <mark>fifrons)</mark>	*	•		· P	*	*		
Wiagra cyanoleuca)								
atin flycatcher	-	12.39	-	-	-	-	-	
Vonarcha trivirgatus)								
pectacled monarch								
Monarcha melanopsis)								
lack-faced monarch								
oecies								



# SUMMARY OF OFFSET REQUIREMENTS

(Ninox strenua)  Beach stone curlew
Powerful owl
Glossy black-cockatoo (Calyptorhynchus lathami)
Koala (Phascolarctos cinereus)
Shorebirds
Water mouse (Xeromys myoides)
substrate)
seagrass and bare
seine and fisheries
World Heritage
an and Vinoemine
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<sup>40</sup> koala (Phascolarctos cinereus) was not listed under the EPBC Act at the time of EPBC Act referrals for each project. 39 koala (Phascolarctos cinereus) is listed as vulnerable in South East Queensland Bioregion only.



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#### 32.24 32.24 ANANΑN Marine/ Great egret migratory (Rrdea ibis) 27.0 27.0 AMANΑN Cattle egret \anineM scritpa) 21.102 ΑN AM(Geohaps scripta 21,102 Λ Λ Squatter pigeon migratory (Sterna caspia) AMΑN 04.0 04.0 AMCaspian tern Marine/ migratory (Sternula albifrons) 04.0 04.0 AMЭ AMLittle tern Marine/ migratory (Haliaeetus leucogaster) 26.32 26.32 ANANANWhite-bellied sea-eagle Marine/ migratory (Merops ornatus) AN232.24 232.24 ΑN AN Rainbow bee-eater Marine/ radiatus) 3 AM(Erythrotriorchis 72.24 72.24 Λ ΑN **Ке**д дозћамк ted listhtsahs lateoo Included above AMΑN ΑN SəY Essential Habitat for the ANAM**Avode babulant** ΑN SPY Essential Habitat for the (Taphozous australis) 09.911 00.9 ANAN09.701 Λ AMCoastal sheathtail bat (sisneinessegebem migratory Included above in shorebirds ΑN ΑN ΤN suinəmuN) Marine/ Eastern curlew (Adelotus brevis) 00.09 00.09 AMAMAMΛ Tusked frog (susonigilut Included above in shorebirds AMΑN ΑN (Haematopus Λ Sooty oystercatcher

migratory



(Ardea modesta)

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(Monarcha trivirgatus)	
Spectacled monarch	
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Black-faced monarch	
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Migratory woodland	

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27.0	-	-	27.0	Marine/ migratory	ΑN	AN	F	Eastern osprey (Pandion haliaetus Australian painteo
				, . , ,				Dollarbird (Eurystomus orien
								(Rhipidura rufifror Oriental cuckoo (Cuculus optatus)
				migratory			ירמ)	Myiagra cyandleu Rufous fantail Abiaidus aufifear
21.99	-	-	21.99	\enineM	AN	ΑN	AN (c2)	Satin flycatcher

#### 8 **ENVIRONMENTAL VALUES OF THE PROPOSAL**

### 8.1 The Monte Christo property

#### 8.1.1 Location and size

The Monte Christo property (lot 4 CP860403, lot 297 DT4023 and lot 298 DT4023) is located wholly within the GBRWHA on Curtis Island, north of the city of Gladstone in central Queensland. The property is located in the Gladstone Regional Council local government area and occurs within the Burnett - Curtis Hills and Ranges subregion of the South East Queensland bioregion. The Monte Christo property is strategically located on Curtis Island bordering the Curtis Island National Park, Curtis Island Conservation Park and Curtis Island State Forest (Figure 1). The property holds grazing leases over the Curtis Island Conservation Park and State Forest, which forms part of the overall property portfolio.

The offset area on the Monte Christo property is 3,562.10 ha in size consisting of 2,852.60 ha on lot 4 CP860403 (Leasehold), 256.82 ha on lot 297 and 452.68 ha on lot 298 DT4023 (Freehold; Figure 5). Parts of the proposed offset area are subject to a development right held by the current Monte Christo lessee; however, the Proposal will reduce the development right to 307.80 ha eco-tourism lease<sup>41</sup> outside the proposed offset areas (the Retained Area - see Section 10.4.1). The lease conditions that govern this development right only allow for low impact eco-tourism activities consistent with the management principles for conservation parks under the NC Act.

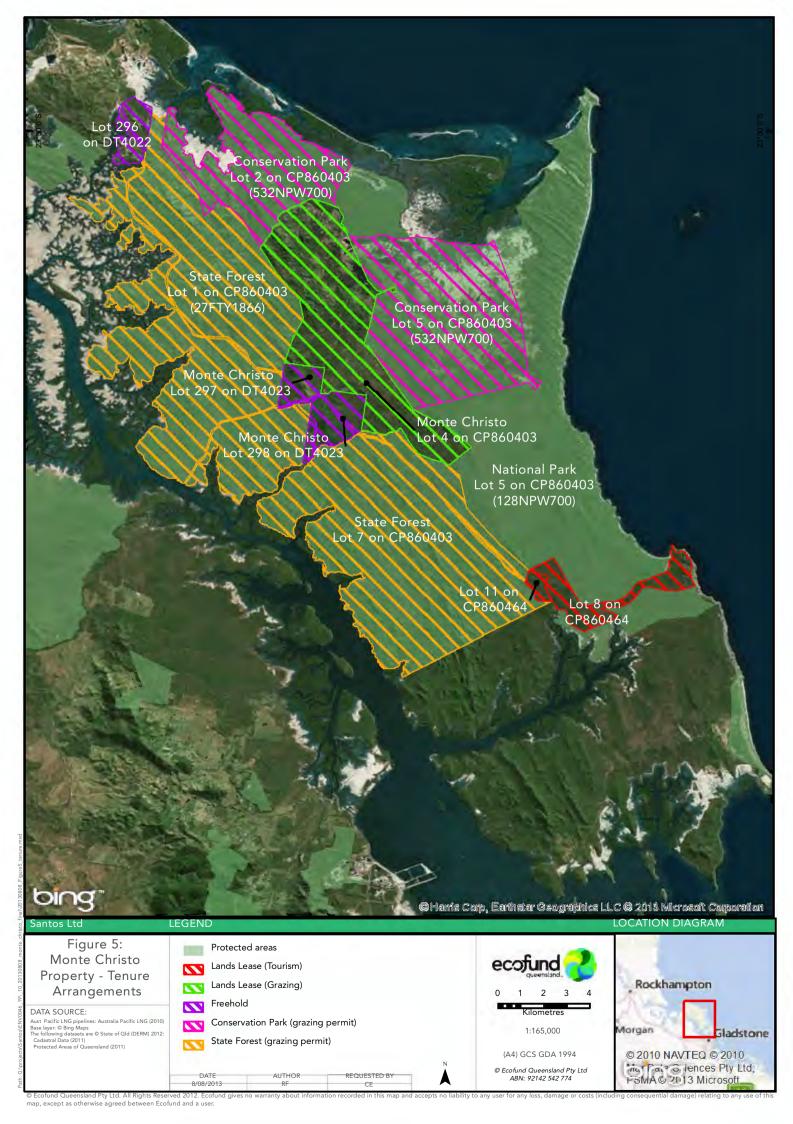
#### Geology and soils 8.1.2

The landscape of the Monte Christo property consists of hills and ranges that form part of a central ridge extending along the length of Curtis Island, alluvial plains around creeks and waterways, coastal dunes and beach ridges, and a broad marine plain with mudflats and marine couch grasslands. The property supports land zones 1, 2, 3 and 11 as outlined below (Figure 6):

- beach ridges, marine plain and saltpans (land zones 1 and 2)
- coastal alluvium and creek flats (land zone 3)
- hills and lowlands (land zone 11).

The geology of the property ranges from metamorphosed rocks, forming ranges, hills and lowlands to estuarine and marine deposits subject to periodic inundation by saline or brackish marine waters. Soils present on the Monte Christo property reflect the underlying geology and range from soils that are of low to moderate fertility in the hills and lowlands, higher fertility alluvial soils on creek flats, through to mudflats, clays and sands on the marine plain (Table 10).

<sup>&</sup>lt;sup>41</sup> Based on recent survey data submitted by the current lessee's surveyor.



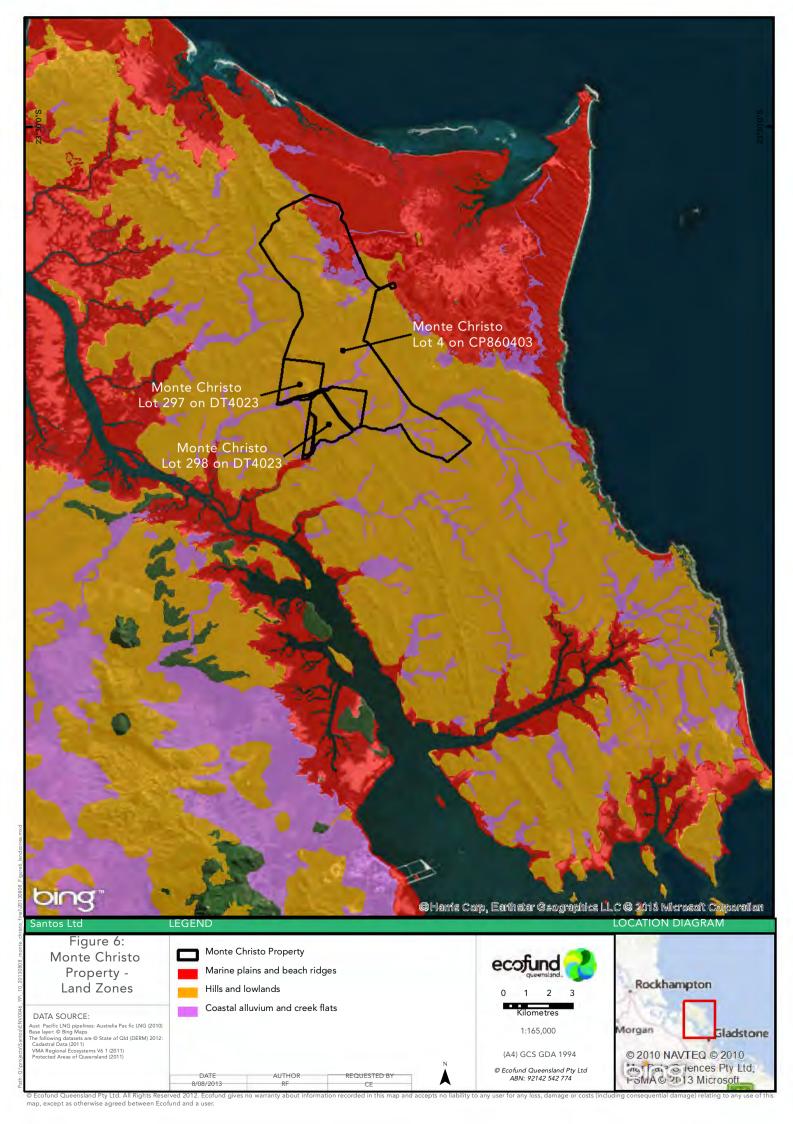


Table 10: Monte Christo property - geology and soils

LAND ZONE	GEOLOGY	SOILS
1	Mud, sandy mud, muddy sand and minor gravel: estuarine channels and banks, tidal flats and coastal grasslands	Predominantly Hydrosols (saline muds, clays and sands) or beach sand
Moderately well- sorted, fine to coarse- grained quartzose to shelly sand and some gravel: beach ridges and cheniers  Predominantly Rudoso Tenosols (siliceous or or sands), Podosols and Organosols		11
3	Clay, silt, sand, gravel; floodplain alluvium	Predominantly Vertosols and Sodosols, also with Hydrosols in higher rainfall areas
11	Wandilla Formation – mudstone, lithic sandstone, siltstone, jasper, chert, slate; local schist	Shallow, gravelly Rudosols and Tenosols, with Sodosols and Chromosols on lower slopes and gently undulating areas

#### 8.1.3 Mapped regional ecosystems

Based on Queensland Government RE mapping (version 6.0b) the Monte Christo property contains approximately 3,470 ha of remnant vegetation, 53 ha of high value regrowth (HVR) vegetation and 38 ha of non-remnant areas (Table 11). Ecological surveys conducted within the Monte Christo property were undertaken to assess the condition of the vegetation and validate REs present to allow LNG proponents to compare the REs subject to offset requirements that have been impacted by the LNG facilities with the same REs located on the Monte Christo property. Ground truthed RE mapping was not developed as a result of ecological surveys; however, the current split of 70% RE 12.3.7 and 30% RE 12.3.3 of heterogeneous polygons identified by DEHP mapping is too conservative and suggested that a split of 30% RE 12.3.7 and 70% RE 12.3.3 is more accurate (QGC 2013a).

Table 11: Remnant, HVR and non-remnant regional ecosystems - Monte Christo property

	STAT	US	EPBC ACT			NON
RE	VM ACT <sup>42</sup>	BD <sup>43</sup>	ECOLOGICAL COMMUNITY	REMNANT (ha)	HVR (ha)	REMNA NT (ha)
12.1.1 – Casuarina glauca open forest on margins of marine clay plains	ОС	Е	NA	0.74	-	-
12.1.2 - saltpan vegetation <sup>44</sup>	LC	NC	NA	306.18	-	4.70
12.1.3 - mangrove shrubland to low closed forest on marine clay plains and estuaries	LC	NC	NA	0.03	-	-
12.2.2 - vine forest on beach ridges	OC	E	Littoral rainforest and vine thickets- critically endangered	12.88	-	1
12.2.11 - Corymbia, Eucalyptus, Acacia forest on beach ridges	LC	NC	NA	2.77	-	-
12.3.3 - Eucalyptus tereticornis woodland to open forest on alluvial plains	E	E	NA	121.95	1.33	0.09
12.3.5 – paperbark forest on coastal alluvial plains	LC	ОС	NA	193.46	0.84	0.67
12.3.7 – blue gum fringing community	LC	NC	NA	94.43	0.56	0.04
12.3.11 – blue gum forest on alluvial plains	OC	ОС	NA	20.37	-	-
12.11.4 - semi-evergreen vine thicket	OC	ОС	NA	49.95	9.37	3.50
12.11.6 – bloodwood, ironbark open forest	LC	NC	NA	1540.74	4.30	13.47
12.11.7 – ironbark woodland	LC	NC	NA	0.68	-	0.16
12.11.14 - Eucalyptus crebra, E. tereticornis woodland	ОС	ОС	NA	85.39	5.25	2.37
12.11.18 – gum-topped box open forest	LC	NC	NA	912.68	32.18	13.66
12.11.21 - Allocasuarina luehmannii, Melaleuca nervosa woodland	ОС	ОС	NA	127.98	-	-
TOTAL				3,470.23	53.83	38.66

<sup>42</sup> Vegetation Management Act 1999 status: Endangered (E), Of Concern (OC), Least Concern (LC)

<sup>43</sup> Biodiversity status(based on an assessment of the condition of remnant vegetation in addition to the criteria used to determine the class under the Vegetation Management Act 1999): (Endangered (E), Of Concern (OC), No Concern at Present (NC)

<sup>&</sup>lt;sup>44</sup> This RE has been lost 50% of its pre-clearing extent and is an important habitat for the water mouse - see **Section 5.3.2** for more information.

#### Vegetation descriptions 8.1.4

# Beach ridges, marine plain and saltpans

More than 307 ha of remnant marine plain and saltpan ecosystems are present on the Monte Christo property. These areas consist predominantly of marine couch (Sporobolus virginicus) grassland and samphire herbland with broad areas of bare saltpans where tidal influence is greatest (Photo 1). Marine couch grasslands are routinely grazed and these areas are critical to the viability of Monte Christo as a grazing operation. While current grazing operations involve approximately 1,500 head of cattle, these operations compromise the ecological value of the marine plain for migratory shorebirds, waterbirds, the water mouse (Xeromys myoides), the yellow chat (Epthianura crocea macgregori) and as a nursery area for fish and crustacean species.

The Monte Christo property also supports approximately 15 ha of remnant beach ridge ecosystems. These ecosystems consist of vine forest and Corymbia, Eucalyptus and Acacia open forests. Of note, the vine forest on beach ridges RE forms part of the EPBC Act listed critically endangered Littoral Rainforest and Coastal Vine Thickets of Eastern Australia ecological community.



Photo 1: Marine Plain - Monte Christo

### Coastal alluvium and creek flats

Approximately 430 ha of remnant coastal alluvium and creek flat ecosystems are present on the Monte Christo property. These areas consist predominantly of paperbark (Melaleuca quinquenervia) open forest on coastal alluvium (Photo 2), and blue gum (Eucalyptus tereticornis) fringing forest on creeks and waterways. Whilst pest plant infestations on the Monte Christo property are minimal, pest plants such as rubber vine (Cryptostegia grandiflora) and lantana (Lantana camara) are present in isolated patches in coastal alluvium and creek flat ecosystems. In addition, creek flat ecosystems are regularly grazed and have been cleared to establish pastures. Coastal alluvium and creek flat ecosystems provide habitat for a range of threatened species including the koala (Phascolarctos cinereus), wallum froglet (Crinia tinnula), tusked frog (Adelotus brevis), water mouse (Xeromys coastal sheathtail bat (Taphozous australis), glossy black-cockatoo (Calyptorhynchus lathami), and the powerful owl (Ninox strenua).



Photo 2: Paperbark open forest on coastal alluvium - Monte Christo

### Hills and lowlands

Approximately 2,730 ha of hill and lowland ecosystems are present on the Monte Christo property. These areas consist predominantly of spotted gum (Corymbia citriodora) and narrow-leaved ironbark (Eucalyptus crebra) open forest (Photo 3) and gum-topped box (Eucalyptus moluccana) open forest. Hill and lowland ecosystems are typically in excellent condition with little or no pest plant infestation. Grazing operations are currently minimal given the low to moderate fertility of hill and lowland ecosystems; however, these areas are susceptible to significant degradation if grazing operations are intensified through the use of stock supplements (e.g. dry lick urea). Areas have also been cleared for limited infrastructure such as buildings and roads. These ecosystems are mapped as potential habitat for threatened species such as the koala (Phascolarctos cinereus), glossy blackcockatoo (Calyptorhynchus lathami), and the powerful owl (Ninox strenua).



Photo 3: Spotted gum and ironbark open forest - Monte Christo

#### 8.1.5 World Heritage values

The Monte Christo property is located wholly within the GBRWHA. As such, the long term protection and management of the environmental values of the property, under a dedicated conservation management regime, will serve to enhance the World and National Heritage values of the Great Barrier Reef, in particular those values that relate to natural beauty and aesthetic importance, ecological and biological processes, and natural habitats for biological diversity.

#### 8.1.6 Essential habitat

The Monte Christo property contains mapped essential habitat for the koala (Phascolarctos cinereus) listed as MNES under the EPBC Act and vulnerable under the NC Act and the wallum froglet (Crinia tinnula), classified as vulnerable under the NC Act. In total, approximately 1,790 ha of essential habitat is mapped (Regional Ecosystem Maps 2012).

#### 8.1.7 Threatened species

A number of threatened fauna species listed under both the NC Act and EPBC Act are likely to be present on the Monte Christo property based on the presence of suitable habitat, including habitat for the critically endangered yellow chat (Epthianura crocea macgregori) and vulnerable water mouse (Xeromys myoides) (Section 5.3.2).

### Yellow chat habitat

The yellow chat (Epthianura crocea macgregori) is known to occur at three localities – Curtis Island, Torilla Plain and the Fitzroy Delta. Recent surveys indicate that the total adult population in Queensland is approximately 300 (Houston and Melzer 2008). A breeding population of yellow chat was identified on Curtis Island in 2002 and estimated to occur over 15km<sup>2</sup>; however extensive surveys in 2007 did not detect any species at this location (SEWPaC 2013b).

Habitat critical to the survival of the yellow chat is wetlands and associated grasslands on seasonally inundated marine plains. Important shelter and nesting habitat for yellow chat include areas of moderate to tall rush/sedge or grass vegetation along drainage lines and depressions. Foraging habitat comprises of areas near nesting and shelter habitat with open vegetation types, particularly sparse grasslands and samphire (Houston and Melzer 2008).

The Monte Christo property contains over 310 ha of habitat for yellow chat which includes areas of RE 12.1.2 consisting of marine plains dominated by Sporobolus virginicus with sparse Samphire forbs, including Sesuvium portulacastrum and Haloscaria spp (Figure 7; QGC 2013a). High densities of feral pigs and cattle grazing currently threaten important nesting, shelter and foraging habitat of yellow chat on the Monte Christo property and the broader Proposal area.

Through the delivery of the Proposal, the Monte Christo property provides an opportunity to protect and enhance large areas of habitat for threatened species to offset the impacts of the projects as illustrated in Table 12.

Table 12: Threatened species habitat -- Monte Christo

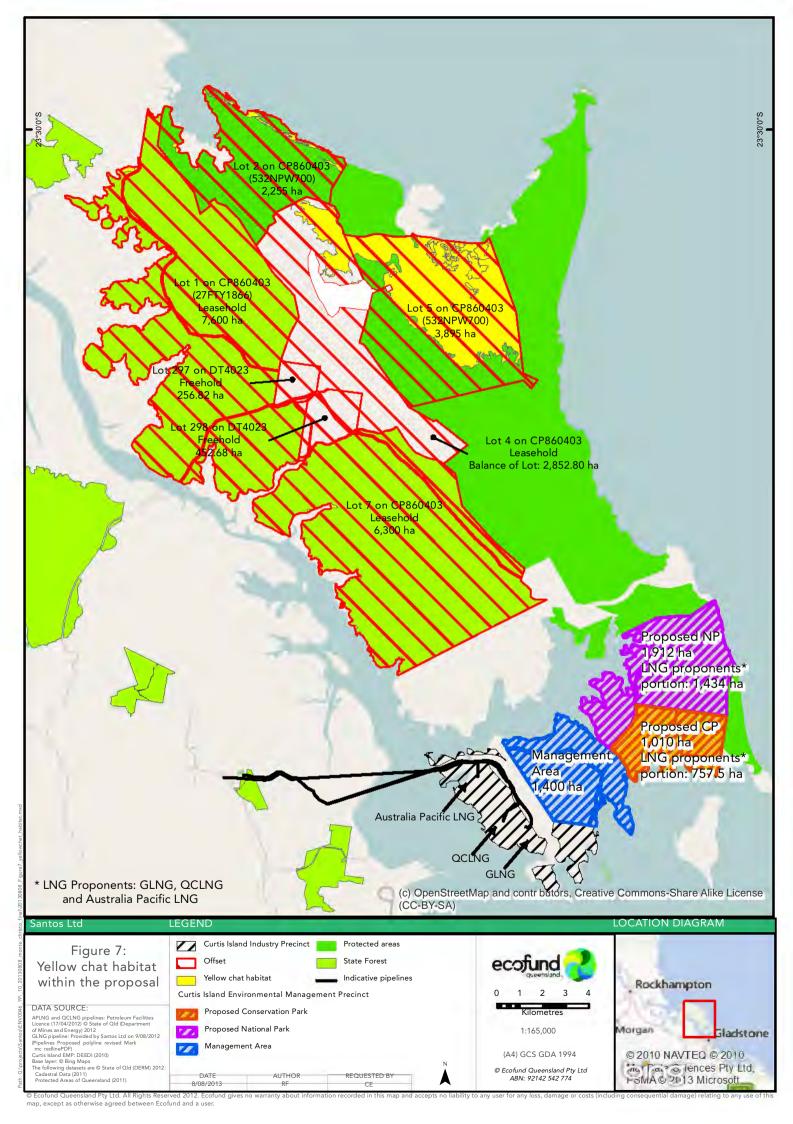
		ATION STATUS	SUITABLE	POTENTIAL
SPECIES	CONSERVATION STATUS		REGIONAL	HABITAT
	NC ACT <sup>45</sup>	EPBC ACT <sup>46</sup>	ECOSYSTEMS PRESENT (RE)	(ha)
Koala (Phascolarctos cinereus)	V	V	12.3.3 12.3.7 12.3.11 12.11.18	1,159.06
Glossy black-cockatoo (Calyptorhynchus lathami)	V	-	12.1.1 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.6 12.11.7 12.11.14 12.11.18	2,984.52
Powerful owl (Ninox strenua)	V	-	12.1.1 12.2.2 12.3.3 12.3.5 12.3.7 12.3.11 12.11.4 12.11.6 12.11.18	2,837.06
Beach stone curlew (Esacus magnirostris)	V	-	12.1.1 12.1.2	311.62
Sooty oyster catcher (Haematopus fuliginosus)	NT	-	12.1.1 12.1.2	311.62
Yellow chat (Epthianura crocea macgregori)	Е	CE	12.1.2	310.88
Water mouse (Xeromys myoides)	V	V	12.1.1 12.1.2 12.2.11 12.3.5	502.54 <sup>47</sup>
Tusked frog (Adelotus brevis)	V	-	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.4 12.11.21	630.99
Eastern curlew (Numenius madagascariensis)	NT	-	12.1.1 12.1.2	311.62

<sup>&</sup>lt;sup>45</sup> NC Act status: Endangered (E), Vulnerable (V), Near threatened (NT) <sup>46</sup> EPBC Act status: Vulnerable (V), Critically Endangered (CE), migratory

<sup>&</sup>lt;sup>47</sup> Based on the LNG proponents RE based water mouse habitat model (QGC, 2013b)

	CONSERV	ATION STATUS	SUITABLE REGIONAL	POTENTIAL
SPECIES	NC ACT <sup>45</sup>	EPBC ACT <sup>46</sup>	ECOSYSTEMS PRESENT (RE)	HABITAT (ha)
Migratory shorebirds (whimbrel, red-necked stint)	-	Migratory	12.1.1 12.1.2	311.62
Coastal sheathtail bat (Taphozous australis)	V	-	12.1.1 12.1.2 12.2.11 12.2.2 12.3.11 12.3.3 12.3.5 12.3.7	761.07
Red goshawk (Erythrotriorchis radiatus)	Е	V	12.1.1 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.3 12.11.14 12.11.18 12.11.20 12.11.20 12.11.21	3,175.65
Rainbow bee-eater (Merops ornatus)	NA	Marine/ migratory	12.1.1 12.1.2 12.1.3 12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.4 12.11.6 12.11.7 12.11.14 12.11.18 12.11.18 12.11.20 12.11.21	3,562.10
White-bellied sea-eagle (Haliaeetus leucogaster)	NA	Marine/ migratory	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11	449.45
Little tern (Sternula albifrons)	E	Marine/ migratory	12.1.1 12.1.2 12.1.3	311.65
Caspian tern (Sterna caspia)	NA	Marine/ migratory	12.1.1 12.1.2 12.1.3	311.65

	CONSERVATION STATUS		SUITABLE REGIONAL	POTENTIAL
SPECIES	NC ACT <sup>45</sup>	EPBC ACT <sup>46</sup>	ECOSYSTEMS PRESENT (RE)	HABITAT (ha)
Squatter pigeon (Geohaps scripta scritpa)	V	V	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.4 12.11.6 12.11.7 12.11.14 12.11.18 12.11.20 12.11.21 12.11.21	3,250.45
Cattle egret (Ardea ibis)	NA	Marine/ migratory	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11	449.45
Great egret (Ardea modesta)	NA	Marine/ migratory	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11	449.45
Migratory woodland species Black-faced monarch (Monarcha melanopsis) Spectacled monarch (Monarcha trivirgatus) Satin flycatcher (Myiagra cyanoleuca) Rufous fantail (Rhipidura rufifrons) Oriental cuckoo (Cuculus optatus) Dollarbird (Eurystomus orientalis)	NA	Marine/ migratory	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.4 12.11.6 12.11.7 12.11.14 12.11.18 12.11.20 12.11.21	3,250.45
Eastern osprey (Pandion haliaetus)	NA	Marine/ migratory	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11	449.45
Australian painted snipe (Rostratula australis)	V	E	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11	449.45



#### Marine fish habitat values 8.1.8

The Monte Christo property supports approximately 307 ha of remnant marine fish habitat comprising marine couch grassland and samphire herbland, saltpans and mangroves. These areas are of high ecological value for migratory shorebirds, waterbirds, the water mouse (Xeromys myoides), and as a nursery area for fish and crustacean species.

#### 8.1.9 Wetlands

A total of approximately 507 ha of wetland communities are present on the Monte Christo property. These comprise mangroves, salt flats and salt marshes, floodplain tree swamps and riverine wetlands as described in Table 13. These areas are of high ecological value for migratory shorebirds, waterbirds, water mouse (Xeromys myoides), yellow chat (Epthianura crocea macgregori) and as a nursery area for fish and crustacean species.

**AREA CLASSIFICATION DESCRIPTION** (ha) Mangroves, salt flats, salt marshes 307.56 Estuarine Floodplain tree swamps (Melaleuca and Eucalypt) 191.25 **Palustrine** Creeks and waterways Riverine 8.18 506.99 Total

Table 13: Wetland communities - Monte Christo

#### 8.1.10 Condition

The current ecological condition of the Monte Christo property reflects a long history of cattle grazing pressure. The property has been run as a commercial grazing operation for decades, dating back to the early occupation during the late 1800's. The vast majority of the Monte Christo property supports intact, remnant ecosystems with only approximately 3% of it cleared for the current grazing operations. DNPRSR Officers have expressed concern that continuation of the current management regime (including grazing) will degrade the property, particularly sensitive marine plains, noting a decrease in ecological condition over the last 30 years (Kershaw (DNPRSR) 2012 pers. comm. 25 June). Without active and routine management for conservation purposes the ecological values of this property will continue to decline. Condition assessments of the Monte Christo property were undertaken in November 2012 (QGC 2013a). These assessments followed the Queensland Government Ecological Equivalence Methodology Guideline and confirmed the concerns of DNPRSR staff. The results of these assessments are summarised below.

### Regional Ecosystems on Hill Slopes and Lowlands

The property includes broad areas of hills rising to about 200 m asl and undulating country covering about 2,530 ha of remnant vegetation in Land Zone 11 most of which is in good ecological condition, despite ongoing grazing operations. These areas scored highly for coarse woody debris and habitat features which is consistent with mature forest areas that have had low levels of impact from fires, logging and other clearing. Limited evidence of disturbance was observed adjacent to access tracks. As intact areas of continuous, high quality forests, especially in the southern half of the property, there is potential for high quality habitat for a range of threatened species (Photo 4).



Photo 4: Gum-topped box open forest - Monte Christo

### Streams and Alluvial Flood Plains

The condition of streams and alluvial flood plains varied depending on the proximity of a given area to disturbance associated with cattle grazing operations. Materials from macropyhte production upstream including organic matter and nutrients are concentrated in ecosystems on the lower slopes and gullies. Because of the accumulation of materials on the alluvial flood plains, they are likely the most important terrestrial areas for macrophyte carbon production (per unit area). This, and the diversity of habitat associated with proximity of streams, steep banks, fallen logs and tree hollows makes them important areas for biodiversity.

Ecological equivalence assessment scores are higher, as expected, on assessment units located further from disturbed areas (e.g. tracks, areas easily accessible to cattle, logging area). In some areas RE 12.3.3 is recovering from earlier clearing and increasing biomass in all three vegetation classes (canopy, sub canopy and grasses/forbs). As biomass develops, niches for seeding from outside should also increase. With time and appropriate on-going management, greater biodiversity values are likely as more hollows and fallen logs and organic matter accumulate at ground level. Pest plants, in particular, lantana (Lantana camara) and rubber vine (Cryptostegia grandiflora) are present as isolated occurrences in coastal alluvium and creek flats ecosystems. Parthenium (Parthenium hysterophorus) and giant rat's tail grass (Sporobolus pyramidalis) have also been reported to be introduced to the Monte Christo property; however, no examples were observed during ecological equivalence field surveys (QGC 2013a).

#### Coastal Area and Estuarine Wetlands

In areas further downstream, stream flows diverge and spread out over the marine plains which are also under the influence of large (average 3.3 m) tides. The marine plains have high net production, and have fairly nutritious pasture, so cattle are grazed here for much of the year. Because the surface vegetation keeps the plains wet throughout the year, it appears to favour deposition of organic matter storages as underground peat. Feral animals, particularly pigs and wild horses, are a management concern. Pigs have the ability to degrade marine plain ecosystems and require ongoing control events to minimize impacts. Visual assessment of areas on the Lot 5 CP860403 (adjacent to the Monte Christo property) that are subject to greater cattle grazing intensity showed higher levels of impact and degradation (Photo 5).

In coastal areas where fresh water inputs are higher, swamp forests (palustrine wetlands) with mainly Melaleuca guinquenervia, predominate (see Section 8.1.4 (Photo 2)). These areas have specialist swamp trees with high transpiration rates as they are not so limited by fresh water availability although the water table likely varies considerably over the course of a year. Coastal areas contain potential habitat for EPBC Act listed species including the vulnerable water mouse (Xeromys myoides) and critically endangered yellow chat (Epthianura crocea macgregori)



Photo 5: Areas of marine plain on Lot 5 CP860403 (adjacent to the Monte Christo property) with impacts from cattle grazing

#### 8.2 **Curtis Island Conservation Park and State Forest**

The Curtis Island Conservation Park (Lot 532 NPW700 also known as Lot 2 CP860403 and Lot 5 CP860403) contains approximately 6,090 ha of remnant vegetation, consisting mostly of saltpan vegetation on the marine plain and bloodwood, ironbark open forest in the hills and lowlands. The Conservation Park also supports almost 180 ha of mangroves and over 100 ha of the critically endangered Littoral Rainforest and Vine Thickets ecological community. The Curtis Island Conservation Park supports essential habitat for the following listed species:

- water mouse (Xeromys myoides)
- koala (Phascolarctos cinereus)
- wallum froglet (Crinia tinnula)
- critically endangered yellow chat (Capricorn subspecies) (Epthianura crocea macgregori).

Tidal inundation of the marine plain areas is more frequent than on the Monte Christo property so mangroves predominate in these areas, particularly on the grazing lease over the conservation park. The presence of Rhizophora mangroves here suggest the dominance of tidal over fluvial processes and where sedimentary fill has reached a surface equilibrium with ambient low-energy conditions.

The Curtis Island State Forest contains approximately 13,900 ha of remnant vegetation, consisting mostly of spotted gum (Corymbia citriodora) and ironbark (Eucalyptus crebra) open forest in the hills and lowlands and over 80 ha of saltpan vegetation and mangroves along The Narrows. The State Forest also supports over 235 ha of of concern ironbark (Eucalyptus crebra), blue gum (Eucalyptus tereticornis) woodland (RE 12.11.14) and over 465 ha of endangered blue gum (Eucalyptus tereticornis) woodland on alluvial plains (RE 12.3.3). Curtis Island State Forest supports almost 3,000 ha of essential habitat for the koala (Phascolarctos cinereus) and habitat for species such as the water mouse (Xeromys myoides), glossy black-cockatoo (Calyptorhynchus lathami), powerful owl (Ninox strenua), beach stone curlew (Esacus magnirostris) and migratory shorebirds.

### 8.3 Curtis Island Environmental Management Precinct

#### 8.3.1 Overview

The CIEMP is an important component of the overall offsets to be provided by the LNG proponents as part of the Monte Christo Offset Proposal. The CIEMP is a 4,324 ha area of land located at the southern end of Curtis Island, approximately 12 km south of the Monte Christo property, wholly within the GBRWHA. Currently, the CIEMP is not formally protected and consists almost entirely of freehold tenure (Lots 5 to 7 SP239340) as well as a small parcel of leasehold tenure (Lot 1 SP224898) all owned by the QLD CG. These tenures are not associated with any conservation status identified under the NC Act.

Through agreements with the QLD CG, two areas within the CIEMP will be declared as NC Act protected areas: (1) 1,912 ha of the CIEMP land is to be declared as a national park and (2) 1,010 ha is to be declared conservation park. The declaration of these two new protected areas is planned for third quarter of 2013. The respective EPBC approvals for each of the three LNG proponents allow the use up to 2,191 ha<sup>48</sup> of this area to fulfil World Heritage Area offset requirements. Field surveys of the CIEMP identified suitable habitat for a number of threatened flora and fauna species (GHD 2009) including water mouse, koala, eastern curlew and the powerful owl. The CIEMP also contains large tracts of endangered and of concern RE and marine habitat values including mangroves and saltpan vegetation.

#### 8.3.2 Declaration of the CIEMP

In July 2008, as part of the declaration of the Gladstone State Development Area Scheme (Planning Scheme) the south-west coast of Curtis Island was added as an industrial precinct to provide for the LNG industry. The CIEMP area was also added to the planning scheme for the following purposes to:

- recognise, protect and maintain areas of ecological significance;
- provide for open space where remnant vegetation, wetlands, waterways and areas of ecological significance can remain and where revegetation can occur; and
- restrict incompatible land uses from occurring near the Curtis Island Industry Precinct.

The Planning Scheme is a land use scheme for the purposes of the Sustainable Planning Act 2009 (QLD). As such, it is subject to change by administrative instrument and does not provide long term legal certainty for the environmental protection of the CIEMP. The Planning Scheme also does not provide for the funding of the rehabilitation and maintenance works necessary to preserve and enhance the ecological values of the CIEMP.

#### Environmental Management Precinct Contribution and Maintenance Deed 8.3.3

In October 2010, the three LNG proponents and Arrow each entered into an Environmental Management Precinct Contribution and Maintenance Deed (EMPCM Deed) with the QLD CG in respect of the CIEMP. The EMPCM Deeds recognised that the LNG proponents were intending to develop LNG facilities within the industrial precinct on Curtis Island and that the QLD CG intended to create an environmental management precinct on Curtis Island. The purpose of the EMPCM Deed was for the LNG proponents to pay contributions up to \$34.5 million over a 25 year period to enable the CIEMP to be established, preserved, maintained and managed as an environmental precinct. The contributions paid by the LNG proponents under the EMPCM Deed are required for the following purposes in relation to the CIEMP:

- (a) to recognise, protect and maintain areas of high ecological significance within the CIEMP and terrestrial and marine flora and fauna within the CIEMP
- (b) to improve the aesthetics, accessibility and environmental value (including world heritage value) of the CIEMP

<sup>&</sup>lt;sup>48</sup> The balance of the area is Arrow Energies entitlement.

- to provide areas within the CIEMP for open space where remnant vegetation, (c) wetlands, waterways and areas of ecological significance can remain and where revegetation can occur
- to minimise the effects of environmental and other risks to the amenity of the (d) **CIEMP**
- (e) to restrict incompatible land uses from establishing near the LNG Participants proposed developments within the CIEMP
- to allow the public to have access to and across the CIEMP for a variety of (f) recreational and environmental uses provided that the purpose does not include works or costs related to State infrastructure
- to generally manage and preserve the CIEMP (g)
- (h) such other reasonable purposes nominated or identified in the Stage 1 environmental report for the CIEMP or the QLD CG from time to time which are consistent with the purposes referred to above.

The LNG proponents propose to amend the EMPCM Deed so that funding is directed for the entire island wide management for all protected tenures including those that form part of the Monte Christo Offset Proposal. This has been supported by the QLD CG and the DNPRSR who will take on the long term management of the lands secured as part of the Monte Christo Proposal.

At the time of entering into the EMPCM Deed, the LNG proponents recognised that the land use arrangements set out in the Planning Scheme would be not be sufficient to be recognised as offsets which may be required as a condition of any approval under the EPBC Act which may be granted in respect of the LNG projects. Accordingly, the QLD CG agreed as part of the EMPCM Deeds to recommend to the Governor in Council that an area of approximately 2,000 ha of the CIEMP be dedicated as a national park under the NC Act to assist meeting the requirements of any approval which may be granted under the EPBC Act in respect of the LNG projects. Consequently, the QLD CG has agreed to recommend to the Governor in Council the declaration of a national park within the CIEMP area. The actions of the LNG proponents and the QLD CG by securing national park status for the part of the CIEMP provides legal protection for the environmental values of the area in perpetuity which was not present with the establishment of the CIEMP in the Planning Scheme in 2008.

Representatives of the QLD CG have provided recent correspondence indicating that Lot 7 SP239340 (1,912 ha) will be formally recommended to become national park while Lot 6 (680 ha) and Lot 1 (330 ha) SP239340 will be formally recommended to become conservation park in the third quarter of 2013 (Figure 3). Both areas will be declared, managed and maintained according to the protected area provisions under the NC Act. In total, 2,922 ha will be protected, managed and maintained by the Queensland Government as protected area of which 1,434 ha of the national park and 757 ha of the conservation park areas are recognised by the Queensland Government under the EMPCM Deed as providing WHA offsets for the three LNG proponents.

#### Conservation status and natural features

The CIEMP and adjacent marine and terrestrial areas fall within the Great Barrier Reef World Heritage Area. The waters around the CIEMP are protected as Great Barrier Reef Marine Park, including Rodds Bay Dugong Protection Area, and are listed in the Directory of Important Wetlands. A large part of the CIEMP is listed on the Register of the National Estate. There are a number of Queensland conservation estate areas in the immediate vicinity of the CIEMP, with Curtis Island National Park and the Southend Conservation Park directly bordering the CIEMP to the north and south-east (GHD 2009). The Curtis Island Nature Refuge (517 ha) is situated to the north of CIEMP. The Curtis Island Nature Refuge supports endangered and of concern REs, is a vegetation corridor between two sections of the adjoining Curtis Island National Park and cultural and natural resources of the adjacent Curtis Island State Forest (GHD 2009).

The CIEMP contains 12 REs<sup>49</sup>, of which, four are 'least concern', seven are 'of concern' and one is 'endangered' (Table 14). One of the 'of concern' RE only occurs on Curtis Island, whilst another occurs mainly on Curtis Island as well as some small areas on the mainland. The endangered RE 12.3.3 ('Eucalyptus tereticornis woodland to open woodland on alluvial plains') has special significance for fauna species as Queensland blue gum (Eucalyptus tereticornis) grows to a large tree which develops numerous hollows over time, providing nesting resources for birds and mammals. This community covers around 6% of the CIEMP (GHD 2009).

Table 14: Mapped RE within CIEMP<sup>50</sup> (GHD 2009)

REGIONAL ECOSYSTEM		RVATION ATUS	AREA
REGIONAL ECOSTSTEIN	VM ACT <sup>51</sup>	BD <sup>52</sup>	(ha)
12.1.1 - Casuarina glauca open forest on margins of marine clay plains	ОС	Е	8.9
12.1.2 - Saltpan vegetation including grassland, herbland and sedgeland on marine clay plains	NC	NC	64.06
12.1.3 - Mangrove shrubland to low closed forest on marine clay plains and estuaries	NC	NC	12.29
12.3.3 - Eucalyptus tereticornis woodland to open forest on alluvial plains	Е	Е	276.23
12.3.7 - Eucalyptus tereticornis, Melaleuca viminalis, Casuarina cunninghamiana fringing forest.	NC	NC	210.48
12.3.11 - E. tereticornis, Eucalyptus siderophloia, Corymbia intermedia open forest on alluvial plains near coast	ОС	OC	180.12
12.11.4 - Semi-evergreen vine thicket on metamorphics ± interbedded volcanics	ОС	ОС	1.16
12.11.6 - Corymbia citriodora, Eucalyptus crebra open forest on metamorphics ± interbeddedvolcanics	NC	NC	1,980.37

<sup>&</sup>lt;sup>49</sup> Based on DEHP certified RE mapping (Version 5; GHD, 2009)

<sup>&</sup>lt;sup>50</sup> Based on DEHP certified RE mapping (version 5) (GHD, 2009)

<sup>&</sup>lt;sup>51</sup> Vegetation Management Act 1999 Status: Endangered (E), Of Concern (OC), Not of Concern (NC)

<sup>&</sup>lt;sup>52</sup> Biodiversity Status: (Endangered (E), Of Concern (OC), No Concern at Present (NC)

REGIONAL ECOSYSTEM		CONSERVATION STATUS			
REGIONAL ECOSTSTEIN	VM ACT <sup>51</sup>	BD <sup>52</sup>	(ha)		
12.11.14 - Eucalyptus crebra, E. tereticornis woodland on metamorphics ± interbedded volcanics	ОС	ОС	172.19		
12.11.20 - Corymbia intermedia, Lophostemon suaveolens woodland on metamorphics ± interbedded volcanics	ОС	ОС	599.96		
12.11.21 - Allocasuarina luehmannii, Melaleuca nervosa woodland on metamorphics ± interbedded volcanics	ОС	ОС	861.53		
12.12.19 - Vegetation complex of rocky headlands on Mesozoic to Proterozoic igneous rocks.	ОС	ОС	132.81		
Non-remnant	NA	NA	64.75		

The CIEMP also contains potential habitat for vulnerable and near threatened species under the EPBC Act and/or the NC Act including the koala (Phascolarctos cinereus), glossy black cockatoo (Calyptorhynchus lathami), powerful owl (Ninox strenua), beach stone curlew (Esacus magnirostris) and the sooty oyster catcher (Haematopus fuliginosus).

Based on water mouse habitat modelling developed by the proponents, the CIEMP provides 1,400 ha of habitat for the water mouse consisting of REs 12.1.1, 12.1.2 and 12.1.3 (Table 15; Figure 4). These REs, situated on marine plains and intertidal areas of the CIEMP, are considered important habitat for the water mouse (Xeromys myoides) as they provide nesting opportunities and foraging grounds associated with high abundances of food sources (QGC 2013b).

Table 15: Water mouse habitat within the CIEMP and surrounding intertidal areas

HABITAT	MANAGEMENT AREA (ha)	CONSERVATION PARK (ha)	NATIONAL PARK (ha)
Core	0.00	0.00	8.71
Essential	540.72	610.98	276.80
General	0.00	0.00	0.00
Total)	540.72	610.98	285.51

Topography varies from the Ramsay Ranges on the western boundary of the CIEMP to the low lying areas adjacent to the coastal flats. The Ramsay Ranges and the cliffs along the eastern boundary of the CIEMP are considered the most significant landscape features. Soils of the CIEMP are generally shallow, acid yellow - mottled duplex soils derived from the metasediments of the Wandilla and Shoalwater formations. There are no permanent freshwater streams in the CIEMP, but there are numerous ephemeral drainage lines, falling into Port Curtis Bay or Graham Creek.

Cattle grazing, inappropriate fire regimes, feral species, weeds and recreational activities were considered to be the main threatening processes to the natural values within the CIEMP (GHD 2009). Cattle grazing has now ceased and the area is now being managed for conservation purposes.

#### 8.4 Habitat values of surrounding intertidal zones

Cadastral boundaries associated with the lots that make up the Proposal all stop at the highest astronomical tide point (HAT); however, there are significant areas of intertidal habitat that exist below HAT which are shown in Queensland Government RE mapping (Figure 8).

Intertidal zones within Curtis Island are of significant environmental value as they provide habitat for a range of threatened species, in particular the water mouse (Xeromys myoides) and yellow chat (Epthianura crocea macgregori) (Table 16). Marine offset values located within intertidal areas cannot normally be directly secured and protected under land tenure as intertidal areas below HAT are considered Crown Land owned by the Queensland Government.

Water mouse habitat modelling identified over 6,390 ha of water mouse habitat within intertidal areas adjacent to the Monte Christo property, CIEMP, and Curtis Island Conservation Park and State Forest (Figure 8). The majority of intertidal areas are directly affected by surrounding land uses and management regimes of the Monte Christo property, CIEMP and the Curtis Island Conservation Park and State Forest. Most intertidal areas are not fenced therefore access by livestock and other pest animals is unrestricted. Ecological surveys of the Monte Christo property concluded that unrestricted and ongoing grazing activities over the property will continue to have detrimental impacts on the ecological condition of marine plains if intervention strategies are not implemented (QGC 2013a). Livestock grazing and feral pigs within intertidal areas have the potential to degrade nesting and foraging habitat for threatened fauna species through trampling and/or digging of vegetation. Significant reductions in feral pig numbers will also have significant positive impacts on turtles by reducing egg predation as the majority of known nesting sites are located in south-eastern corner of Curtis Island.

Feral animal control has been undertaken by DNPRSR across Curtis Island in recent years; however, increased feral animal control will be beneficial to threatened fauna species such as water mouse and yellow chat that are particularly vulnerable to predation by feral dogs and foxes (SEWPaC 2013a and 2013b).

Delivery of the Proposal will result in the protection of intertidal areas around the Monte Christo property, Curtis Island Conservation Park and State Forest and CIEMP, through the implementation of appropriate land management practices and the removal of grazing leases over adjoining land parcels.

The LNG proponents recognise that intertidal lands without tenure cannot be acquired and therefore cannot be secured under traditional tenure protection arrangements like a national park declaration; however, the LNG Proponents have taken every step possible to ensure those non-tenured intertidal areas that directly adjoin and surround the Proposal are appropriately managed through the protection and declaration of the adjoining tenured lands as national park or conservation park. The appropriate and sympathetic management of these protected areas will extend protection and benefit to those non-tenured intertidal lands that they border.

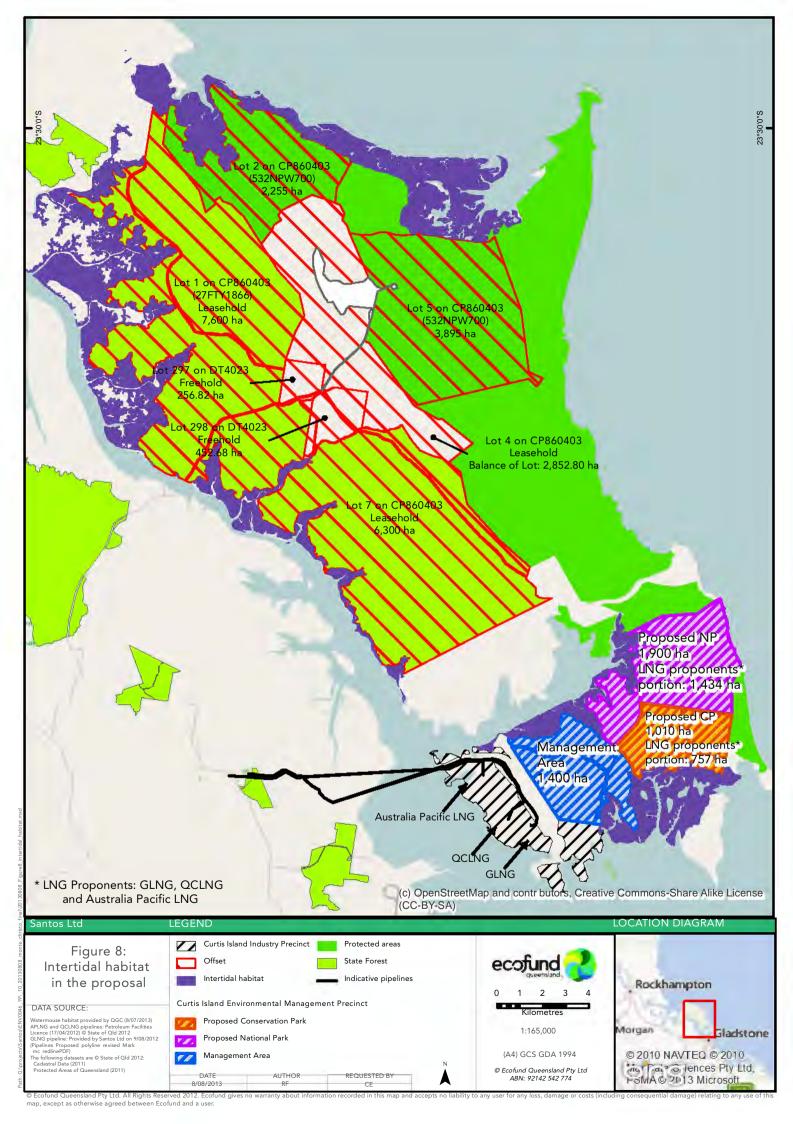
Table 16: Threatened species habitat – intertidal zones

SPECIES	CONSERVATION STATUS		SUITABLE REGIONAL	POTENTIAL HABITAT –	POTENTIAL HABITAT –	TOTAL
SPECIES	NC ACT <sup>53</sup>	EPBC ACT <sup>54</sup>	PRESENT (RE)  MONTE CHRISTO (ha)		CIEMP (ha)	(ha)
Beach stone curlew (Esacus magnirostris)	V		12.1.1 12.1.2 12.1.3	1,999.53	1,983.55	3,983.08
Sooty oyster catcher (Haematopus fuliginosus)	NT	-	12.1.1 12.1.2 12.1.3	1,999.53	1,983.55	3,983.08
Yellow chat (Dawson) Epthianura crocea macgregori	Е	CE	12.1.1 12.1.2 12.1.3	1,999.53	1,983.55	3,983.08
Water mouse (Xeromys myoides)	V	V	12.1.1 12.1.2 12.1.3 12.2.11* 12.2.15 <sup>0</sup> 12.3.5	5,026.97	1,364.78	6,391.75
Eastern curlew (Numenius madagascariens is)	NT	-	12.1.1 12.1.2 12.1.3	1,999.53	1,983.55	3,983.08
Migratory shorebirds (whimbrel, red- necked stint)	-	Migratory	12.1.1 12.1.2 12.1.3	1,999.53	1,983.55	3,983.08

<sup>\*</sup> RE present in intertidal area around Monte Christo only.

RE present in intertidal area around CIEMP only.

<sup>53</sup> NC Act: Vulnerable (V), Near threatened (NT) 54 EPBC Act: Critically Endangered (CE), Vulnerable (V), Migratory



### OFFSET VALUES OF THE PROPOSAL

#### 9.1 Overview

The delivery of the Proposal will more than compensate for impacts related to the LNG plants and marine facilities on Curtis Island, the respective GTP ROWs on Curtis Island, and the GTP marine crossings across the Kangaroo Island Wetlands and the Narrows. Offset requirements for a range of environmental values in relation to policies and regulation at both the Queensland and Australian Government levels can be addressed by the removal of threatening processes, ongoing management for conservation purposes and protection in perpetuity including:

- World and National Heritage values of the Great Barrier Reef
- critically endangered, endangered and of concern REs
- essential habitat for threatened fauna
- habitat for threatened fauna species
- habitat for migratory shorebird species
- marine fish habitat
- Great Barrier Reef wetlands.

The results of ecological equivalence assessments confirm that the property is of significant conservation value and is more than equivalent to the areas cleared as part of the development of the three LNG projects on the south-west corner of Curtis Island and related infrastructure on the mainland. The delivery of the Proposal also provides important linkages between Curtis Island National Park, Curtis Island Conservation Park and Curtis Island State Forest and allows for integrated island-wide conservation management. Through the establishment of an integrated island-wide management program, management issues identified by DEHP will be addressed and associated management costs will be reduced. For example, issues around boundary maintenance will be removed including inappropriate fire regimes for hazard reduction, boundary fencing establishment and maintenance, ongoing control of pest plants and fire encroachment, ongoing provision of roads through estate for private property access (DEHP 2012).

In addition to the removal of grazing rights and reduction in development rights over the Monte Christo property, its acquisition will also provide the following substantial offsets by removal of threatening processes over the Curtis Island Conservation Park and State Forest in the form of removal of:

- the tourism and grazing lease over 2,257 ha of the Curtis Island Conservation Park (Lot 2 CP860403 also known as Lot 532 NPW700). The lease will be surrendered, cattle removed from the land and its protection upgraded as part of the Proposal from conservation park to national park under the NC Act
- cattle grazing from 3,895 ha of the Curtis Island Conservation Park (Lot 5 CP860403 also known as Lot 532 NPW700). It is also proposed that the management plan for this area be amended to prohibit cattle grazing and allow only low impact horseback riding and four wheel driving on existing tracks.
- grazing over 13,900 ha of the Curtis Island State Forest (Lot 27 FTY1866 also known as Lots 1 and 7 CP860403).

Current grazing practices within the Curtis Island Conservation Park and State Forest represent a significant risk to the threatened and sensitive ecological values of these areas and to the surrounding waterways of the Great Barrier Reef. In particular, the saltwater couch and marine plains areas of the Curtis Island Conservation Park are currently experiencing significant impacts from grazing (Kershaw (DNPRSR) 2012 pers. comm. 16 July 2012). These impacts include soil compaction, impacts on saltwater couch, reduction of reed beds, biodiversity and habitat loss and increased sedimentation and nutrient loads into the Great Barrier Reef.

The removal of grazing from protected areas is an offset measure that is consistent with Queensland and Australian Government offset polices as it removes a significant threatening process and offers the potential to restore and enhance the ecological function of area. Establishing land management practices with a focus on conservation, as outlined in Section 10 and Appendix B, will result in significant improvements to the biodiversity values of both the terrestrial and marine areas. Removing domestic cattle from these areas will also:

- restore natural competition and lifecycle dynamics and make available more resources otherwise consumed by domestic stock
- eliminate nutrient, sediment, erosion and compaction risks within the Conservation Park associated with and generated by domestic stock
- decrease the risk of continued invasion of pest plants and animals within the Conservation Park and adjoining areas.
- eliminate the risk of domestic or feral stock from entering the adjacent national park.

The removal of cattle grazing rights from Lots 2 and 5 CP860403, through the proponents' purchase of Monte Christo, will enable the Queensland Government to proceed with proposals to declare Lot 2 CP860403 as national park which would otherwise be virtually impossible. The Queensland Government has recently indicated that they are preparing the necessary documentation to formalise this declaration proposal. The above actions together with the surrender and/or transfer of the Monte Christo property will enable the Queensland Government to facilitate an enhanced and coordinated island-wide conservation management regime over a range of protected area and state forest tenures.

# 9.2 Summary of offset acquittal

The Proposal will acquit environmental offset requirements for all Queensland and Australian Government approvals of the LNG plants and marine facilities on Curtis Island, the respective GTP ROWs on Curtis Island, the GTP marine crossings of the Kangaroo Island Wetlands and The Narrows. The Monte Christo Offset proposal contains sufficient capacity to address additional offset requirements for the LNG proponents, particularly those relating to the mainland gas transmission pipelines; however, this will be subject to further consultation and approval from both Queensland and Australian Governments.

Table 17 summarises the offset requirements that can be acquitted by the Proposal. It also outlines the remaining balance of offset areas for each environmental value. For environmental values where positive offset balances are noted, the proponents propose to draw down on these to acquit future offset requirements under approvals related to the projects that are yet to be granted.

Table 17: Summary of offset requirements that can be acquitted by the Monte Christo Offset Proposal

		MONTE CHRIST		ENVIRONMENTAL VALUES		CIEMF	<b>5</b> 55				SET	
ENVIRONMENTAL VALUE	OFFSET REQUIREMENTS (ha)	BALANCE OF LOT 4 (ha)	LOT 297 (ha)	LOT 298 (ha)	CONSERVATION PARK & STATE FOREST <sup>56</sup> (ha)	INTERTIDAL HABITAT (ha)	CONSERVATION PARK & NATIONAL PARK (ha)	INTERTIDAL HABITAT (ha)	TOTAL (ha)	OFFSET BALANCE (ha)	QLD	AUST
World Heritage	3,818.42	2,852.60	256.82	452.68	20,052.00	-	2,191.50	-	25,805.60	21,984.18	NA	Yes
Marine and fisheries (mangroves, saltpan, seagrass and bare substrate)	198.87	310.86		0.79	2,450.00	1,999.53	45.20	1,487.66	6,294.04	6,095.17	Yes	NA
Water mouse	45.00	502.54	-		3,167.08	5026.97	54.32	1023.59	9774.50	9729.50	Yes	Yes
(Xeromys myoides)			-	0.70							Yes	Vaa
Shorebirds Koala	130.24	310.86		0.79	2,450.00	1,999.53	45.20	1,487.66	6,294.01	6163.80	res	Yes
(Phascolarctos cinereus)	140.15	982.53	74.75	140.06	2,500.00	-	377.50	-	4,074.84	3,934.69	Yes	Yes
Glossy black- cockatoo (Calyptorhynchus lathami)	486.53	2,486.38	237.07	452.2	8,000.00		1,609.97	1	12,785.62	12,299.09	Yes	NA
Powerful owl (Ninox strenua)	486.53	2,361.30	237.07	423.65	6,400.00	-	967.92	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	10,389.94	9,903.41	Yes	NA
Beach stone curlew (Esacus magnirostris)	1				Included above	in shorebirds					Yes	Yes
Sooty oystercatcher (Haematopus fuliginosus)					Included above	in shorebirds					Yes	NA
Tusked frog (Adelotus brevis)	60.00	533.24	36.59	70.56	2,70	0.00 -	1,045.97	-	4,386.36	4,326.36	Yes	NA
Eastern curlew (Numenius madagascariensis)					Included above	in shorebirds					Yes	Yes
Coastal sheathtail bat (Taphozous australis)	116.60	699.34	16.85	44.42	4,67	0.00	416.19		5,846.80	5,730.20	Yes	NA
Essential Habitat for the koala					Included abo	ve in koala					Yes	NA
Essential Habitat for the coastal sheathtail bat					ncluded above in coa	astal sheathtail l	oat				Yes	NA

<sup>55</sup> Conservation park: Lots 1SP224898 and 6SP239340; national park: 7SP239340. The area presented is only 75% of the available area in the CIEMP as this is all that can be used by the proponents, see Section 8.3. 56 Lots 532NPW700, 7CP860403 and 27FTY1866.

			MONTE CHRISTO	) ENVIRONMEN	TAL VALUES		CIEMF	<b>&gt;</b> 55			OFFSET ACQUITTED	
ENVIRONMENTAL VALUE	OFFSET REQUIREMENTS (ha)	BALANCE OF LOT 4 (ha)	LOT 297 (ha)	LOT 298 (ha)	CONSERVATION PARK & STATE FOREST <sup>56</sup> (ha)	INTERTIDAL HABITAT (ha)	CONSERVATION PARK & NATIONAL PARK (ha)	INTERTIDAL HABITAT (ha)	TOTAL (ha)	OFFSET BALANCE (ha)	QLD	AUST
Black-breasted			-1					-1				-
button- quail (Turnix melanogaster)	18.96	2,177.65	245.57	419.21	12,394.04	-	945.23	-	19,102.11	19,029.87	Yes	Yes
Red goshawk (Erythrotriorchis radiatus)	72.24	2,486.38	237.07	452.20	13,865.62	-	2,060.85	-	25,813.03	25,580.79	Yes	Yes
Rainbow bee-eater (Merops ornatus) White-bellied sea-	232.24	2,852.60	256.82	452.69	20,052.00	-	2,198.93	-	25,797.93	25565.69	NA	Yes
eagle (Haliaeetus leucogaster)	26.32	388.48	16.85	44.12	1,700.35	-	377.50	-	2,527.30	2500.98	NA	Yes
Little tern (Sternula albifrons)					Included above	in shorebirds					Yes	Yes
Caspian tern (Sterna caspia)					Included above	in shorebirds	-				NA	Yes
Squatter pigeon (Geohaps scripta scritpa)	201.12	2,541.74	256.82	451.89	17,593.06	-	2,153.73	-	22,997.24	22,796.12	Yes	Yes
Cattle egret (Ardea ibis)	0.72	388.48	16.85	44.12	1,700.35	_	377.50	-	2,527.30	2,526.58	NA	Yes
Great egret (Ardea modesta)	32.24	388.48	16.85	44.12	1,700.35	-	377.50	-	2,527.30	2,495.06	NA	Yes
Migratory woodland species Black-faced monarch (Monarcha melanopsis) Spectacled monarch (Monarcha trivirgatus) Satin flycatcher (Myiagra cyanoleuca) Rufous fantail (Rhipidura rufifrons) Oriental cuckoo (Cuculus optatus) Dollarbird (Eurystomus orientalis)	99.12	2,541.74	256.82	451.89	17,593.06	_	2,153.73	-	22,997.24	22,898.12	NA	Yes

			MONTE CHRISTO	O ENVIRONMEN	TAL VALUES		СІЕМЯ	<b>5</b> 55			OFF ACQU	SET
ENVIRONMENTAL VALUE	OFFSET REQUIREMENTS (ha)	BALANCE OF LOT 4 (ha)	LOT 297 (ha)	LOT 298 (ha)	CONSERVATION PARK & STATE FOREST <sup>56</sup> (ha)	INTERTIDAL HABITAT (ha)	CONSERVATION PARK & NATIONAL PARK (ha)	INTERTIDAL HABITAT (ha)	TOTAL (ha)	OFFSET BALANCE (ha)	QLD	AUST
Eastern osprey (Pandion haliaetus)	0.72	388.48	16.85	44.12	1,700.35	-	377.50	-	2,527.30	2,526.58	NA	Yes
Australian painted snipe (Rostratula australis)	0.72	388.48	16.85	44.12	1,700.35	_	377.50	-	2,527.30	2,526.58	Yes	Yes
Endangered RE 12.3.3	85.37	83.83	11.80	27.74	426	-	165.28	-	714.65	629.28	Yes	NA
Of concern RE 12.3.11	64.97	15.93	-	4.47	220.00	-	118.78	-	359.18	294.21	Yes	NA
Of concern RE 12.11.14	146.94	76.39	11.24	2.11	600.00	-	31.46		721.20	574.26	Yes	NA
Of concern RE 12.2.2	-	12.88	-	_	88.73	-	-	-	101.61	101.61	NA	NA
Of concern RE 12.11.21	-	101.55	-	26.44	83.76	_	633.28	-	845.03	845.03	NA	NA
Least concern RE 12.2.11	1-	2.77	-	-	631.16	-	-	-	633.93	633.93	NA	NA
Least concern RE 12.3.5	-	197.97	-	-	284.2	-	-	1-	482.17	482.17	NA	NA
Least concern RE 12.3.7	-	78.09	3.47	11.34	696.26	-	93.44	1-	882.60	882.60	NA	NA
Least concern RE 12.11.4	-	43.22	19.74	-	372.12	-	-	-	435.08	435.08	NA	NA
Least concern RE 12.11.6	-	1,127.26	143.38	283.29	10,198.64	_	561.49	-	12,314.06	12,314.06	NA	NA
Least concern RE 12.11.7	-	0.82	-	-	756.66	-	_	-	757.48	757.48	NA	NA
Least concern RE 12.11.18	1-	804.67	11.99	95.94	1,126.22	-	-	-	2,038.82	2,038.82	NA	NA
Coastal vine thicket	-	12.88	-	-	88.73	-	-	-	101.61	101.61	NA	NA

#### 10 OFFSET MANAGEMENT

# 10.1 Management intention

The acquisition of the Monte Christo property will assist with the establishment of a wholeof-island management approach to improve management outcomes across Curtis Island. Once the Monte Christo property is secured the LNG proponents propose to directly surrender control of the Monte Christo property to the Queensland Government, including tenures and subsequent active management. Once the tenures of the Monte Christo property are declared protected areas by the Queensland Government, DNPRSR will be responsible for the management of the lands under direction from the Queensland Government.

# 10.2 Management concerns

The LNG proponents have developed an Interim OAMP for the Monte Christo property that details the suggested management measures recommended to minimise the risks associated with threatening processes identified and ensure environmental values are enhanced and maintained (Appendix B). The OAMP is intended to be used by the Queensland Government to integrate its management principles into the current draft DNPRSR service statement of island-wide management intent for the Curtis Island protected areas and forests. The DNPRSR management framework will also incorporate management plans, as required, for each new protected area under the NC Act and plans for threatened fauna species that are present or contain potential habitat within the Monte Christo property.

Table 18 outlines the threatening processes and associated management actions recommended for the Monte Christo property.

Table 18: Threatening processes and associated management actions

THREATENING PROCESS	SPECIFIC DETAILS	MANAGEMENT OBJECTIVES/ACTIONS
Agricultural infrastructure	Fuel storage facility of three tanks and a number of empty drums Unnecessary fencing	Address contamination issues and remove dangerous fencing that is not required
Pest plants	Pest plants are present only as isolated occurrences, particularly in coastal alluvium and creek flats ecosystems	Minimise the introduction, establishment and spread of non- native pest plants and control of non-native pest plants
Pest animals	Feral animals, particularly pigs and cattle, are a management concern on the Monte Christo property	Control pest animals
Fire Wildfire, inappropriate fire frequency	Fire is an essential factor in managing the environmental values of the Monte Christo property and has been used regularly to promote productivity in forest and woodland ecosystems	Develop and implement an appropriate fire management strategy
Grazing by stock potentially impacts on habitat quality and regeneration processes	The Monte Christo property will be destocked within a 3 month time period once the property is secured, in accordance with the lease surrender arrangement agreed upon. Cleared land will be allowed to naturally revegetate through the availability of seed sources in neighbouring forested areas. Regeneration will be promoted through the exclusion of cattle, appropriate fire regimes, and the control of pest plants.	Biological diversity and integrity is enhanced and conserved
Grazing cattle	The Monte Christo property will be destocked within a 3 month time period once the property is secured in accordance with the lease surrender arrangement agreed upon.  There are approximately 1,500 head of cattle are grazing Monte Christo and the marine plain area of neighbouring Conservation Park.	Exclude from the Monte Christo property

### 10.3 Management funding

The LNG proponents will fund the offset management program for the Monte Christo property via the combined financial contributions arising from the LNG proponents EMPCM Deed; however control over the tenures and subsequent management of the lease and freehold land will be the responsibility of the Queensland Government.

The LNG proponents propose to contribute a total of \$616,340 from the EMPCM Deed phased over five years as an upfront payment to fund management of the Monte Christo property (Table 19). Subsequently the combined financial contributions arising from the LNG proponents EMPCM Deeds will continue to be used to supplement the Queensland Government's island-wide conservation management program for Curtis Island, which would incorporate the newly acquired Monte Christo property (see Section 8.3). The acquisition of the Monte Christo property will assist with the establishment of a whole-ofisland management approach to improve management outcomes and reduce management costs across the island.

# 10.3.1 Management costing

The LNG proponents ongoing funding for the management of the Monte Christo Offset Proposal will ensure that ecological values of the Monte Christo property are enhanced and maintained. As noted in Section 8, while the Monte Christo property (Lots 4, 297 and 298) contains extensive areas of eucalypt woodlands, the sensitive marine plains are unique to Lot 4. Condition assessments undertaken at Monte Christo have identified that the property is in good condition with the exception of marine plain areas (QGC 2013a).

Accordingly, management costs have been derived based on information provided by DNPRSR regarding the management of Lot 4 CP860403 as outlined in Table 19 (Kershaw (DNPRSR) 2012 pers. comm. 22 June). These costs account for management of degraded areas such as marine plains (i.e. more intensive management). Consequently, this provides a sound basis from which to estimate the management costs for Lots 297 and 298 which are in a better condition than Lot 4. Across the 2,852.60 ha offset area on Lot 4 this equates to a per hectare management cost of approximately \$89/ha in the first year. Applying this per hectare value to Lots 297 and 298 DT4023 (709.50 ha) equates to an annual management cost of approximately \$63,111. This approach acknowledges that the management requirements of the Monte Christo property are dictated by the condition of the environment rather than cadastral boundaries.

Table 19: Summary of estimated management costs for year one of lot 4 CP860403

ACTIVITY	COST
General site management (fences, access tracks, firebreaks)	\$50,000
Utility services	\$50,000
Rehabilitation	\$30,000
Fire management	\$15,000
Weed/Pest management (pigs, declared weeds, stock fencing)	\$60,000
Annual monitoring and reporting	\$50,000
Total	\$255,000

Table 20 provides a summary of the management costs for the Monte Christo property for the first five years. The initial five year management period will begin once the Monte Christo property is declared a protected area and transferred to the Queensland Government. Land contamination issues are not included in these costs; however any land contamination and decommissioning requirements will be negotiated with the Queensland Government prior to surrender.

Table 20: Summary of estimated management costs of the Monte Christo property

YEAR	4 CP860403	297 AND 298 DT4023	TOTAL
1	\$255,000	\$63,111	\$318,111
2	\$127,500	\$31,555	\$159,055
3	\$63,750	\$15,778	\$79,528
4	\$31,875	\$7,889	\$39,764
5	\$15,938	\$3,944	\$19,882
Total	\$494,063	\$122,277	\$616,340

# 10.4 Reserve for Strategic Land Management and eco-tourism precinct

# 10.4.1 Eco-tourism precinct

The Put and Call Option Agreement entered into between the Monte Christo landholder and the LNG proponents to secure the Monte Christo property and associated grazing rights hinges on the retention of the Retained Area, an area of approximately 308 ha<sup>57</sup> within Lot 4 CP860403 (Figure 3). The primary purpose of the Retained Area will not change from the current purpose of Lot 4 CP860403 as it will be retained by the lessee after the bulk of Lot 4 CP860403 is surrendered to the Queensland Government.

This will result in the existing eco-tourism development rights in Lot 4 CP860403 being limited to the Retained Area only. The Retained Area lease conditions only allow for low impact eco-tourism activities, including low impact horseback riding (trail rides) and four wheel driving on existing tracks. The activities will be confined to the Retained Area of Lot 4 and the adjoining Lot 5 CP860403. These low impact activities are consistent with the management principles for conservation parks as outlined under NC Act. These activities are recognised in the approved management plans for these protected areas prepared by the DNPRSR.

# 10.4.2 Reserve for Strategic Land Management

The Queensland Government through the Department of Agriculture, Forestry and Fisheries (DAFF) has declared its intention to establish a 200 ha area of Lot 4 CP80403 as a future Reserve for Strategic Land Management (RSLM) for guarry and gravel extraction (Barry Broe Coordinator-General pers comm. 5 November 2012; Appendix D). The RSLM will be formalised at some stage after the land is surrendered to the government. The activities involving the extraction of quarry and gravel within the RSLM will be subject to a separate approval processes and is not related to the LNG proponents' intention to secure the lands that form part of this Proposal. The RSLM will not form part of the future offsets that are being secured by the LNG proponents. To minimise impacts to the surrounding future protected area estate, DAFF has indicated that the RSLM would also include a buffer zone within the 200 ha lot that would minimise potential impacts to the adjacent protected area estate. Should the Queensland Government not pursue its intention to establish the RSLM, the subject land could be resumed into the adjoining protected area estate.

<sup>&</sup>lt;sup>57</sup> Surveys to determine the actual extent of the Retained Area are currently being undertaken in accordance with the Put and Call Option. The final size of the Retained Area will be provided to the Government upon completion of the surveys.

#### 11 PROPOSED OFFSET SECURITY

# 11.1 Securing mechanisms

It is proposed, subject to agreement by all parties, that:

- The majority (approximately 90%) of lot 4 CP860403 (2,852.60 ha) and lots 297 and 298 DT4023 (709.50 ha), upon surrender and transfer to the Queensland Government, will be protected and managed as conservation park according to the management principles prescribed for the area under the NC Act. The purchase of Lot 4 CP860403 will result in the relinquishment of the current grazing lease that commenced 26 November 1999 for a 75 year period and is due to expire 25 November 2074. Under the current lease renewal process, the Queensland Government would not be able to realise future conservation area outcomes until after the term of the subsequent lease renewal approximately 136 years from now.
- Lot 2 CP860403 (2,257 ha), also known as lot 532 NPW700, will be upgraded from conservation park to national park following surrender of 75 year grazing lease over Lot 2 CP860403 which would otherwise not have expired until 30 June 2078. Consequently, the Proposal generates a conservation outcome at least 65 years earlier than would otherwise be available.
- Lot 27 FTY1866 (13,900 ha), also known as lots 1 and 7 CP860403, will be retained as a State Forest and will continue to be managed as tenure under the Forestry Act 1969. DAFF currently has a management regime in place for these lands that ultimately aims to sustainably manage the areas natural resources. The Queensland Government may at a later date, transition this land to a future protected tenure under the NC Act.
- Parts of the CIEMP will be declared protected area under the NC Act: national park 1,912 ha and conservation park 1,010 ha. The Queensland Government has indicated that these lands be declared protected tenures in the third quarter of 2013.

Following transfer to protected area tenure under the NC Act the above areas will be managed by the Queensland Government for the permanent preservation of the area's natural condition and the protection of the area's cultural resources and values.

Discussions with the Queensland Government indicate that the Monte Christo offset property (and the future protected area estate) will be integrated into the overall management of the protected area estate on Curtis Island (Damien Head 2013 pers. comm. 13 May). As described in Section 8.3, the LNG proponents' funding contributions for the CIEMP which is currently approved for \$34.5 million for long term management for the first 25 years could be used for these purposes.

# 11.2 Monitoring and reporting

Monitoring of the Monte Christo property will be undertaken according to the declared management intent prescribed by DNPRSR. Monitoring is to be conducted in a way that assess the ecological changes of the property and assess the progress towards achieving the management objectives as per DNPRSR's whole-of island management approach.

Once the Monte Christo property has been surrendered and transferred to the Queensland Government the proponents will provide annual updates to SEWPaC and the QLD CG. This will be based on monitoring and reporting on the progress of the offset undertaken by DNPRSR for the whole of island management, including the Monte Christo Property, as per the requirements of the NC Act.

#### 12 IMPLEMENTATION SCHEDULE

The proposed implementation schedule for the Proposal is provided below in Table 21. The schedule is reliant on timely responses from the Queensland Government and approval of the final Proposal by SEWPaC.

Table 21: Implementation schedule

DATE	ACTION	OBJECTIVE
DATE	ACTION	Secure option to purchase
16 October 2012	Option Agreement for purchase of Monte Christo property NOW COMPLETE	Monte Christo property pending approval of Monte Christo Offset Proposal by both Queensland and Australian governments.
5 November 2012	Approval of the Monte Christo Offset Proposal by QLD Government (Appendix D) NOW COMPLETE	Approval of the Monte Christo Offset Proposal by QLD Government
12 July 2013	In principle approval of Monte Christo Offset Proposal by SEWPaC ( <b>Appendix D</b> ) <b>NOW COMPLETE</b>	In principle approval of Monte Christo Offset Proposal by SEWPaC
31 August 2013	Approval of Monte Christo Offset Proposal under EPBC Approval Conditions.	Approval of the Monte Christo Offset Proposal to enable implementation to proceed.
8 August 2013	Preparation of Monte Christo Offset Area Management Plan. NOW COMPLETE	Property management.
16 October 2013	Put and Option required to be exercised by the LNG proponents.	Purchase of Monte Christo property to implement the Proposal.
23 October 2013	Surrender of grazing leases over Monte Christo property to the Queensland Government. Progressive destocking program implemented.	Removal of grazing from the Monte Christo property.
To be confirmed by the Queensland Government	Amendment to Term Lease over Lot 5 CP860403 Conservation Park to remove cattle grazing as an approved land use. Progressive destocking program implemented.	Removal of grazing pressure from the Conservation Park by the proposed amendments to the lease over Lot 5 CP860403.
To be confirmed by the Queensland Government	Gazettal of Lots 297, 298 DT4023 and Lot 4 CP860403 as a Conservation Park.	Protection of lots in perpetuity under the NC Act.
To be confirmed by the Queensland Government	Gazettal of Lot 2 CP860403 and 1,912 ha CIEMP area as a National Park. Gazettal of 1,010 ha CIEMP area as Conservation Park.	Protection of lots in perpetuity under the NC Act.

#### 13 **CONCLUSION**

The LNG proponents propose to collaboratively deliver the Monte Christo Offset Proposal to acquit environmental offset requirements of the LNG plants and marine facilities on Curtis Island, the respective GTP ROWs on Curtis Island, the GTP marine crossings of the Kangaroo Island Wetlands and The Narrows crossing.

The impacts associated with the above projects components include:

- threatened regional ecosystems
- known habitat for listed threatened fauna
- marine plants and fisheries habitat
- World Heritage and National Heritage values.

The Proposal offers the conservation of more than 25,700 ha of bio-diverse rich land for offsets that will be protected into perpetuity through a combination of removal of threatening processes, enabling of recognised protection tenures and the ongoing management of the area for conservation purposes. In addition, a total of 2,191 ha of World Heritage area offset requirements will be acquitted through the proposed CIEMP declarations of land for future national park and conservation parks.

The delivery of the Proposal will permanently protect and enhance: World and National Heritage values of the Great Barrier Reef; natural connectivity in the landscape; endangered and of concern regional ecosystems; habitat for threatened fauna species; significant marine and fish habitat areas; migratory shorebird habitat and declared wetlands.

The Proposal highlights the capacity for the LNG proponents and offset regulators to work together to deliver significant environmental outcomes. These outcomes will ensure that impacts are not only addressed but will also provide for offset solutions that 'go beyond' just meeting policy requirements. By doing so, offsets can be used to address higher level policy objectives such as the Australian Government's goal of increasing the size of the National Reserve System to 125 million ha by 2013 and contribute to the perpetual protection and enhancement of the World Heritage values of the Great Barrier Reef.

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# APPENDIX A: EPBC ACT APPROVAL CONDITIONS

- 1) GLNG LNG Facility EPBC Act approval 2008/4057
- 2) GLNG GTP EPBC Act approval 2008/4096
- 3) GLNG Marine Facilities EPBC Act approval 2008/4058;
- 4) Australia Pacific LNG LNG Facility EPBC Act approval 2009/4997
- 5) Australia Pacific LNG GTP EPBC Act approval 2009/4976
- 6) QCLNG LNG Facility EPBC Act approval 2008/4402
- 7) QCLNG GTP EPBC Act approval 2008/4399



Annexal

# **Approval**

Development of a Natural Gas Liquefaction Park associated with the Gladstone LNG Project – EPBC No 2008/4057

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

person to whom the approval is granted	Santos Limited and PETRONAS Australia Pty Limited
proponent's ABN/ACN (if applicable)	Santos Limited ABN 80 007 550 923 PETRONAS Australia Pty Limited ACN 064 998 867
proposed action	The proposal concerns the development, construction, operation and decommissioning of a multi-train liquefied natural gas (LNG) processing facility (the LNG Facility) and associated onshore facilities within the Curtis Island Industry Precinct of the Gladstone State Development Area:  • as described in the proponent's referral received under the EPBC Act on 28 February 2008; and  • as described in the proponent's Environmental Impact Statement and Supplementary Environmental Impact Statement.
decision	To approve the proposed action for each of the following controlling provisions:
	<ul> <li>World Heritage properties (sections 12 and 15A, EPBC Act)</li> </ul>
	<ul> <li>National Heritage Places (sections 15B and 15C, EPBC Act)</li> </ul>
	<ul> <li>Listed threatened species and communities (sections 18 and 18A, EPBC Act)</li> </ul>
	<ul> <li>Listed migratory species (sections 20 and 20A, EPBC Act)</li> </ul>
conditions of approval	This approval is subject to the conditions specified below.
expiry date of approval	This approval has effect until 31 October 2060.
name and position	The Hon Tony Burke MP Minister for Sustainability, Environment, Water, Population and Communities
signature	Jony Burko
date of decision	() 22.10.10

# **Conditions**

### LNG Facility site

1. The LNG Facility site is the area outlined on the map at Figure 1.

# Visual impact of construction and operation

- 2. The proponent must minimise the visual impact of the construction and operation of the LNG Facility by:
  - (a) constructing the LNG Facility within the site identified in Figure 1;
  - (b) applying a colour scheme to the LNG Facility and buildings, other than the LNG storage tanks and any necessary corrosion-protected structures and pipe insulation, from the palette of predominant colours found in the locality (Curtis Island) except where to do so would be in contravention of health and safety legislative requirements;
  - (c) ensuring site works minimise tree clearing, with stabilisation and rehabilitation works on disturbed areas fully implemented within twelve months of completing each component of the LNG Facility (the worker accommodation facility and associated infrastructure; LNG storage tanks; and LNG trains and ancillary equipment and infrastructure); and
  - (d) minimising light spill and direct views of lights outside the LNG Facility boundary except where to do so would be in contravention of health and safety legislative requirements.

### Conduct of construction and operation workforce

- 3. The proponent must not bring private motor vehicles onto the LNG site, or private watercraft into waters within 100 metres of the LNG site boundary, except for activities directly relating to pre-clearance surveys, site clearance, and the construction and operation of the LNG facility.
- 4. The proponent must not bring animals and plants (including domestic cats and dogs and other potential pests and weeds), other than for landscaping and rehabilitation purposes onto the LNG site, or on to Curtis Island.
  - Note 1: For clarity, plants that are brought to Curtis Island for landscaping and rehabilitation purposes must be native Australian species sourced from the South Eastern Queensland and/or Brigalow Belt bioregion/s).
- 5. Entry into the Curtis Island Environmental Management Precinct, as identified in <u>Figure 2</u>, must be prohibited for all the proponent's construction workers, construction contractors, and its employees, whilst they are rostered on shifts or accommodated by the proponent on Curtis Island, except with the prior consent in writing of the authority responsible for the management of this Precinct.
- 6. An induction program must be implemented for all the proponent's employees and subcontractors at the time or before they commence work on Curtis Island. The induction program must include:
  - (a) an overview that clearly explains to all the proponent's employees and sub-contractors engaged on the construction and operation of the LNG Facility that they are working in a World Heritage Area and an explanation of the environmental values of the World Heritage Area;

- (b) information on listed species and ecological communities and other native species that are found in the area, and the related responsibilities of the proponent, its employees and subcontractors;
- (c) an explanation of the Rodds Bay Dugong Protection Area, and Great Barrier Reef Marine Park zoning on the eastern side of Curtis Island, Rodds Peninsula and the Capricorn Bunker group, and the responsibilities of the proponent, its employees and subcontractors within and in relation to these areas. This explanation must include the provision of maps depicting the zones, an explanation as to what can and cannot be done in the various zones, and information about how important the terrestrial and marine environments of the Capricorn Bunker group are to conserving biodiversity within the Great Barrier Reef Marine Park; and
- (d) information that fosters a culture of environmental awareness of the values of the area and also raises awareness among all employees and sub-contractors of the compliance and enforcement programs of the Great Barrier Reef Marine Park Authority and penalties that apply for offences.
- 7 The obligations under conditions 3, 4, 5 and 6 must also apply to any visitors to the LNG site, or to Curtis Island, who are under the direction or control of the proponent.
- 8. Within 20 business days of the final investment decision to proceed with the proposed action, the proponent must submit to the Minister for approval:
  - (a) a Curtis Island environment protection code of conduct for the construction workforce while on site and while travelling to and from the mainland and the construction site; and
  - (b) a code of conduct implementation strategy for enforcing compliance with the Curtis Island environment protection code of conduct.
- 9. The code of conduct shall include, but not necessarily be limited to, the requirements set out in conditions 3, 4, 5 and 6
- The approved Curtis Island environment protection code of conduct must be implemented.
- 11. At least 60 business days before the commissioning of the first LNG train, the proponent must review, and if necessary revise, the Curtis Island environment protection code of conduct and implementation strategy and provide the Minister with evidence that this review has been carried out. If the Curtis Island environment protection code of conduct and/or implementation strategy are revised, the revised document or documents must be submitted to the Minister for approval within 20 business days of the review being finalised. Once the Minister has approved in writing the revised code of conduct and/or implementation strategy, the approved code of conduct and/or implementation strategy must be implemented.

#### Offsets

#### Plan to secure and manage environmental offsets

- 12. An Environmental Offsets Plan to offset the loss of habitat and associated World Heritage and National Heritage values caused by the construction and operation of the LNG facility, must be developed.
- 13. The Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:
  - (a) the development and operation of the LNG facility;

- (b) other activities on Curtis Island that are associated with the LNG Facility (including workers' accommodation facilities, port works for the project, and ancillary works); and
- (c) increased risks to biodiversity values of the World Heritage and National Heritage property arising from increased shipping movements and other subsequent or indirect impacts beyond the immediate development site such as water quality impacts and increased recreational access arising from the development and operation of the LNG facility.

#### 14. The Plan must detail:

- (a) the principles adopted in the Plan. These principles must reflect the objective of identifying, protecting, conserving, presenting, transmitting to future generations and, if necessary, rehabilitating, the World Heritage and National Heritage values of the Great Barrier Reef property;
- (b) the predicted total loss (in extent and type) of areas of ecological and aesthetic value, (including remnant vegetation, high value regrowth, significant conservation species, habitat, biodiversity corridors, scenic vistas of outstanding natural beauty);
- (c) the methodology for identifying the requirements for environmental offsets for specific components of the LNG Facility over the life of the project;
- (d) a proposed timeline for implementing the Environmental Offsets Plan;
- (e) relevance to any Commonwealth or State government requirements for offsets;
- (f) in relation to any land retained at the time of preparation of the Plan, the location, size and environmental values of the offsets (land);
- (g) in relation to any land retained at the time of preparation of the Plan, the management measures, including funding, required to secure, maintain and enhance the values of the proposed offset (land); and
- (h) a system for reporting to the Minister on offset arrangements, their management and how offset values are being maintained.

#### 15. The Environmental Offsets Plan must as a minimum include:

- (a) to offset direct impacts, the securing by the proponent of an offset property:
  - (i) that contains attributes or characteristics at least corresponding with those of the LNG facility site; and
  - (ii) at a ratio of no less than 5:1 of the LNG facility site area (that is, a property of at least 1,200 ha in total area);
- (b) a commitment by the proponent must use its best endeavours to secure National Park status for the offset property. At a minimum the proponent must ensure the retention and management for conservation purposes, under a secure permanent land tenure arrangement, of the property.
- (c) to offset indirect impacts, a contribution of \$200,00 per annum for the life of the project (indexed at CPI) and in addition \$100,000 per annum (indexed at CPI) for each operating LNG Train (commencing upon commissioning of the relevant Train) to be provided to the Australian and Queensland Government's joint program of field management for the Great

Barrier Reef World Heritage Area, for expenditure in the Mackay / Capricorn Section.

Note 1: For clarity, contributions or offsets negotiated with the Queensland Government with respect to the LNG Facility site (e.g. including under the Environmental Management Precinct Agreement) may, in whole or in part, meet the requirements of Condition 15(a).

- Note 2: A Plan which sufficiently addresses the requirements of condition 15 will be considered to meet the purposes of the Plan as described in condition 13.
- Note 3: The joint program of field management is related to the objectives of the Great Barrier Reef Intergovernmental Agreement.
- 16. Subject to condition 17, any property that is purchased or otherwise retained under a secure land tenure arrangement for the purposes of the Environmental Offsets Plan must be located within the Great Barrier Reef World Heritage Area, preferably on Curtis island or nearby.
- 17. If, within the Great Barrier Reef World Heritage Area, no area of land containing attributes or characteristics at least corresponding with those of the LNG facility site can be secured and protected in the manner described in condition 15 within 24 months of the Minister's approval of this project, an alternative proposal and timetable for acquiring (by purchase, lease or otherwise) property other than in the GBRWHA must be provided to the Minister for approval in writing.
- 18. To avoid doubt, the offset required under condition 15 is additional to any similar offset required under an EPBC Act condition of approval for another proponent for an LNG facility on Curtis Island.

# **Environmental Offsets Plan**

19. Within 6 months of the date of this approval, the Environmental Offsets Plan must be submitted in writing for the approval of the Minister. The approved plan must be implemented.

# Construction and operation environmental management requirements and plans

20. At least one week before the commencement of clearance of native vegetation associated with the construction and operation of the LNG facility, the proponent must undertake preclearance surveys to verify the presence or absence of listed ecological communities, listed threatened species, listed migratory species, their habitat, and species identified as contributing to the World Heritage and National Heritage values of the Great Barrier Reef World Heritage Area.

#### 21. Pre-clearance surveys must:

- (a) be undertaken consistent with the Department's survey guidelines in effect at the time of the survey. This information can be obtained from http://www.environment.gov.au/epbc/guidelines-policies.html#threatened;
- (b) take account and reference previous ecological surveys undertaken by the proponent for the area and relevant new information on likely presence or absence of MNES;
- (c) be undertaken by a suitably qualified ecologist approved in writing by the Department;
- (d) document the survey methodology, targeted species and ecological communities, results and significant findings in relation to MNES; and
- (e) apply best practice site assessment and ecological survey methods appropriate for each listed threatened species, listed migratory species, their habitat, and listed ecological communities. Pre-clearance survey reports (which document the methods used and the

- results obtained) must be published by the proponent on the internet before commencement and provided to the Department on request.
- 22. If a listed ecological community or threatened species or migratory species or their habitat, is found during the verification surveys undertaken as required by condition 20, and is not specified in conditions 31-38 inclusive, the proponent must submit a separate management plan for each such species, ecological community or other MNES, to manage the impacts of construction and operation of the LNG facility. Each such plan must be submitted before the commencement of construction of the LNG facility. Each plan must include:
  - (a) a map of the location of species or species or ecological communities habitat in relation to the LNG Facility and its associated infrastructure;
  - (b) a description of the measures that will be employed to avoid impact on the species or species or ecological communities habitat
  - (c) where impacts are unavoidable, and if an impacted species or ecological community is not specified in conditions 32-39 inclusive, propose offsets to compensate for the impact on the population or impact on the species or ecological communities habitat
- 23. Before commencement the proponent must prepare a Construction Environmental Management Plan (CEMP). The CEMP may be submitted in stages (Staged CEMP) in which case commencement of a stage covered by the staged CEMP cannot commence until submitted and approved by the Minister.
- 24. The CEMP must address, but not necessarily be limited to, an identification of all activities with potential to have an adverse impact on MNES proposed to be undertaken during the construction of LNG facilities, including the construction camp and supporting facilities. The CEMP must include:
  - (a) design plans showing the type and extent of the works proposed;
  - (b) a construction schedule and methodology, including plans and maps showing discharge points and emission controls for all construction stages;
  - (c) an environmental monitoring and a sampling program which details baseline data collection and provides the basis for ongoing monitoring of specified parameters for the construction and operational phases, including appropriate triggers for mitigation and cessation of works;
  - (d) any potential impacts or effects of the proposed works on the environment during both the construction and operational phases and the means by which adverse impacts will be avoided or mitigated;
  - (e) details of the sewage treatment plant and desalination plant, including:
    - (i) design and operational performance information for sewage treatment and desalination (including acoustic performance of pumps and other machinery);
    - (ii) design and operational performance information for any outfalls and diffusers for emissions, including liquid and solid emissions into Port Curtis including detailed analysis of existing water quality, effluent contaminants, acute and chronic toxic effects of contaminants on fauna and flora and any long term ecological effects from outfalls and emissions:
    - (iii) a detailed description of impacts from the discharge of treated sewage and brine.

Source water quality data and characteristics of additives must be provided, and the disposal methods to be used must be described in the plan. The information must be used to determine the site specific mitigation measures proposed, including monitoring and reporting regimes;

- (iv) information on the eco-toxicity of effluent at the point of release, in the mixing zone, and cumulative impacts of contaminants in the marine ecosystem over time;
- (v) the assumptions, adequacy and limitations of any modelling used to predict the dimensions and duration of the mixing zone;
- (f) details on any other plant, equipment or activities that involve emissions to the environment, including:
  - (i) a description of the plant, equipment or activities;
  - (ii) design and operational performance information for plant, equipment or activities:
  - (iii) the potential for unforseen or accidental incidents and proposed responses to these incidents;
- (g) a detailed list of waste streams including their handling, freatment and disposal arrangements;
- (h) the environmental protection commitments proposed for the activities (including all associated accommodation and recreation activities on the Island) to protect the environmental values under best practice environmental management;
- (i) a rehabilitation program for land proposed to be disturbed during construction of all infrastructure (including associated accommodation and recreation activities) on Curtis Island:
- (j) details of a response plan, with appropriate triggers, which will be initiated in response to any significant impacts on the environment from the works; and
- (k) identification and characterisation of all wastes and emissions produced by the LNG Facility and its associated support infrastructure including its source, handling, treatment, disposal, or release to the environment.
- 25. The CEMP, or a stage of the CEMP, must be submitted for the approval of the Minister Commencement of the action to which the staged CEMP relates must not occur without the approval in writing of the Minister of the CEMP. The approved plan must be implemented.
- 26 Before the commissioning of the first LNG train, an Operational Environmental Management Plan (OEMP) must be prepared.
- 27 The OEMP must address the matters required to be included in the CEMP while incorporating changes and any additions the proponent believes are necessary to reflect the shift from the construction phase to the operational phase.
- 28 The OEMP must be submitted for the approval of the Minister. Commissioning of the first LNG train must not occur without the approval in writing of the Minister. The approved plan must be implemented.

Note To avoid doubt, if a condition of another approval held by the proponent requires a Construction Environmental Management Plan and/or Operational Environmental Management Plan, the proponent may

simultaneously meet the relevant requirements of both conditions by submitting a single plan.

### Discharge of sewage effluent

29. Any discharge of treated sewage effluent into the waters surrounding Curtis Island must, at minimum, meet the definition of tertiary treatment as specified in section 135(3) of the *Great Barrier Reef Marine Park Regulations* 1983 and be in accord with GBRMPA Sewage Discharge Policy March 2005, unless studies required to develop the CEMP under conditions 23 and 24 indicate that more stringent pollutant limits are necessary.

### Quarantine Management Plan

- 30. Before the commencement of construction of the LNG facility, the proponent must prepare a Quarantine Management Plan (QMP). The objectives of the QMP are to prevent the introduction of non-endemic species on to Curtis Island. The QMP must include measures to:
  - (a) detect pests and weeds, and prevent weed introduction and/or proliferation;
  - (b) control and, unless otherwise determined by the relevant State authorities, eradicate detected non-indigenous terrestrial species (including weeds);
  - (c) mitigate adverse impacts of any control and eradication actions on indigenous species taken against detected pests and weeds;
  - (d) assess risk, manage supply chains, and manage and inspect vessels;
  - (e) mitigate any pest or weed impacts;
  - (f) report and record any quarantine incidents;
  - (g) identify performance standards to be achieved by the QMP; and
  - (h) undertake a review of the QMP and identify the need for any further studies.

Note: To avoid doubt, the QMP may be submitted in stages, for example to cover the period prior to any planned direct arrival at the MOF of international imports, and after this time.

31. The QMP must be submitted for the approval of the Minister. Commencement must not occur without the approval in writing of the Minister. The approved Plan must be implemented.

Note: To avoid doubt, if a condition of another approval held by the proponent requires a Quarantine Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan. The plan, or components thereof, may also be prepared and implemented in consultation with the Gladstone Ports Corporation or other bodies.

#### Environmental Management Plan -Water Mouse (Xeromys myoides)

- 32. To protect the Water Mouse (*Xeromys myoides*), the proponent must submit to the Minister an Environmental Management Plan (the Water Mouse Environmental Management Plan) which must include:
  - (a) results of a pre-clearance survey undertaken at the appropriate time and season for the species;
  - (b) a map of the location of potential habitat for the Water Mouse in proximity to marine facilities:

- (a) measures that will be employed to avoid impacts on the Water Mouse or its potential habitat; and
- (d) if impacts on the Water Mouse or its potential habitat are unavoidable, propose offsets to compensate for the impacts.

Note—To avoid doubt, if a condition of another approval held by the proponent requires a Water Mouse Environmental Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan. The plan may also be prepared in consultation with the Gladstone Ports Corporation in accordance with conditions imposed for the Gladstone Western Basin Dredging and Disposal Project (FPBC 2009/4904).

33. The Water Mouse Environmental Management Plan must be submitted for the approval of the Minister within six months of this Approval. The approved plan must be implemented.

### Long-term Marine Turtle Management Plan

- 34 Within six months of this approval, the proponent must
  - (a) contribute an initial amount of \$150 000 towards preparation of a long term marine turtle management plan; and
  - (b) participate in industry wide discussions with the Gladstone Ports Corporation and other port users (including LNG proponents) with a view to establishing a long term marine turtle management plan and future funding requirements for the plan.
- 35 If terms of the long term marine turtle management plan cannot be agreed on an industry wide basis (within the Port of Gladstone) within six months of this approval, then the proponent must prepare a long term marine turtle management plan in consultation with other LNG proponents who have confirmed an intention to establish an LNG Facility on Curtis Island.
- 36 The plan (in either case referred to in 34 and 35 above), must include:
  - (a) a program to establish comprehensive baseline information on populations of marine turtles that utilise the beaches and nearby waters of Curtis and Facing Island (including the Green Turtle Chelonia mydas, the Loggerhead Turtle Caretta caretta, and the Flatback Turtle Natator depressus);
  - (b) a monitoring program to measure and detect changes to the marine turtle populations over a period of at least 10 years from commencement of the program. Monitoring methods must have the ability to detect changes at a statistical power of 0.8, or an alternative statistical power as determined in writing by the Minister;
  - (c) the identification of significant activities relating to the construction and operation of LNG facilities (or in the case of an industry wide plan, activities within the Port of Gladstone) with the potential to cause adverse impacts on marine turtles;
  - (a) management measures including operating controls and design features to help manage and avoid adverse impacts to marine turtles shown to be adversely impacted by LNG operations (or in the case of an industry wide plan, activities conducted within the Port of Gladstone). In relation to the LNG operations, management measures will include any reasonable and practicable measures found necessary or desirable to minimise disturbance to marine turtles from gas flaring, and from lighting of the LNG plant and ships moored at the loading berth (except where the adoption of measures would be in contravention of health and safety legislative requirements).
  - (e) Identification of annual contributions by the proponent, other LNG proponents who have confirmed an intention to establish an LNG Facility on Curtis Island and, in the case of an

industry wide plan, contributions by other port users.

- 37. The Marine Turtle Management Plan must be submitted for the approval of the Minister at least 3 months before the planned date of the commissioning of the first LNG train. The approved Plan must be implemented.
- 38. Within 60 days of each anniversary of the approval of the plan the proponent must provide a review report ("the Report") on the effectiveness of the management measures and operating controls directed at avoiding impacts on the marine turtle species.

Note: The review report may be provided by the Gladstone Ports Corporation or another entity on behalf of the proponent.

39. If an impact on any of the marine turtle species is identified, the report must recommend improvements to the conduct of those operations and activities which are found to have a causal connection with the identified impact, and provide the report to the Minister in writing within 30 days of identifying the impact. The Minister may require improvements to be implemented.

Note: To avoid doubt, if a condition of another approval held by the proponent requires a Marine Turtle Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan. The plan may also be prepared and implemented in consultation with the Gladstone Ports Corporation or other bodies.

#### **Decommissioning Plan**

- 40. Unless the proponent advises the Department that it cannot decommission the site because of lawful continuing use rights by a third party (that might include the State of Queensland), at least five years before the planned date of cessation of operations of the LNG Facility and associated infrastructure on Curtis Island the proponent must develop a Decommissioning Plan. The Plan must:
  - (a) ensure that, following the cessation of operations at the LNG Facility and associated infrastructure on Curtis Island, decommissioning arrangements are prepared;
  - (b) define a timetable for the future implementation of decommissioning including for:
    - (i) the removal of remnant infrastructure and works that interfere with natural coastal processes, and human recreational and commercial activities;
    - (ii) the return of sediment levels and water quality in the immediate area of the LNG Facility to pre-construction background levels; and
    - (iii) the rehabilitation of the LNG Facility and associated sites to their natural state, and their ongoing management during rehabilitation.
- 41. If decommissioning does not commence on the date proposed in the initial Decommissioning Plan, the proponent must review the decommissioning plan before each subsequent third anniversary of the date of the submission of the initial decommissioning plan over the operational life of the LNG facility. The proponent must advise the Minister in writing of the outcomes of this review, including any proposed changes to the Decommissioning Plan. Any proposed changes to the Decommissioning Plan must be approved in writing by the Minister...
- 42. The Decommissioning Plan must be submitted for the approval of the Minister.

  Decommissioning must not occur without approval. Subject to condition 40 the approved Plan must be implemented on decommissioning.

#### Notification of commencement

- 43. Within 20 business days of commencement of the action, the proponent must advise the Department in writing of the actual date of commencement.
- 44 If, at any time after five years from the date of this approval, the Minister notifies the proponent in writing that the Minister is not satisfied that there has been substantial commencement of the action, the action must not commence without the written agreement of the Minister

# Request for variation of plans by proponent

- 45 If the proponent wants to act other than in accordance with a plan approved by the Minister under these conditions, the proponent must submit a revised plan for the Minister's approval.
- 46. If the Minister approves a revised plan, then that plan must be implemented instead of the plan originally approved.
- 47. The proponent must implement the revised plan on approval of the Minister.
- 48. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan

#### Revisions to plans by the Minister

- 49. If the Minister believes that it is necessary or desirable for the better protection of a relevant controlling provision for the action, the Minister may request the proponent to make, within a period specified by the Minister, specified revisions to a plan approved by the Minister under these conditions.
- 50. If the Minister makes a request for revisions to a plan, the proponent must:
  - (a) comply with that request; and
  - (b) submit the revised plan to the Minister for approval within the period specified in the request.
- 51. The proponent must implement the revised plan, on written approval of the Minister.
- 52 Until the Minister has approved the revised plan, the proponent must continue to implement the original plan

#### Minimum timeframes for consideration of plans

53 For any plan required to be approved by the Minister under these conditions, the proponent must ensure the Minister is provided at least 20 business days for review and consideration of any plan, unless otherwise agreed in writing between the proponent and the Minister.

#### Provision of State plans

54 If a condition of a State approval requires the proponent to provide a plan then the proponent must also provide the plan to the Department or Minister on request, within the period specified in the request.

#### Compliance with State environmental and other authorities

55. The proponent must comply with all environmental authorisations issued by the State,

including conditions of an environmental authority issued under the EP Act.

#### Timeframes.

56. If these conditions require the proponent to provide something by a specified time, a longer period may be specified in writing by the Minister.

#### Auditing

- 57. On the request of and within a period specified by the Department, the proponent must ensure that:
  - (a) an independent audit of compliance with these conditions is conducted; and
  - (b) an audit report, which addresses the audit criteria to the satisfaction of the Department, is published on the Internet and submitted to the Department.
- 58. Before the audit begins, the following must be approved by the Department:
  - (a) the independent auditor; and
  - (b) the audit criteria.
- 59. The audit report must include:
  - (a) the components of the project being audited;
  - (b) the conditions that were activated during the period covered by the audit;
  - (c) a compliance/non-compliance table;
  - (d) a description of the evidence to support audit findings of compliance or non-compliance;
  - (e) recommendations on any non-compliance or other matter to improve compliance;
  - (f) a response by the proponent to the recommendations in the report (or, if the proponent does not respond within 20 business days of a request to do so by the auditor, a statement by the auditor to that effect); and
  - (g) certification by the independent auditor of the findings of the audit report.
- 60. The financial cost of the audit will be borne by the proponent.
- 61. The proponent must:
  - (a) implement any recommendations in the audit report, as directed in writing by the Department;
  - (b) investigate any non-compliance identified in the audit report; and
  - (c) if non-compliance is identified in the audit report take action as soon as practicable to ensure compliance with these conditions.
- 62. If the audit report identifies any non-compliance with the conditions, within 20 business days after the audit report is submitted to the Department the proponent must provide written advice to the Minister setting out the:

- (a) actions taken by the proponent to ensure compliance with these conditions; and
- (b) actions taken to prevent a recurrence of any non-compliance, or implement any other recommendation to improve compliance, identified in the audit report.

Note: To avoid doubt, independent third party auditing may include audit of the proponent's performance against the requirements of any plan required under these conditions.

# Reporting non-compliance

- 63. The proponent must, when first aware of a non-compliance of any condition of this approval, or a plan required to be approved by the Minister under these conditions:
  - (a) report the non-compliance and remedial action to the Department within five business days; and
  - (b) bring the matter into compliance within an a reasonable timeframe agreed to, in writing by the Department.

# Record-keeping

- 64. The proponent must:
  - (a) maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures taken to implement a plan approved by the Minister under these conditions; and
  - (b) make those records available on request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with these conditions of approval.

Note: Summaries of audits carried out under these conditions, or under section 458 of the EPBC Act, will be posted on the Department's website. The results of such audits may also be publicised through the general media.

#### Financial assurance

- 65. The proponent must:
  - (a) provide the Minister with a financial assurance in the amount and form required from time to time by the Minister for activities to which these conditions apply; and
  - (b) review and maintain the amount of financial assurance based on proponent reporting on compliance with these conditions, and any auditing of the activities.
- 66. The financial assurance is to remain in force until the Minister is satisfied that no claim is likely to be made on the assurance.

Note: The financial assurance may be used for rehabilitation of habitat and other purposes not addressed adequately by the proponent during the life of the project.

#### Annual Environmental Return

- 67. The proponent must produce an Annual Environmental Return which:
  - (a) addresses compliance with these conditions,
  - (b) records any unavoidable adverse impacts on MNES, mitigation measures applied to avoid

adverse impacts on MNES; and any rehabilitation work undertaken in connection with any unavoidable adverse impact on MNES;

- (c) identifies all non-compliances with these conditions; and
- (d) identifies any amendments needed to plans to achieve compliance with these conditions.
- 68. The proponent must publish the Annual Environmental Return on the Internet within 20 business days of each anniversary date of this approval. In complying with this publication requirement, the proponent must ensure that it has obtained the relevant confidentiality and intellectual property rights of third parties.

#### Survey data

69. If requested by the Department, the proponent must provide all species and ecological survey data and related survey information from ecological surveys undertaken for MNES. The data must be collected and recorded to conform to data standards notified from time to time by the Department.

#### Publication of Plans

- 70. All plans approved by the Minister under these conditions must be published on the proponent's website within 30 business days of approval by the Minister.
- 71. The Department may request the proponent to publish on the internet a plan in a specified location or format and with specified accompanying text. The proponent must comply with any such request.

#### Dictionary

72. In these conditions, unless otherwise indicated:

**CEMP** means the Construction Environmental Management Plan developed as required under conditions 23 to 25:

Conditions means these conditions attached to the approval of the action;

Commencement means the substantial commencement of construction of the proposed LNG Facility as described in referral EPBC 2008/4057, received under the EPBC Act on 18 August 2008. Commencement does not include minor physical disturbance necessary to undertake pre-clearance surveys, to establish monitoring programs or associated with mobilisation of plant, equipment, materials, machinery and personnel prior to start of construction of the LNG facility:

Commissioning means the point at which, following completion of the construction of the first LNG train, it is tested to verify if it functions according to its design objectives or specifications:

**Construction workforce** means both personnel directly employed by the proponent and subcontracted personnel engaged on-site during the construction of the LNG facility, including associated works and infrastructure;

**Department** means the Australian Government department responsible for administering Part 4 of the EPBC Act:

EPBC Act means the Commonwealth Environment Protection and Biodiversity Conservation

Act 1999:

**Minister** means the Minister responsible for Chapter 4 of the EPBC Act, and may include a delegate of the Minister under s.133 of the EPBC Act;

**MNES** means one or more matters of national environmental significance under the EPBC Act that are included within the controlling provisions determined by the Minister for the action;

**OEMP** means the Operational Environmental Management Plan developed as required under conditions 25 to 28;

Plan includes a report, study, plan, or strategy (however described);

**Proponent** means the person to whom the approval is granted, and includes any person acting on behalf of the proponent;

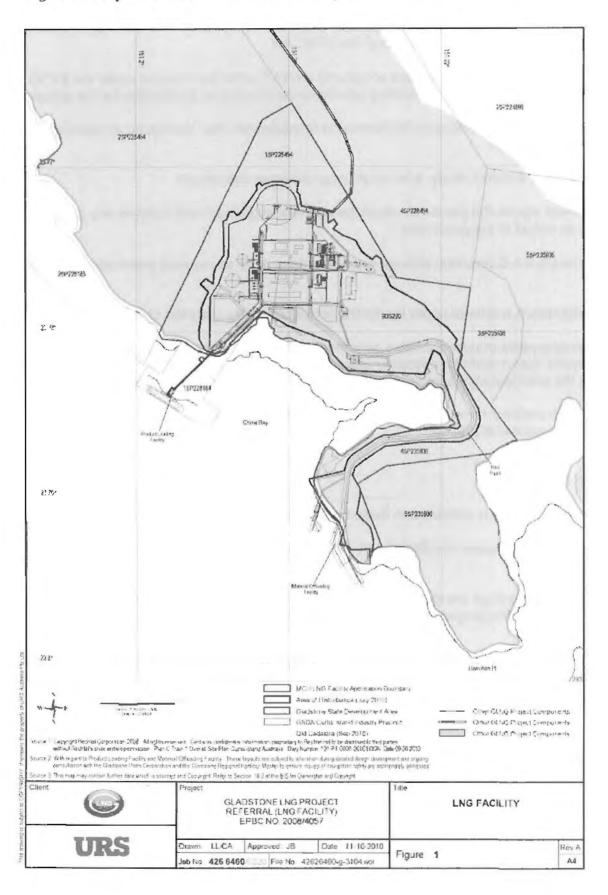
**QMP** means the Quarantine Management Plan developed as required under conditions 30-31;

Referral means a referral under the EPBC Act including any variation of the referral.

**Vessel operators** means operators (whether or not employed by the proponent), and their employees, responsible for operating vessels travelling from the mainland to Curtis Island during the pre-clearance survey, construction, and operating phases of the LNG facility

- 73. Unless the contrary is indicated, words in these conditions have the same meaning as in (in the following order of priority)
  - (a) the EPBC Act; and
  - (b) the EP Act;
- 74. Unless the contrary is indicated, in these conditions:
  - (a) words in the singular number include the plural and words in the plural number include the singular; and
  - (b) condition headings are inserted for convenient reference only and have no effect in limiting or extending the language of condition to which they refer.

Figure 1 - Proposed location of Santos LNG components on Curtis Island



# Discisions: Easing on an entrained man provided by the State of Quienniand Conditions of Christopher and Memorian Educations (Conditions), in constitution for Chair permitting used the Lading antimicrothery and topy of the State for Chair permitting used the Lading and antimicrothery and topy of the Caste hardware years authorized to the Christopher and the Caste hardware years and state of the Christopher and the Christopher and the Christopher management for any loss, Christopher and Kristopher and Christopher of the Christopher and the Christopher and the Christopher and the Christopher of the send of the Christopher and the Christopher and the Christopher of the send of the Christopher and the Christopher of the send of the Christopher and the Christopher of the send of the Christopher and the Christopher of the send of the Christopher and the Christopher of the send of the Christopher and the Chri ENVIRONMENTAL MANAGEMENT PRECINCT RESTRICTED DEVELOPMENT, PRECINCT INDUSTRY PRECINCT CHINAMAN ISLAND · GLADSTONE TANNUM SANDS MATERIALS TRANSPORTION & SERVICES GOTRIDOR · CALLIOPE YARWUN TARGINIE PRECINCT PRECINCT LEGENO Department of infrastructure and Planning Job Number | 41-15731

Figure 2

1

Map of Curtis Island Environmental Management Precinct

1 50:000 (all A)1 9 05 t 15 7 21 Curis Island Environmental Precinct Place Name Gladajorie Suite Orestopressi Arab 12 DC1 2009 Ecology, Environment and Harlage Study Date Land related by organic landrates (hed-catus Doundary) THE ONE PROSES Environment Second Industry Presince Curtis Island Environmental Restricted Development Prognet Cadastral Boundary The Part of the Pa Environmental Languages Proprie. Management Precinct Locality Map Figure 1 Extra production of the state o Law 4, 200 Chesters in Because Old etter 1611 2310 2002 For 1310 2331 Ethomographicom as Warringted com au E- La of the Late of the Late

# **Approval**

To develop, construct, operate and decommission a 430km pipeline network to link coal seam gas fields to a proposed LNG facility on Curtis Island as described in referral EPBC No 2008/4096

This decision is made under sections 130(1) and 133 of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). person to whom the Santos Limited and PETRONAS Australia Ptv Limited approval is granted proponent's Santos Limited ABN 80 007 550 923 ABN/ACN PETRONAS Australia Pty Limited ACN 064 998 867 proposed action To develop, construct, operate and decommission a 430km pipeline network to link coal seam gas fields near Roma. Emerald, Injune and Taroom in Queensland to the proposed LNG Plant located on Curtis Island, adjacent to Gladstone: as described in the proponent's referral received under the Act on 13 March 2008; and as described in the proponent's Environmental Impact Statement and Supplementary Environmental Impact Statement; and as varied on 3 September 2010. decision To approve the proposed action for each of the following controlling provisions: World Heritage properties (sections 12 and 15A, EPBC Act) National Heritage Places (sections 15B and 15C) EPBC Act) Listed threatened species and communities (sections) 18 and 18A, EPBC Act) Listed migratory species (sections 20 and 20A, EPBC Act) conditions of This approval is subject to the conditions specified below. approval expiry date of This approval has effect until 31 October 2060. approval name and position The Hon Tony Burke MP Minister for Sustainability, Environment, Water, Population and Communities signature date of decision

# **Conditions**

# Project area

1. The pipeline route and ROW is depicted in the map at Attachment 1.

# Environmental Management Plan (excluding the Narrows)

- The proponent must prepare a Environmental Management Plan to manage the impacts of construction, operation and decommissioning of the pipeline (other than in relation to the Narrows) on listed threatened species and ecological communities, listed migratory species and values of the World and National Heritage-listed Great Barrier Reef.
- 3. The Environmental Management Plan must include:
  - a. provisions for detailed pre-clearance surveys by a suitably qualified ecologist along the entire length of the ROW, in accordance with conditions 5 to 10;
  - measures to minimise native and riparian vegetation clearance and to minimise the impact on listed species, their habitat and ecological communities in accordance with management plans required for MNES under this approval;
  - measures to manage the impact of clearing on each listed species and ecological community in accordance with management plans required for MNES under this approval;
  - d. measures to regenerate vegetation on the ROW where natural regeneration is not successful to a condition at least equivalent to the ROW condition prior to commencement;
  - e. measures to minimise impacts on fauna during pipeline construction, including:
    - i. measures to protect MNES in the areas of the ROW where trenching is being undertaken, including measures to exclude listed terrestrial fauna from gaining access to those areas of the ROW where trenching is currently being undertaken
    - ii. mechanisms to allow fauna to escape from the pipeline trench;
    - iii. daily morning surveys for trapped fauna;
    - iv. mechanisms for a suitably qualified person to relocate fauna; and
    - v. record keeping for all survey, removal and relocation activities.
  - f. machinery wash down procedures and ongoing monitoring to minimise the spread and establishment of weeds in the ROW. Monitoring of weed infestations within disturbed areas must occur at least monthly during construction and then quarterly for a period of two years after completion of construction. Appropriate weed control measures must be implemented. After the two-year period, the frequency of monitoring must be reconsidered by the proponent, based on the success of control measures, the level of infestations and pipeline maintenance activities;
  - g. measures to manage and control feral animals that may spread due to the establishment of the ROW;
  - h. measures for the prevention of ignition sources to protect habitat values;
  - i. measures for the management of acid sulfate soils:
- 4. The Environmental Management Plan must be submitted for the approval of the Minister. Commencement must not occur without approval (except for activities critical to commencement and associated with mobilisation of plant, equipment, materials, machinery and personnel prior to start of pipeline construction which

will have no adverse impact on MNES). The approved plan must be implemented.

# Pre-clearance surveys

- 5. Before the clearance of native vegetation in the pipeline ROW, the proponent must:
  - undertake pre-clearance surveys for the presence of listed threatened species and migratory species, their habitat and listed ecological communities.
  - b. alternatively, where recent surveys have already been undertaken and those surveys meet the Department's requirements for surveys for the relevant MNES, the proponent may elect to develop management plans based on those surveys in accordance with the requirements of Condition 8.
- 6 Pre-clearance surveys must:
  - a. for each listed species, be undertaken in accordance with the Department's survey guidelines in effect at the time of the survey. This information can be obtained from <a href="http://www.environment.gov.au/epbc/guidelines-policies.html#threatened">http://www.environment.gov.au/epbc/guidelines-policies.html#threatened</a>;
  - b. be undertaken by a suitably qualified ecologist approved by the Department in writing;
  - c. document the survey methodology, results and significant findings in relation to MNES:
  - d. apply best practice site assessment and ecological survey methods appropriate for each listed threatened species, migratory species, their habitat and listed ecological communities.
- 7. Pre-clearance survey reports (which document the methods used and the results obtained) must be published by the proponent and provided to the Department on request.
- 8. If a listed threatened species or migratory species or their habitat, or a listed ecological community is encountered during the surveys undertaken as required by condition 5 and is not specified in the Table 1 or 2 at condition 11 and 12, the proponent must submit a separate management plan for each species or ecological community to manage the unexpected impacts of clearing. In relation to each listed species or ecological community, each plan must address:
  - a. the relevant characteristics describing each ecological community
  - b. a map of the location of species, species' habitat, or ecological community in proximity to the ROW;
  - c. measures that will be employed to avoid impact on the species, species' habitat, or ecological community;
  - d. a quantification of the unavoidable impact (in hectares and/or individual specimens);
  - e. where impacts are unavoidable and a disturbance limit is not specified for the listed species or ecological community under condition 11, propose offsets to compensate for the impact on the population of the species' habitat, or the ecological community;
  - f. current legal status (under the EPBC Act);
  - g. known distribution.

For listed species, each plan must also include:

- a. known species' populations and their relationships within the region;
- b. biology and reproduction;

- preferred habitat and microhabitat including associations with geology, soils, landscape features and associations with other native fauna and/or flora or ecological communities;
- d. anticipated threats to MNES from pipeline construction, operation and decommissioning;
- e. management practices and methods to minimise impacts, such as:
  - i. site rehabilitation timeframes, standards and methods;
  - ii. use of sequential clearing to direct fauna away from impact zones;
  - iii. re-establishment of native vegetation in linear infrastructure corridors;
  - iv. handling practices for flora specimens;
  - translocation and/or propagation practices and monitoring for translocation/propagation success;
  - vi. monitoring methods including for rehabilitation success and recovery;
- reference to relevant conservation advice, recovery plans, or other policies, practices, standards or guidelines relevant to MNES published or approved from time to time by the Department.

Note: Management plans should include sufficient detail to inform pipeline construction, management and decommissioning to minimise adverse impacts on MNES throughout the life of the project.

- Each plan required under condition 8 must be submitted for the approval of the Minister. Commencement in the location covered by the management plan must not occur without approval. Each approved plan must be implemented.
- 10. If, during construction a listed threatened species or migratory species or their habitat, or a listed ecological community is encountered and is not specified in the table at condition 11 or 12, the proponent must submit a separate management plan for each species or ecological community in accordance with condition 8 within 20 business days of encountering that MNES. Work must not continue at the construction site where the MNES is encountered until the relevant management plan has been approved.

#### Disturbance limits

11. The following maximum disturbance limits apply to any disturbances authorised for unavoidable impacts on listed threatened communities and potential habitat for listed threatened species or migratory species as a result of the construction, operation and decommissioning of the pipeline (and all associated activities).

Ecological community	EPBC status	Disturbance limit (ha)
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	4.4
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nadewar Bioregions	Endangered	2.4
Species	EPBC status	Disturbance limit (ha)
Cycas megacarpa (Large-fruited Zamia)	Endangered	27.8

Note: These conditions provide offsets for species identified in Table 1 except for Brigalow, for which offsets are provided in EPBC 2008/4059 (Santos/PETRONAS coal seam gas fields expansion).

12. The proponent must prepare a management plan for each species in the table below. Each plan must be prepared in accordance with the requirements of condition 8.

Table 2: Species management plans required before	Commencement
listed species	EPBC Act Status
Philotheca sporadica	Vulnerable
Cadellia pentasylis (Ooline)	Vulnerable
Paradelma orientalis (Brigalow Scaly-foot)	Vulnerable
Furina dunmalli (Dunmall's Snake)	Vulnerable
Egernia rugosa (Yakka Skink)	Vulnerable
Geophaps scripta scripta (Squatter pigeon – southern)	Vulnerable
Nyctophilus timoriensis (Eastern Long-eared Bat)	Vulnerable
Chalinolobus dwyeri (Large-eared Pied Bat)	Vulnerable
Xeromys myoides (Water Mouse)	Vulnerable

Note: The intent of the table above is to require preparation of management plans for those species that are likely to be encountered along the ROW, but where a disturbance limit has not been quantified. To the extent that the requirements of condition 8 are satisfied for each species, a single Species Management Plan may be prepared for this purpose.

- 13. Each management plan must be submitted for the approval of the Minister. Commencement must not occur without approval. Commencement in the location covered by the management plan must not occur without approval. Each approved plan must be implemented.
- 14. Disturbance of vegetation related to the construction and maintenance of the pipeline must be confined to the ROW. Any proposed siting of construction camps, vehicle access tracks and pipe lay-down areas outside the ROW during construction must be undertaken so as to minimise potential adverse impacts on MNES and must comply with conditions 5 to 13.

#### Offsets

Offset for Semi-evergreen vine thickets of the Brigalow Bell (North and South) and Nandewar Bioregions (SEVT)

15. Within 12 months of the commencement of pipeline development the proponent must prepare an Offset Plan to provide an offset area for the approved disturbance limits relating to Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions within the project area. The offset area to be secured must be an area of private land which includes at least 19.2 ha of Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions.

Note: Offsetting requirements for this approval can be accommodated as part of a single offset plan addressing the requirements of this approval and those required by EPBC 2008/4059.

- 16. The Offset Plan must include details of the offset area including: the timing and arrangements for property acquisition, maps and site description, environmental values relevant to MNES, connectivity with other habitats and biodiversity corridors, a rehabilitation program, and mechanisms for long-term protection, conservation and management.
- 17. The Offset Plan must be submitted for the approval of the Minister within 12 months of the commencement of gas field development. The approved Offset Plan must be implemented within 30 business days of approval.
- 18. If the approved Offset Plan cannot be implemented because of failure of arrangements to secure the necessary area of private land then the proponent must submit for the Minister's approval an alternative Offset Plan. The alternative Offset Plan must provide at least an equivalent environmental outcome to those specified under condition 15. The approved alternative Offset Plan must be implemented.
- 19. If the proponent proposes any action within a proposed offset area, other than actions related to managing that area as an offset property, approval must be obtained, in writing from the Department. In seeking Departmental approval the proponent must provide a detailed assessment of the proposed action including a map identifying where the action is proposed to take place and an assessment of all associated adverse impacts on MNES. If the Department agrees to the action within the proposed offset site, the area identified for the action must be excised from the proposed offset and alternative offsets secured of equal or greater environmental value in relation to the impacted MNES.
- 20. The proponent must secure the offset within 2 years of commencement.

#### SEVT Offset Area Management

- 21. Within 12 months of securing the offset area required under the approved Offset Plan, the proponent must develop an Offset Area Management Plan which must specify measures to improve the environmental values of the offset area in relation to MNES, including;
  - a. the documentation and mapping of current environmental values relevant to MNES of the area;
  - measures to address threats to MNES including but not limited to grazing pressure and damage by livestock and adverse impacts from feral animals and weeds;
  - measures to provide fire management regimes appropriate for the MNES;
  - d. measures to manage the offset area to improve the condition of the SEVT ecological community within the offset area and to increase the areal extent of SEVT ecological community within the offset area as objectives of the program.
  - e. monitoring, including the undertaking of ecological surveys to assess the success of the management measures against identified milestones and objectives;
  - f. performance measures and reporting requirements against identified objectives, including trigger levels for corrective actions and the actions to be taken to ensure performance measures and objectives are met.
- 22. Within 12 months of securing the offset area the Offset Area Management Plan must be submitted for the approval of the Minister. The approved Offset Area Management Plan must be implemented.

# Cycas megacarpa

23. To offset the unavoidable impacts to *Cycas megacarpa* from all activities associated with this approval, the proponent must:

If the baseline route through the Callide and Calliope Ranges assessed in the EIS is pursued:

- a. within 12 months of the date of this approval, secure an area of at least 166.8ha as an offset for receiving no less than 3990 translocated and propagated individuals;
- identify alternative recruitment methods if it is considered unlikely that translocation and propagation will be successful;
- c. notify the Department in writing of the acquisition or transfer of ownership of the area identified in Condition 23(a) within one month of securing the land:
- d. if the proponent proposes any action within a proposed offset area, other than actions related to managing that area as an offset property, approval must be obtained, in writing from the Department. In seeking Departmental approval the proponent must provide a detailed assessment of the proposed action including a map identifying where the action is proposed to take place and an assessment of all associated adverse impacts on MNES. If the Department agrees to the action within the proposed offset site, the area identified for the action must be excised from the proposed offset and alternative offsets secured of equal or greater environmental value in relation to the impacted MNES;
- e. demonstrate that the measures for securing and managing the offset will ensure that the offset is protected in perpetuity.

or, if the Callide Range Alternative Route (CRAR) is pursued:

- a. within 12 months of the date of this approval, secure an area of at least 166.8ha as an offset for receiving no less than 2610 translocated and propagated individuals;
- b. identify alternative recruitment methods if it is considered unlikely that translocation and propagation will be successful;
- c. notify the Department in writing of the acquisition or transfer of ownership of the area identified in Condition 23(a) within one month of securing the land;
- d. if the proponent proposes any action within a proposed offset area, other than actions related to managing that area as an offset property, approval must be obtained, in writing from the Department. In seeking Departmental approval the proponent must provide a detailed assessment of the proposed action including a map identifying where the action is proposed to take place and an assessment of all associated adverse impacts on MNES. If the Department agrees to the action within the proposed offset site, the area identified for the action must be excised from the proposed offset and alternative offsets secured of equal or greater environmental value in relation to the impacted MNES;
- e demonstrate that the measures for securing and managing the offset will ensure that the offset is protected in perpetuity.

#### Cycas megacarpa Management Plan

- 24. The proponent must prepare a *Cycas megacarpa* Management Plan in consultation with an expert approved by the Department in writing.
- 25. The Cycas megacarpa Management Plan must include:
  - a. confirmation of the pipeline route across the Callide Range

- b. measures to ensure all Cycas megacarpa within the ROW are avoided using, for example suitable trenchless technique(s) as necessary or, if avoidance is not possible, individual plants must be removed and kept offsite and replanted in the same location, or alternatively translocated. Where it can be demonstrated that removal and translocation of individuals is unlikely to succeed, translocation may be substituted by establishing propagated individuals:
- c. measures to propagate and plant Cycas megacarpa individuals removed or impacted by construction activities to maintain a population of no less than 3990 (2610 if the CRAR is pursued) individuals within the offset site required by Condition 23(a);
- d. a detailed methodology for translocation, propagation, and planting, including a map of the location of the offset site;
- e. details of funding required to secure, maintain and enhance the values of the offset site in perpetuity;
- f. details of a suitably qualified person to undertake translocation, propagation and planting;
- g. details of the erosion and sediment control measures to be implemented in the ROW in the Callide and Calliope Ranges;
- h. measures to rehabilitate the ROW in the Callide and Calliope Ranges;
- i. measures for the control and management of weeds, fire, feral animals, access and grazing in translocation sites;
- j. measures for the management, maintenance and protection of the population of Cycas megacarpa individuals in the offset site for a period of five years following final planting;
- k. details of monitoring practices to assess the success of proposed management regimes of the offset;
- performance measures, reporting requirements, trigger levels for corrective actions and identification of those actions to be taken to ensure performance measures are met; and
- m. a reconciliation statement of impacts against the agreed limit of disturbance, as defined above in condition 11 must be updated by the proponent every 12 months from commencement until construction is complete.
- 26. The Cycas megacarpa Management Plan must be submitted for the approval of the Minister. Commencement in the location covered by the management plan must not occur without approval. The approved plan must be implemented.
- 27. To avoid doubt, a single offset management plan can be submitted to meet all offset management plan requirements.

#### Migratory birds

28. To offset the unavoidable impacts on listed migratory birds within the ROW at the Kangaroo Island wetlands west of the Narrows, the proponent must contribute at least \$250,000 to the Gladstone Ports Corporation's migratory bird research study required by conditions for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).

# The Narrows crossing

- 29. The proponent must prepare an Environmental Management Plan for the crossing of the Narrows. This must include:
  - a. if the crossing is undertaken concurrently with the construction of one or more additional gas transmission pipelines (a 'bundled crossing'):
    - the roles and responsibilities of each party involved in the bundled crossing;
    - ii. details of the final pipeline route, engineering design and construction methodology, including details of the total number of gas transmission pipes including any pipelines for water supply and/or sewerage;
    - iii. potential impacts from the construction of the pipeline on listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef;
    - iv. mitigation measures to reduce impacts on listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef;
    - v. proposed offset measures to compensate for unavoidable impacts on listed threatened species and ecological communities, listed migratory species and values of the World and National Heritage-listed Great Barrier Reef;
    - vi. measures for the management of acid sulfate soils (both potential and actual);
    - vii. measures for ongoing maintenance and decommissioning of the pipelines, or

If the proponent does not proceed in a bundled crossing.

- a construction method which, in the opinion of the Minister, will result in minimal surface disturbance to the Kangaroo Island Wetlands and minimal disturbance to the area of the estuary of the Narrows (preferably achieved by horizontal directional drilling or tunnelling);
  - details of the final pipeline route, design and construction methodology, including details of inclusion of pipes for water supply and sewerage;
  - potential impacts from the construction of the pipeline on listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef;
  - mitigation measures to reduce impacts to listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef;
  - iv. proposed offsets to compensate for the unavoidable impacts of the action on listed threatened species and ecological communities, listed migratory species and values of the World and National Heritage-listed Great Barrier Reef;
  - v. measures for the management of acid sulfate soils;
  - vi. measures for ongoing maintenance and decommissioning of the pipeline.

Note: 29(b) does not prescribe a particular construction method.

- 30. The Environmental Management Plan must be submitted for the approval of the Minister. The activity which is the subject of the Environmental Management Plan must not start without approval. The approved plan must be implemented.
- 31. If the pipeline construction involves dredging to be undertaken by the proponent under the approval to which these conditions are attached, the proponent must prepare a Dredge Management Plan.
- 32. The Dredge Management Plan required under these conditions must include:

- a. details of dredging methods, planned commencement, duration and frequency of dredging;
- b. identification of areas of potentially impacted seagrass habitat and their environmental tolerances;
- c. site specific water quality objectives for the designated habitats as a guideline for habitat protection and that are in accordance with the National Water Quality Management Strategy including the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, the Australian Guidelines for Water Quality Monitoring and Reporting, the Great Barrier Reef Water Quality Guidelines and the Queensland Water Quality Guidelines;
- d. measures to refine the plume modelling data presented in the proponent's Environmental Impact Statement;
- e. mitigation measures and controls for the dredging and spoil disposal activities:
- f. triggers for initiating adaptive management and potential remediation measures;
- g. monitoring of:
  - potential impacts of dredging on seagrass including but not limited to turbidity and light attenuation;
  - ii. the triggers established under condition 32(f); and
  - iii. the long term impacts of the action;
- h. options, linked to the triggers established under condition 32(f), for adaptively managing the action including options for varying the timing and location of dredging and spoil disposal activities;
- details for monitoring of dredging activities, including timing and variables measured such as turbidity and light attenuation in a format as directed by the Department to allow validation of other modelling of dredging impacts relating to the Port of Gladstone;
- j. measures to minimise the impact on listed migratory birds from noise associated with construction activities;
- k. measures to prevent and respond to the introduction of marine pest species;
- measures to protect dugongs and listed turtles including the use of turtle excluder devices;
- m. details of dredge spoil placement;
- n. provisions to sample and analyse dredge spoil composition.
- 33. The Dredge Management Plan must be submitted for the approval of the Minister. The activity the subject of the Dredge Management Plan must not occur without approval. The approved plan must be implemented.

# Location of pipeline (Callide range)

34. East of the Callide Range, the proponent must locate the pipeline within the Callide Infrastructure Corridor State Development Area as indicated in the map at Attachment 1.

### Water crossings

- 35. Where reasonably possible horizontal directional drilling must be used for major waterway crossings, including:
  - a. those within the Fitzroy and Calliope River catchments and any water crossing within the known distribution of the Fitzroy River Turtle (Rheodyles leukops) and Murray Cod (Maccullochella peelii). Pipeline construction across waterways must not take place during the nesting and breeding season of the Fitzroy River Turtle;

- Humpie and Targinie Creeks before marshlands near Kangaroo Island and The Narrows
- 36. Trenchless techniques are not required in minor creek beds within the known distribution of the Fitzroy River Turtle (*Rheodytes leukops*) and Murray Cod (*Maccullochella peelii peelii*) where there is no water at the crossing site and the distance to the nearest water is sufficient to buffer any potential impacts resulting from the crossing technique.
- 37. The proponent must prepare an Aquatic Values Management Plan. This plan must include:
  - a. a detailed assessment of aquatic values, including animal breeding locations for listed threatened and migratory species within the ROW;
  - b. measures to minimise impacts on listed riparian, aquatic and water dependent flora and fauna:
  - c. measures to minimise erosion and sediment impacts to waterways;
  - d. measures to maintain water quality and water flow requirements, including treatment and disposal methods for hydrostatic test water;
  - e. site-specific mitigation measures for any potential impacts from construction and operation of the pipeline on listed threatened species, including but not limited to the Fitzroy River Turtle.
- 38. The Aquatic Values Management Plan must be approved in writing by the Minister. Activities the subject of the plan must not start without approval. The Plan must be implemented.

#### Notification of commencement

- 39. Within 20 business days of commencement, the proponent must advise the Department in writing of the actual date of commencement.
- 40. If, at any time after five years from the date of this approval, the Minister notifies the proponent in writing that the Minister is not satisfied that there has been commencement of the action, the action must not commence without the written agreement of the Minister.

#### Request for variation of plans by proponent

- 41. If the proponent wants to act other than in accordance with a plan approved by the Minister under these conditions, the proponent must submit a revised plan for the Minister's approval.
- 42. If the Minister approves the revised plan, then that plan must be implemented instead of the plan originally approved.
- 43. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

# Revisions to plans by the Minister

- 44. If the Minister believes that it is necessary or desirable for the better protection of a relevant controlling provision for the action, the Minister may request the proponent to make, within a period specified by the Minister, revisions to a plan approved under these conditions.
- 45. If the Minister makes a request for revision to a plan, the proponent must:

- a. comply with that request; and
- b. submit the revised plan to the Minister for approval within the period specified in the request.
- 46. The proponent must implement the revised plan on approval of the Minister.
- 47. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

# Minimum timeframes for consideration of plans

48. For any plan required to be approved by the Minister under these conditions, the proponent must ensure the Minister is provided at least 20 business days for review and consideration of the plan, unless otherwise agreed in writing between the proponent and the Minister.

# Compliance with State environmental and other authorities

49. The proponent must comply with all environmental authorisations issued by the State, including conditions of an environmental authority issued under the EP Act.

# Provision of State plans

50. If a condition of a State approval requires the proponent to provide a plan then the proponent must also provide the plan to the Department or Minister on request, within the period specified in the request.

#### **Timeframes**

51. If these conditions require the proponent to provide something by a specified time, a longer period may be specified in writing by the Minister.

# Auditing

- 52. On the request of and within a period specified by the Department, the proponent must ensure that:
  - a. an independent audit of compliance with these conditions is conducted; and
  - b. an audit report, which addresses the audit criteria to the satisfaction of the Department, is published on the Internet and submitted to the Department.
- 53. Before the audit begins, the following must be approved by the Department:
  - a. the independent auditor; and
  - b. the audit criteria.
- 54. The audit report must include:
  - a. the components of the project being audited;
  - b. the conditions that were activated during the period covered by the audit;
  - c. a compliance/non-compliance table;
  - a description of the evidence to support audit findings of compliance or noncompliance;
  - e. recommendations on any non-compliance or other matter to improve compliance;
  - f. a response by the proponent to the recommendations in the report (or, if the proponent does not respond within 20 business days of a request to do so by the auditor, a statement by the auditor to that effect);
  - certification by the independent auditor of the findings of the audit report.

55 The financial cost of the audit will be borne by the proponent.

# 56. The proponent must:

- a. implement any recommendations in the audit report, as directed in writing by the Department after consultation with the proponent;
- b. investigate any non-compliance identified in the audit report; and
- c. if non-compliance is identified in the audit report take action as soon as practicable to ensure compliance with these conditions.
- 57. If the audit report identifies any non-compliance with the conditions, within 20 business days after the audit report is submitted to the Department the proponent must provide written advice to the Minister setting out the:
  - a actions taken by the proponent to ensure compliance with these conditions;
     and
  - actions taken to prevent a recurrence of any non-compliance, or implement any other recommendation to improve compliance, identified in the audit report.

Note: To avoid doubt, independent third party auditing may include audit of the proponent's performance against the requirements of any plan required under these conditions.

# Reporting non-compliance

- 58 The proponent must, when first becoming aware of a non-compliance with these conditions, or a plan required to be approved by the Minister under these conditions.
  - a. report the non-compliance and remedial action to the Department within five business days:
  - b. bring the matter into compliance within a reasonable time frame specified in writing by the Department.

# Record-keeping

- 59. The proponent must:
  - a. maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures taken to implement a plan approved under these conditions; and
  - b. make those records available on request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with these conditions.

Note: Audits or summaries of audits carried out under these conditions, or under section 458 of the EPBC Act, may be posted on the Department's website. The results of such audits may also be publicised through the general media.

#### Financial assurance

- 60. The proponent must:
  - a. provide the Minster with a financial assurance in the amount and form required from time to time by the Minster for activities to which these conditions apply; and
  - b. review and maintain the amount of financial assurance based on proponent reporting on compliance with these conditions, and any auditing of the activities.

61. The financial assurance is to remain in force until the Minister is satisfied that no claim is likely to be made on the assurance.

Note: The financial assurance may be used for rehabilitation of habitat and other purposes not addressed adequately by the proponent during the life of the project

#### **Annual Environmental Return**

- 62. The proponent must produce an Annual Environmental Return which:
  - a. addresses compliance with these conditions;
  - records any unavoidable adverse impacts on MNES, mitigation measures applied to avoid adverse impacts on MNES; and any rehabilitation work undertaken in connection with any unavoidable adverse impact on MNES;
  - c. identifies all non-compliances with these conditions; and
  - d. identifies any amendments needed to plans to achieve compliance with these conditions.
- 63. The proponent must publish the Annual Environmental Return on its website within 20 calendar days of each anniversary date of this approval. In complying with this publication requirement, the proponent must ensure that it has obtained relevant rights in relation to confidentiality and intellectual property rights of third parties

# Survey data

64. If requested by the Department, the proponent must provide all species and ecological survey data and related survey information from ecological surveys undertaken for MNES. The data must be collected and recorded to conform to data standards notified from time to time by the Department.

#### **Publication of Plans**

- 65. All plans approved by the Minister under these conditions must be published on the proponent's website within 30 business days of approval by the Minister
- 66. The Department may request the proponent to publish on the internet a plan in a specified location or format and with specified accompanying text. The proponent must comply with any such request.

# Dictionary

67. In these conditions, unless the contrary is indicated:

**Bundled crossing** means the dredging, trenching and other construction activities associated with the placement of multiple gas transmission pipelines across the Kangaroo Island Wetlands and the Narrows in a common corridor constructed by the approved proponent;

Clearance of native vegetation means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of native vegetation;

**Commencement** means clearing of vegetation that is a listed threatened species or community or that is habitat of listed threatened species or listed migratory species or pipeline construction (including trenching). Commencement does not include:

 a. minor physical disturbance necessary to undertake pre-clearance surveys or establish monitoring programs or associated with the mobilisation of the

- plant, equipment, materials, machinery and personnel prior to the start of pipeline development or construction;
- b activities that are critical to commencement that are associated with mobilisation of plant and equipment, materials, machinery and personnel prior to the start of development only if such activities will have no adverse impact on MNES, and only if the proponent has notified the Department in writing before an activity is undertaken.

**Department** means the Australian Government department responsible for administering Part 4 of the EPBC Act;

EP Act means Environmental Protection Act 1994 (Qld);

EPBC Act means the Commonwealth Environment Protection and Biodiversity Conservation Act 1999;

*Minister* means the Minister responsible for Part 4 of the EPBC Act, and may include a delegate of the Minister under s.133 of the EPBC Act;

**MNES** means matters of national environmental significance, being the relevant matters protected under Part 3 of the EPBC Act;

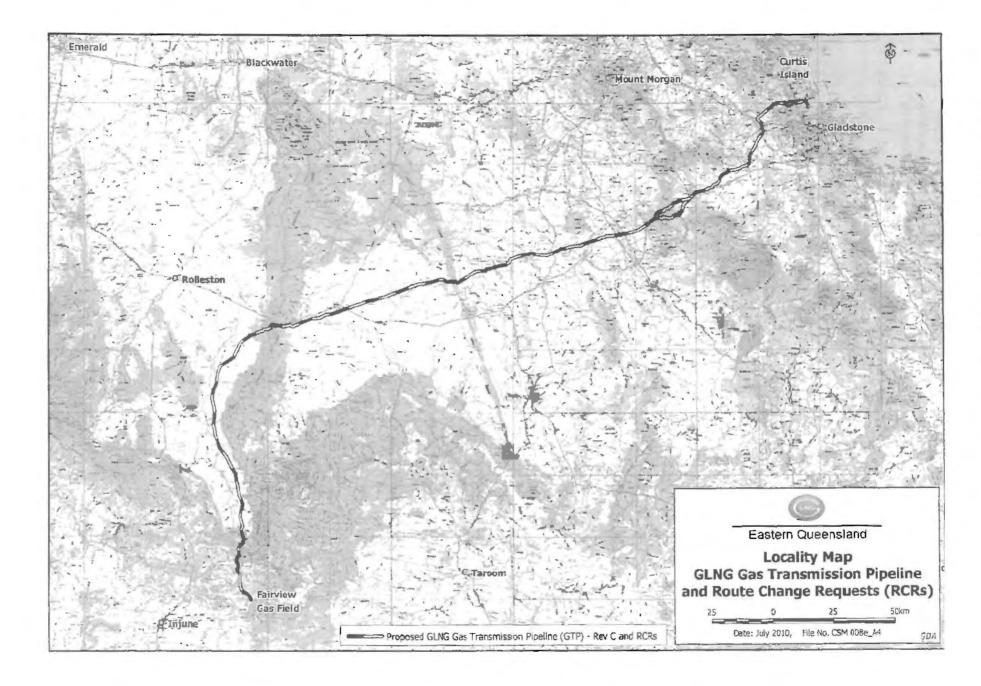
Plan includes a protocol, report, study, plan, or strategy (however described);

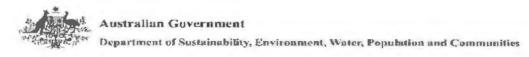
**Proponent** means the person to whom the approval is granted, and includes any person acting on behalf of the proponent;

**Referral** means a referral under the EPBC Act including any variation of the referral.

**ROW** means the pipeline right of way where any disturbance or construction is to be restricted to a corridor in which the pipeline may be placed. This corridor includes the area required for related activities such as access tracks. The corridor is illustrated in Attachment1;

Substantial commencement means delivery of coal seam gas through the pipeline.





# **Approval**

Development of marine facilities to service natural gas liquefaction park, Gladstone LNG Project – LNG Marine Facilities – EPBC No 2008/4058

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

person to whom the approval is granted	Santos Limited and PETRONAS Australia Pty Limited	
proponent's ABN (if applicable)	Santos Limited ABN 80 007 550 923 PETRONAS Australia Pty Limited ACN 064 998 867	
proposed action	Development of marine facilities such as a jetty, materials offloading facility to service a proposed natural gas liquefaction and export park on Curtis Island, near Gladstone, Queensland:  as described in the proponent's referral received under the EPBC Act on 28 February 2008; and  as described in the proponent's Environmental Impact Statement and Supplementary Environmental Impact	
	<ul> <li>Statement; and</li> <li>as varied on 3 September 2010,</li> </ul>	
decision	To approve the proposed action for each of the following controlling provisions:	
	<ul> <li>World Heritage properties (sections 12 and 15A, EPBC Act)</li> </ul>	
	<ul> <li>National Heritage Places (sections 15B and 15C, EPBC Act)</li> </ul>	
	<ul> <li>Listed threatened species and communities (sections 18 and 18A, EPBC Act)</li> </ul>	
	<ul> <li>Listed migratory species (sections 20 and 20A, EPBC Act)</li> </ul>	
conditions of approval	This approval is subject to the conditions specified below.	
expiry date of approval	This approval has effect until 31 October 2060.	
name and position	The Hon Tony Burke MP Minister for Sustainability, Environment, Water, Population and Communities	
signature	Tong Burk	
date of decision	(/ 22 10 10	

# Conditions

# Project area

1. The project area is the area substantially in accordance with the area indicated in Attachments 1 and 2.

#### **Dredging Management Plan**

- The proponent must submit to the Minister, a Dredging Management Plan which must include:
  - a) mapping of significant and sensitive receptors in the area of the marine facilities, with linkages to applicable monitoring programs;
  - b) assessment of all potential and real environmental risks to matters protected by the EPBC Act from dredging activities;
  - c) appropriate measures (for example mitigation measures, performance indicators/trigger levels and corrective actions/management actions) that will ensure that there are no unacceptable impacts on the Great Barrier Reef World Heritage Area, Great Barrier Reef National Heritage Place, EPBC listed threatened or migratory species. These must include:
    - i operating procedures to minimise injury to, or mortality of, EPBC Act listed threatened or migratory species from dredging activities;
    - reporting mechanisms that ensure reporting to the Minister within one business day of the proponent becoming aware of injury to, or mortality of, an EPBC listed threatened or migratory species caused by dredging activities or construction activities;
    - iii. management triggers, based on results obtained from the Water Quality Monitoring Program, including a reporting requirement to advise the Department in writing within one working day when triggers are exceeded:
    - iv. contingency measures, based upon results of water quality and seagrass monitoring and applicable research and monitoring programs, when dredging operations must be varied or suspended;
    - management triggers and contingency measures when construction or pile driving must be varied or suspended;
    - vi. measures that minimise the risk of introduced marine pest species, including ballast-water management and vessel inspections for any non-domestic vessels;
    - vii. measures to minimise light emissions onto the water from the Product Loading Facility and Material Offloading Facility including such measures as reducing light spill, during construction and operations; and

- viii. responsive actions that will be undertaken in the event contingency measures are employed, including reporting to the Minister.
- d) details of dredge spoil placement;
- e) provisions to sample and analyse dredge spoil composition.
- Note 1: Applicable research and monitoring programs may include programs undertaken in accordance with conditions attached to the approval for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904)
- Note 2. These conditions do not prevent the Gladstone Ports Corporation, on behalf of the proponent from submitting a single dredge management plan which relates to both dredging for the construction dock under these conditions, and dredging undertaken under conditions altached to the approval for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).
- 3. The proponent must not undertake any underwater dredge material rehandling.
- 4 One trailer suction hopper dredge (TSHD) is permitted to operate at any given time.
- 5. When the TSHD is in use, a maximum of two cutter suction dredges may operate at any given time unless otherwise prescribed in an approved Water Quality Monitoring Program required under conditions attached to the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).
- The TSHD must not operate in overflow mode except during the last one hour of flood tide and first three hours of ebb tide unless otherwise in accordance with the approved Water Quality Monitoring Program.
- 7. The TSHD must not operate in overflow mode for more than 30 minutes per cycle, with no more than two cycles per tide unless otherwise in accordance with the approved Water Quality Monitoring Program.
- 8. Where construction and/or dredging methods with lower environmental impacts are identified to be practical, these methods must be implemented.
- 9. In this condition, "at any given time" means at any given time with any other dredging operations being undertaken by another proponent under conditions of any separate approval under the EPBC Act relating to dredging in Port Curtis.

Note: Similarly to conditions attached to the approval for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904), these conditions are intended to limit the number of dredges being operated at any one time in Port Curtis

10. A Dredging Management Plan satisfying State requirements and addressing the matters identified in this condition will be deemed to have been submitted and approved.

# **Construction Management Plan**

- 11. For the construction of the marine facilities on Curtis Island and the mainland, the proponent must submit to the Minister a Construction Management Plan which must include.
  - (a) assessment of all potential and real environmental risks to matters protected by the EPBC Act from construction activities;

- (b) appropriate measures (for example mitigation measures, performance indicators/trigger levels and corrective actions/management actions) that will ensure that there are no unacceptable impacts on the Great Barrier Reef World Heritage Area, Great Barrier Reef National Heritage Place, EPBC listed threatened species or migratory species. These include:
  - i. operating procedures to minimise injury to, or mortality of, EPBC Act listed threatened or migratory species from construction activities;
  - ii. reporting mechanisms that ensure reporting to the Minister within one business day of injury to, or mortality of, an EPBC listed threatened or migratory species caused by construction activities;
  - iii. management triggers and contingency measures when construction or pile driving must be varied or suspended;
  - iv. measures that minimise the risk of introduced marine species, including ballast-water management and vessel inspections for any non-domestic vessels;
  - measures to minimise light emission onto the water from the Product Loading Facility and Material Offloading Facility including such measures as reducing light spill, during construction and operations; and
  - vi. responsive actions that will be undertaken in the event contingency measures are employed, including reporting to the Minister.
- 12. The Construction Management Plan must be submitted for the approval of the Minister within 20 business days of commencement. The approved plan must be implemented.

# **Shipping Activity Management Plan**

- 13. The proponent must prepare a Shipping Activity Management Plan ('the Plan') (for shipping undertaken by or under the control of the proponent) which includes:
  - (a) provision for the protection of Dugongs (*Dugong dugon*); Green Turtles (*Chelonia Mydas*); Loggerhead Turtles (*Caretta caretta*); Flatback Turtles (*Natator depressus*); and Water Mouse, (*Xeromys myoides*) and the seagrass species *Halodule uninervis*, *Halophila ovalis*, *Halophila decipens*, *Halophila minor*, *Halophila spinulosa*, and *Zostera capricorni*;
  - (b) identification of the habitats, activities, and environmental tolerances in relation to the shipping activity associated with this referral for the species specified in condition 13(a);
  - (c) to minimise environmental disturbance to the species mentioned in condition 13(a):
    - (i) limits on vessel speeds, including speeds for particular vessel types;
    - (ii) limits on vessel movements, including the use of thrusters; and

- (iii) limits on vessel light and sound.
- (d) a comprehensive outline of mitigation measures and controls for each of the types of shipping activities to minimise their impact on the species mentioned in condition 13(a), including actions to:
  - (i) prevent and respond to the impact of accidental fuel, oil or chemical spills;
  - (ii) minimise the impact of marine discharges, including those associated with vessel cleaning, anti-fouling and waste disposal;
  - (iii) minimise disturbance to the seagrass species mentioned in condition 13(a);
  - (iv) minimise the impact of bow-wash on Water Mouse (Xeromys myoides) nesting sites; and
  - (v) proposed remedial action in the event of any impacts directly attributable to the proponent's shipping activities on the species specified in condition 13(a), and the habitats identified in condition 13(b), including a feasible and beneficial offsets strategy.
- (e) a comprehensive outline of monitoring arrangements to determine the impact of shipping activity on the species specified in condition 13(a), which includes:
  - (i) recommendations on the timing and frequency of species surveys;
  - (ii) proposed monitoring arrangements; and
  - (iii) the nature and frequency of proposed reporting arrangements.
- 14. The plan required under condition 13 must be submitted for the approval of the Minister before commencement. The action must not commence until the plan has been approved. The approved plan must be implemented.
- 15 The plan required under condition 13 may be provided in two parts, to address:
  - (a) Shipping associated with the construction of the LNG plant; and
  - (b) LNG tanker operation and LNG tanker activities.
- 16. If the plan required under condition 13 is provided in two parts, each part must be provided before the commencement of the activity to which that part relates

# Environmental Management Plan – Water Mouse (Xeromys myoides)

- 17. To protect the Water Mouse (*Xeromys myoides*), the proponent must submit to the Minister an Environmental Management Plan (the Water Mouse Environmental Management Plan) which must include:
  - a) results of a pre-clearance survey undertaken at the appropriate time and season for the species;

- a map of the location of potential habitat for the Water Mouse in proximity to marine facilities;
- measures that will be employed to avoid impacts on the Water Mouse or its
  potential habitat; and
- d) if impacts on the Water Mouse or its potential habitat are unavoidable, propose offsets to compensate for the impacts.

Note: To avoid doubt, if a condition of another approval held by the proponent requires a Water Mouse Environmental Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan. The plan may also be prepared in consultation with the Gladstone Ports Corporation in accordance with conditions imposed for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904), or otherwise.

18. The Water Mouse Environmental Management Plan must be submitted for the approval of the Minister within 6 months of this Approval. The plan must be implemented.

# Environmental Management Plan – Migratory Shorebirds

- 19. The proponent must submit to the Minister an Environmental Management Plan (the Migratory Shorebirds Environmental Management Plan) which includes measures for:
  - a) managing the impacts of the action on listed Migratory Shorebirds including but not limited to the Whimbrel (*Numenius phaeopus*) and the Terek Sandpiper (*Xenus cinereus*);
  - determining baseline population densities and habitat utilisation for migratory shorebirds on or contiguous to the proponent's LNG facility site including, at a minimum, undertaking annual/twice annual surveys during northwards and southwards migrations;
  - minimising impacts from noise and light on the feeding and roosting sites of listed migratory seabirds; and
  - d) monitoring the effect of the construction of the marine facilities on shorebirds, including but not limited to and to the extent relevant:
    - pile driving;
    - construction dredging;
    - iii noise impulse levels;
    - iv. light spill;
    - v. water quality reduction;
    - vi. decreased access to intertidal foreshore habitat;
    - vii. increased sedimentation; and
    - viii. displacement.
- 20. The Migratory Shorebirds Environmental Management Plan must be submitted for the approval of the Minister. Commencement, other than dredging for the Material Offloading Facility, must not occur without approval. The approved plan must be implemented.

Note: To avoid doubt, the Migratory Shorebirds Environmental Management Plan may be prepared in consultation with the Gladstone Ports Corporation under conditions imposed for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).

# **Decommissioning Plan**

- 21. Unless the proponent advises the Department that it cannot decommission the site because of lawful continuing use rights by a third party (that might include the State of Queensland), at least five years before the planned date of cessation of operations of the Marine Facilities on Curtis Island the proponent must develop a Decommissioning Plan. The Plan must:
  - (a) ensure that, following the cessation of operations of the Marine Facilities on Curtis Island, decommissioning arrangements are prepared;
  - (b) define a timetable for the future implementation of decommissioning including for:
    - (i) the removal of remnant infrastructure and works that interfere with natural coastal processes, and human recreational and commercial activities;
    - (ii) the return of sediment levels and water quality in the immediate area of the Marine Facilities to pre-construction background levels; and
    - (iii) the rehabilitation of the Marine Facilities and associated sites to their natural state, and their ongoing management during rehabilitation.
- 22. If decommissioning does not commence on the date proposed in the initial Decommissioning Plan, the proponent must review the decommissioning plan before each subsequent third anniversary of the date of the submission of the initial decommissioning plan over the operational life of the Marine Facilities. The proponent must advise the Minister in writing of the outcomes of this review, including any proposed changes to the decommissioning plan. Any proposed changes to the decommissioning plan must be approved in writing by the Minister.
- 23. The Decommissioning Plan must be submitted for the approval of the Minister. Decommissioning must not occur without approval. Subject to condition 21 the approved plan must be implemented.

#### Joint Plans

- 24. A management plan required under these conditions may be comprised of by a plan (a joint plan) submitted by the Gladstone Ports Corporation under conditions of approval for the Western Basin Dredging and Disposal Project (EPBC 2009/4904). If a plan is submitted by the GPC for this purpose, it must also be specified as a plan for the purpose of (as relevant) conditions of these conditions.
- 25. If a joint plan is submitted under these conditions the plan may specify roles and responsibilities of the proponent, and the roles and responsibilities of another person. A role and responsibility of the proponent must be implemented by the proponent, unless otherwise specified in the joint plan

Note. The purpose of this condition is to allow a single management plan to be submitted by different proponents, so that actions with related potential impacts may be considered and addressed cumulatively

#### Notification of commencement

- 26. Within 20 business days of commencement, the proponent must advise the Department in writing of the actual date of commencement.
- 27. If, at any time after 5 years from the date of this approval, the Minister notifies the proponent in writing that the Minister is not satisfied that there has been commencement of the action, the action must not commence without the written agreement of the Minister.

# Request for variation of plans by proponent

- 28. If the proponent wants to act other than in accordance with a plan approved by the Minister under these conditions, the proponent must submit a revised plan for the Minister's approval.
- 29. If the Minister approves the revised plan, then that plan must be implemented instead of the plan originally approved.
- 30. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

# Revisions to plans by the Minister

- 31. If the Minister believes that it is necessary or desirable for the better protection of a relevant controlling provision for the action, the Minister may request the proponent to make, within a period specified by the Minister, revisions to a plan approved under these conditions.
- 32. If the Minister makes a request for revision to a plan, the proponent must:
  - (a) comply with that request; and
  - (b) submit the revised plan to the Minister for approval within the period specified in the request.
- 33. The proponent must implement the revised plan on approval of the Minister.
- 34. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

#### Minimum timeframes for consideration of plans

35. For any plan required to be approved by the Minister under these conditions, the proponent must ensure the Minister is provided at least 20 business days for review and consideration of the plan, unless otherwise agreed in writing between the proponent and the Minister.

# Compliance with State environmental and other authorities

36. The proponent must comply with all environmental authorisations issued by the State, including conditions of an environmental authority issued under the EP Act.

# Provision of State plans

37 If a condition of a State approval requires the proponent to provide a plan then the proponent must also provide the plan to the Department or Minister on request, within the period specified in the request.

#### **Timeframes**

38. If these conditions require the proponent to provide something by a specified time, a longer period may be specified in writing by the Minister.

# Auditing

- 39. On the request of and within a period specified by the Department, the proponent must ensure that
  - (a) an independent audit of compliance with these conditions is conducted; and
  - (b) an audit report, which addresses the audit criteria to the satisfaction of the Department, is published on the Internet and submitted to the Department.
- 40. Before the audit begins, the following must be approved by the Department:
  - (a) the independent auditor; and
  - (b) the audit criteria.
- 41. The audit report must include:
  - (a) the components of the project being audited;
  - (b) the conditions that were activated during the period covered by the audit;
  - (c) a compliance/non-compliance table;
  - (d) a description of the evidence to support audit findings of compliance or non-compliance;
  - (e) recommendations on any non-compliance or other matter to improve compliance;
  - (f) a response by the proponent to the recommendations in the report (or. if the proponent does not respond within 20 business days of a request to do so by the auditor, a statement by the auditor to that effect),
  - (g) certification by the independent auditor of the findings of the audit report.
- 42. The financial cost of the audit will be borne by the proponent.
- 43. The proponent must:
  - (a) implement any recommendations in the audit report, as directed in writing by the Department;

- (b) investigate any non-compliance identified in the audit report; and
- (c) if non-compliance is identified in the audit report take action as soon as practicable to ensure compliance with these conditions.
- 44. If the audit report identifies any non-compliance with the conditions, within 20 business days after the audit report is submitted to the Department, the proponent must provide written advice to the Minister setting out the:
  - (a) actions taken by the proponent to ensure compliance with these conditions; and
  - (b) actions taken to prevent a recurrence of any non-compliance, or implement any other recommendation to improve compliance, identified in the audit report.

Note: To avoid doubt, independent third party auditing may include audit of the proponent's performance against the requirements of any plan required under these conditions.

# Reporting non-compliance

- 45. The proponent must, when first becoming aware of a non-compliance with these conditions, or a plan required to be approved by the Minister under these conditions:
  - (a) report the non-compliance and remedial action to the Department within five business days;
  - (b) bring the matter into compliance within a time frame specified in writing by the Department.

#### Record-keeping

- 46. The proponent must:
  - (a) maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures taken to implement a plan approved under these conditions; and
  - (b) make those records available on request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with these conditions.

Note: Audits or summaries of audits carried out under these conditions, or under section 458 of the EPBC Act, may be posted on the Department's website. The results of such audits may also be publicised through the general media

#### Financial assurance

- 47. The proponent must:
  - (a) provide the Minster with a financial assurance in the amount and form required from time to time by the Minster for activities to which these conditions apply; and

- (b) review and maintain the amount of financial assurance based on proponent reporting on compliance with these conditions, and any auditing of the activities.
- 48. The financial assurance is to remain in force until the Minister is satisfied that no claim is likely to be made on the assurance.

Note: The financial assurance may be used for rehabilitation of habitat and other purposes not addressed adequately by the proponent during the life of the project.

#### Annual Environmental Return

- 49 The proponent must produce an Annual Environmental Return which:
  - (a) addresses compliance with these conditions;
  - (b) records any unavoidable adverse impacts on MNES, mitigation measures applied to avoid adverse impacts on MNES; and any rehabilitation work undertaken in connection with any unavoidable adverse impact on MNES;
  - (c) identifies all non-compliances with these conditions; and
  - (d) identifies any amendments needed to plans to achieve compliance with these conditions.
- 50 The proponent must publish the Annual Environmental Return on the Internet within 20 business days of each anniversary date of this approval. In complying with this publication requirement, the proponent must ensure that it has obtained the relevant confidentiality and intellectual property rights of third parties.

#### Survey data

51. If requested by the Department, the proponent must provide all species and ecological survey data and related survey information from ecological surveys undertaken for MNES. The data must be collected and recorded to conform to data standards notified from time to time by the Department.

#### **Publication of Plans**

- 52. All plans approved by the Minister under these conditions must be published on the proponent's website within 30 business days of approval by the Minister.
- 53. The Department may request the proponent to publish on the internet a plan in a specified location or format and with specified accompanying text. The proponent must comply with any such request.

# Dictionary

54. In these conditions, unless otherwise indicated:

Conditions means these conditions attached to the approval of the action;

Commencement means the substantial commencement of construction of the proposed marine facilities as described in the referral EPBC 2008/4058, received under the EPBC Act on 28 February 2008;

**Department** means the Australian Government department responsible for administering Part 4 of the EPBC Act;

Environmental risk means any risk which has the potential to, or does impact, on the environment:

EP Act means the Environmental Protection Act 1994 (Qld);

EPBC Act means the Commonwealth Environment Protection and Biodiversity Conservation Act 1999:

*Minister* means the Minister responsible for Part 4 of the EPBC Act, and includes a delegate of the Minister under s.133 of the EPBC Act;

**MNES** means matters of national environmental significance, being the relevant matters protected under Part 3 of the EPBC Act;

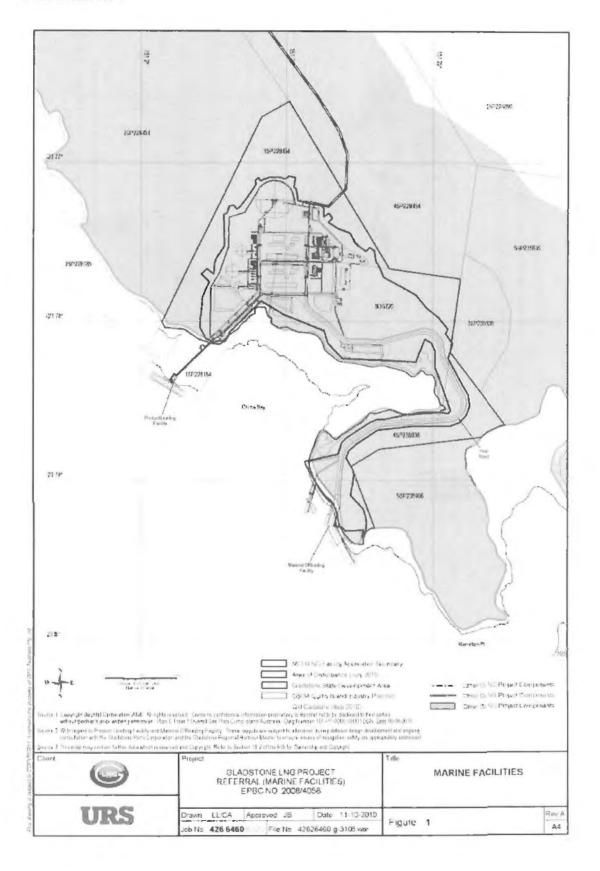
Plan includes a report, study, or strategy (however described);

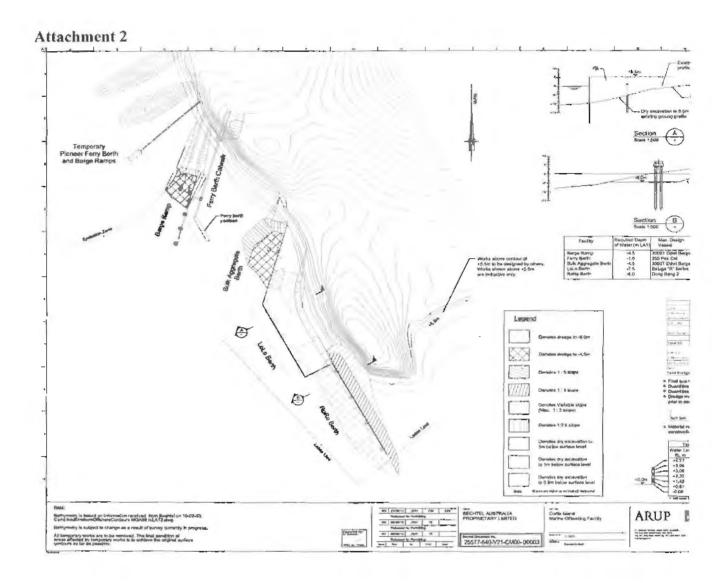
**Proponent** means the holder of the approval to which these conditions relate, and includes any person acting on behalf of the proponent;

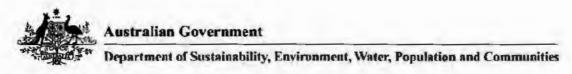
**Referral** means a referral under the EPBC Act including any variation of the referral.

- 55. Unless otherwise indicated, words in these conditions have the same meaning as in (in the following order of priority):
  - (a) the EPBC Act; and
  - (b) the EP Act.
- 56. Unless the contrary is indicated, in these conditions:
  - (a) words in the singular number include the plural and words in the plural number include the singular; and
  - (b) condition headings are inserted for convenient reference only and have no effect in limiting or extending the language of condition to which they refer.

#### Attachment 1







# **Approval**

Australia Pacific LNG Project - Development of a LNG Plant and Ancillary Onshore and Marine Facilities on Curtis Island - EPBC 2009/4977

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

person to whom the approval is granted	Australia Pacific LNG Pty Limited
proponent's ABN	ABN: 68 001 646 331
proposed action	The development, construction, operation and decommissioning of a multi-train liquefied natural gas (LNG) processing plant (LNG Facility) and associated ancillary onshore and marine facilities within the Curtis Island Industry Precinct of the Gladstone State Development Area, in the south-west section of Curtis Island adjacent to Gladstone:  • as described in the proponent's referral received under the EPBC Act on 6 July 2009; and  • as described in the proponent's Environmental Impact Statement and supplementary information provided pursuant to section 35(2) of the QLD SDPWO Act.
decision	To approve the proposed action for each of the following controlling provisions:  • World Heritage properties (sections 12 and 15A, EPBC Act)  • National Heritage Places (sections 15B and 15C, EPBC Act)  • Listed threatened species and communities (sections 18 and 18A, EPBC Act)  • Listed migratory species (sections 20 and 20A, EPBC Act)
conditions of approval	This approval is subject to the conditions specified below.
expiry date of approval	This approval has effect until 22 February 2061.
name and position	The Hon Tony Burke MP Minister for Sustainability, Environment, Water, Population and Communities
signature	Tony Burke
date of decision	(21. 2 11

# **Conditions**

#### LNG plant and ancillary onshore and marine facilities site

- The LNG plant and ancillary onshore and marine facilities site is substantially in accordance with the area outlined on the map at <u>Figure 1</u>.
- 2. Dredging is to be limited to a maximum of 900,000m³ for the construction dock on Curtis Island.

#### Visual impact of construction and operation

- 3. The proponent must minimise the visual impact of the construction and operation of the LNG Facility by:
  - (a) constructing the LNG plant and ancillary onshore and marine facilities within the site identified in Figure 1;
  - (b) applying a colour scheme to the LNG facility and buildings, other than the LNG storage tanks and any necessary corrosion-protected structures and pipe insulation, from the palette of predominant colours found in the locality (Curtis Island) except where to do so would be in contravention of health and safety legislative requirements;
  - (c) ensuring site works minimise tree (including mangrove) clearing, with stabilisation and rehabilitation works on disturbed areas fully implemented within twelve months of completing each component of the LNG Facility (the worker accommodation facility and associated infrastructure; LNG storage tanks; and LNG trains and ancillary equipment and infrastructure, including marine loading and offloading facilities); and
  - (d) minimising light spill and direct views of lights outside the LNG facility boundary except where to do so would be in contravention of health and safety legislative requirements.

#### Conduct of construction and operation workforce

- 4. The proponent must not bring private motor vehicles onto the LNG site, or private watercraft into waters within 100 metres of the LNG site boundary, except for activities directly relating to pre-clearance surveys, site clearance, and the construction and operation of the LNG plant and ancillary onshore and marine facilities.
- 5. The proponent must not bring animals and plants (including domestic cats and dogs and other potential pests and weeds), other than for landscaping and rehabilitation purposes onto the LNG plant and ancillary onshore and marine facilities site, or onto Curtis Island.
  - Note: For clarity, plants that are brought to Curtis Island for landscaping and rehabilitation purposes must be native Australian species sourced from the South Eastern Queensland and/or Brigalow Belt bioregion/s)
- 6. Entry into the Curtis Island Environmental Management Precinct, as identified in <u>Figure 2</u>, must be prohibited for all the proponent's construction workers, construction contractors, and its employees, whilst they are rostered on shifts or accommodated by the proponent on Curtis Island, except with the prior consent in writing of the authority responsible for the management of this Precinct.

- 7. An induction program must be implemented for all the proponent's employees and subcontractors at the time or before they commence work on Curtis Island. The induction program must include:
  - (a) an overview that clearly explains to all the proponent's employees and sub-contractors engaged on the construction and operation of the LNG Facility that they are working in a World Heritage Area and an explanation of the environmental values of the World Heritage Area;
  - (b) information on listed species and ecological communities and other native species that are found in the area, and the related responsibilities of the proponent, its employees and subcontractors:
  - (c) an explanation of the Rodds Bay Dugong Protection Area, and Great Barrier Reef Marine Park zoning on the eastern side of Curtis Island, Rodds Peninsula and the Capricorn Bunker group, and the responsibilities of the proponent, its employees and subcontractors within and in relation to these areas. This explanation must include the provision of maps depicting the zones, an explanation as to what can and cannot be done in the various zones, and information about how important the terrestrial and marine environments of the Capricorn Bunker group are to conserving biodiversity within the Great Barrier Reef Marine Park; and
  - (d) information that has the objective of fostering a culture of environmental awareness of the values of the area and also raises awareness among all employees and sub-contractors of the compliance and enforcement programs of the Great Barrier Reef Marine Park Authority and penalties that apply for offences.
- 8. The obligations under conditions 4, 5, 6 and 7 must also apply to any visitors to the LNG site, or to Curtis Island, who are under the direction or control of the proponent.
- 9. Within 20 business days of the final investment decision to proceed with the proposed action, the proponent must submit to the Minister for approval:
  - (a) a Curtis Island Environment Protection Code of Conduct for the construction workforce while on site and while travelling to and from the mainland and the construction site; and
  - (b) a code of conduct implementation strategy for enforcing compliance with the Curtis Island Environment Protection Code of Conduct.
- 10. The code of conduct shall include, but not necessarily be limited to, the requirements set out in conditions 4, 5, 6 and 7.
- 11. The approved Curtis Island Environment Protection Code of Conduct must be implemented.
- 12. At least 60 business days before the commissioning of the first LNG train, the proponent must review, and if necessary revise, the Curtis Island Environment Protection Code of Conduct and implementation strategy and provide the Minister with evidence that this review has been carried out. If the Curtis Island Environment Protection Code of Conduct and/or implementation strategy are revised, the revised document or documents must be submitted to the Minister for approval within 20 business days of the review being finalised. Once the Minister has approved in writing the revised code of conduct and/or implementation strategy, the approved code of conduct and/or implementation strategy must be implemented.

#### Offsets

#### Plan to secure and manage environmental offsets

- 13. An Environmental Offsets Plan to offset the loss of habitat and associated World Heritage and National Heritage values caused by the construction and operation of the LNG facility, must be developed.
- 14. The Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:
  - (a) the development and operation of the LNG facility;
  - (b) other activities on Curtis Island that are associated with the LNG Facility (including workers' accommodation facilities, port works for the project, and ancillary works); and
  - (c) increased risks to biodiversity values of the World Heritage and National Heritage property arising from increased shipping movements and other subsequent or indirect impacts beyond the immediate development site such as water quality impacts and increased recreational access arising from the development and operation of the LNG facility.

#### 15. The Plan must detail:

- (a) the principles adopted in the Plan. These principles must reflect the objective of identifying, protecting, conserving, presenting, transmitting to future generations and, if necessary, rehabilitating, the World Heritage and National Heritage values of the Great Barrier Reef property;
- (b) the predicted total loss (in extent and type) of areas of ecological and aesthetic value, (including remnant vegetation, high value regrowth, significant conservation species, habitat, biodiversity corridors, scenic vistas of outstanding natural beauty);
- (c) the methodology for identifying the requirements for environmental offsets for specific components of the LNG Facility over the life of the project;
- (d) a proposed timeline for implementing the Environmental Offsets Plan;
- (e) relevance to any Commonwealth or State government requirements for offsets;
- in relation to any land retained at the time of preparation of the Plan, the location, size and environmental values of the offsets (land);
- (g) in relation to any land retained at the time of preparation of the Plan, the management measures, including funding, required to secure, maintain and enhance the values of the proposed offset (land); and
- (h) a system for reporting to the Minister on offset arrangements, their management and how offset values are being maintained.
- 16. The Environmental Offsets Plan must as a minimum include:
  - (a) to offset direct impacts, the securing by the proponent of an offset property:

- that contains attributes or characteristics at least corresponding with those of the LNG facility site; and
- (ii) at a ratio of no less than 5:1 of the LNG facility site area, excluding the proposed reclamation area (that is, a property of at least 1,153 ha in total area);
- (b) a commitment by the proponent to use its best endeavours to secure National Park status for the offset property. At a minimum the proponent must ensure the retention and management for conservation purposes, under a secure permanent land tenure arrangement, of the offset property.
- (c) to offset indirect impacts, a strategy for contributions to field management and visitor awareness of the Great Barrier Reef World Heritage Area. The strategy must:
  - (i) provide for activities to support field management to address the increased pressures on the Great Barrier Reef World Heritage Area, including but not limited to, pressures on populations of vulnerable species, increased risks from shipping and increased use of the Area;
  - (ii) be developed in consultation with the Great Barrier Reef Marine Park Authority, to give priority to objectives for the protection of the Great Barrier Reef Marine Park and World Heritage Area identified (from time to time), which may include (without limitation) patrols, support for incident response planning and preparedness, data collection, and assistance in visitor management;
  - (iii) provide for the submission of periodic reports to the Great Barrier Reef Marine Park Authority on the activities conducted;
  - (iv) provide for a budget of at least \$200,000 per annum for the life of the project (indexed at CPI) and in addition \$100,000 per annum (indexed at CPI) for each operating LNG Train (commencing on commissioning of the relevant Train) to support implementation of the strategy.

Note: For clarity, contributions or offsets negotiated with the Queensland Government with respect to the LNG Facility site (e.g. including under the Environmental Management Precinct Agreement) may, in whole or in part, meet the requirements of condition 16(a).

- 17. Subject to condition 18, any property that is purchased or otherwise retained under a secure land tenure arrangement for the purposes of the Environmental Offsets Plan must be located within the Great Barrier Reef World Heritage Area, preferably on Curtis island or nearby.
- 18. If, within the Great Barrier Reef World Heritage Area, no area of land containing attributes or characteristics at least corresponding with those of the LNG facility site can be secured and protected in the manner described in condition 16 within 24 months of the Minister's approval of this project, an alternative proposal and timetable for acquiring (by purchase, lease or otherwise) property other than in the GBRWHA must be provided to the Minister for approval in writing.
- 19. To avoid doubt, the offset required under condition 16 is additional to any similar offset required under an EPBC Act condition of approval for another proponent for an LNG facility on Curtis Island.

#### **Environmental Offsets Plan**

20. Within 6 months of the final investment decision to proceed with the proposed action, the Environmental Offsets Plan must be submitted in writing for the approval of the Minister. The approved plan must be implemented.

Note: To avoid doubt, The Environmental Offsets Plan, or components of it, may be prepared and implemented in consultation with the Gladstone Ports Corporation or other bodies.

# Construction and operation environmental management requirements and plans

21. At least one week before the commencement of clearance of native vegetation associated with the construction and operation of the LNG plant, the proponent must undertake preclearance surveys to check for the presence of listed ecological communities, listed threatened species, listed migratory species, their habitat, and species identified as contributing to the World Heritage and National Heritage values of the Great Barrier Reef World Heritage Area.

#### 22. Pre-clearance surveys must:

- (a) be undertaken consistent with the Department's survey guidelines in effect at the time of the survey. This information can be obtained from http://www.environment.gov.au/epbc/guidelines-policies.html#threatened;
- (b) take account and reference previous ecological surveys undertaken by the proponent for the area and relevant new information on likely presence of MNES;
- (c) be undertaken by a suitably qualified ecologist approved in writing by the Department;
- (d) document the survey methodology, targeted species and ecological communities, results and significant findings in relation to MNES; and
- (e) apply best practice site assessment and ecological survey methods appropriate for each listed threatened species, listed migratory species, their habitat, and listed ecological communities. Pre-clearance survey reports (which document the methods used and the results obtained) must be published by the proponent on the internet before commencement and provided to the Department on request.
- 23. If a listed threatened species or migratory species or their habitat, is found during the preclearance surveys undertaken as required by condition 21, and is not specified in conditions 48-57 inclusive, the proponent must submit a separate management plan for each such species, ecological community or other MNES, to manage the impacts of construction and operation of the LNG facility. Each such plan must be submitted before the commencement of construction of the LNG facility. Each plan must include:
  - (a) a map of the location of species or species habitat in relation to the LNG Facility and its associated infrastructure;
  - (b) a description of the measures that will be employed to avoid impact on the species or species habitat

- (c) where impacts are unavoidable, and if an impacted species is not specified in conditions 48-57 inclusive, propose offsets to compensate for the impact on the population or impact on the species habitat
- 24. Before commencement the proponent must prepare a Construction Environmental Management Plan (CEMP). The CEMP may be submitted in stages (Staged CEMP) in which case commencement of a stage covered by the staged CEMP cannot commence until submitted and approved by the Minister.
- 25. The CEMP must address, but not necessarily be limited to, an identification of all activities with potential to adversely impact on MNES proposed to be undertaken during the construction of LNG facilities, including the construction camp and supporting facilities and the marine facilities on Curtis Island. The CEMP must include:
  - (a) design plans showing the type and extent of the works proposed;
  - (b) a construction schedule and methodology, including plans and maps showing discharge points and emission controls for all construction stages;
  - (c) an environmental monitoring and a sampling program which details baseline data collection and provides the basis for ongoing monitoring of specified parameters for the construction and operational phases, including appropriate triggers for mitigation and cessation of works, including pile driving, and reporting mechanisms that ensure reporting to the Minister within one business day of injury to, or mortality of, an individual or individuals of EPBC listed threatened or migratory species caused by construction activities;
  - (d) any potential impacts or effects of the proposed works on the environment during the construction phase and the means by which adverse impacts will be avoided or mitigated; including measures to minimise light emission onto the water from the loading jetty and construction docks during construction;
  - (e) details of the sewage treatment plant and desalination plant, including:
    - design and operational performance information for sewage treatment and desalination (including acoustic performance of pumps and other machinery);
    - (ii) design and operational performance information for any outfalls and diffusers for emissions, including liquid and solid emissions into Port Curtis including detailed analysis of existing water quality, effluent contaminants, acute and chronic toxic effects of contaminants on fauna and flora and any long term ecological effects from outfalls and emissions;
    - (iii) a detailed description of impacts from the discharge of treated sewage and brine. Source water quality data and characteristics of additives must be provided, and the disposal methods to be used must be described in the plan. The information must be used to determine the site specific mitigation measures proposed, including monitoring and reporting regimes;
    - (iv) information on the eco-toxicity of effluent at the point of release, in the mixing zone, and cumulative impacts of contaminants in the marine ecosystem over time;
    - (v) the assumptions, adequacy and limitations of any modelling used to predict the dimensions and duration of the mixing zone.

- (f) details on any other plant, equipment or activities that involve emissions to the environment, including:
  - (i) a description of the plant, equipment or activities;
  - (ii) design and operational performance information for plant, equipment or activities; and
  - (iii) the potential for unforseen or accidental incidents and proposed responses to these incidents.
- (g) a detailed list of waste streams including their handling, treatment and disposal arrangements;
- (h) the environmental protection commitments proposed for the activities (including all associated accommodation and recreation activities on the Island) to protect the environmental values under best practice environmental management;
- (i) a rehabilitation program for land proposed to be disturbed during construction of all infrastructure (including associated accommodation and recreation activities) on Curtis Island:
- (j) details of a response plan, with appropriate triggers, which will be initiated in response to any significant impacts on the environment from the works.
- (k) identification and characterisation of all wastes and emissions produced by the LNG Facility and its associated support infrastructure including its source, handling, treatment, disposal or release to the environment.
- 26. The CEMP, or a stage of the CEMP, must be submitted for the approval of the Minister. Commencement of the action to which the staged CEMP relates must not occur without the approval in writing of the Minister of the CEMP. The approved plan must be implemented.
- 27. Before the commissioning of the first LNG train, an Operational Environmental Management Plan (OEMP) must be prepared.
- 28. The OEMP must address the matters required to be included in the CEMP while incorporating changes and any additions the proponent believes are necessary to reflect the shift from the construction phase to the operational phase.
- 29. The OEMP must be submitted for the approval of the Minister. Commissioning of the first LNG train must not occur without the approval in writing of the Minister. The approved plan must be implemented.

Note: To avoid doubt, if a condition of another approval held by the proponent requires a Construction Environmental Management Plan and/or Operational Environmental Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan.

#### Discharge of sewage effluent

30. Any discharge of treated sewage effluent into the waters surrounding Curtis Island must, at minimum, meet the definition of tertiary treatment as specified in section 135(3) of the *Great Barrier Reef Marine Park Regulations* 1983 and be in accord with GBRMPA Sewage

Discharge Policy March 2005, unless studies required to develop the CEMP under conditions 24 and 25 indicate that more stringent pollutant limits are necessary.

## **Dredging Management Plan - Construction Dock**

- 31. For the construction dock, the proponent must submit to the Minister a Dredging Management Plan which must include
  - (a) mapping of significant and sensitive receptors in the area of the marine facilities, with linkages to applicable monitoring programs;
  - (b) assessment of all potential and real environmental risks to matters protected by the EPBC Act from dredging activities;
  - (c) appropriate measures (for example mitigation measures, performance indicators/trigger levels and corrective actions/management actions) that will ensure that there are no unacceptable impacts on the Great Barrier Reef World Heritage Area, Great Barrier Reef National Heritage Place, EPBC listed threatened or migratory species. These must include;
    - operating procedures to minimise injury to, or mortality of, EPBC Act listed threatened or migratory species from dredging activities or construction activities;
    - ii. reporting mechanisms that ensure reporting to the Minister within one business day of the proponent becoming aware of injury to, or mortality of, an EPBC listed threatened or migratory species caused by dredging activities;
    - iii. management triggers, based on results obtained from the Water Quality Monitoring Program, including a reporting requirement to advise the Department in writing within one working day when triggers are exceeded;
    - iv. contingency measures, based upon results of water quality and applicable research and monitoring programs, when dredging operations must be varied or suspended;
    - measures that minimise the risk of introduced marine pest species, including ballast-water management and vessel inspections for any non-domestic vessels;
       and
    - vi. responsive actions that will be undertaken in the event contingency measures are employed, including reporting to the Minister.
  - (d) details of dredge spoil placement; and
  - (e) provisions to sample and analyse dredge spoil composition.
- 32. The Dredging Management Plan must be submitted for the approval of the Minister. Commencement of dredging must not occur without approval. The approved plan must be implemented.
- 33. A dredge management plan satisfying State requirements and addressing the matters identified in this condition will be deemed to have been submitted and approved.

Note 1: Applicable research and monitoring programs may include programs undertaken in accordance with conditions attached to the approval for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).

Note 2: These conditions do not prevent the Gladstone Ports Corporation, on behalf of the proponent, from submitting a single dredge management plan which relates to both dredging for the construction dock under these conditions, and dredging undertaken under conditions attached to the approval for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).

#### Dredging and dredge disposal - Material Offloading Facility

34. Dredging and disposal of dredge material associated with the Material Offloading Facility is to be undertaken in accordance with conditions imposed under and by the holder of the approval for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).

Note: This condition does not prevent the proponent from undertaking dredging on behalf of the Gladstone Ports Corporation, under conditions attached to the approval for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).

## **Dredging operations - Construction Dock**

- 35. The proponent must not undertake any underwater dredge material rehandling.
- 36. Only one trailer suction hopper dredge (TSHD) is permitted to operate within Gladstone Harbour at any given time.
- 37. When the TSHD is in use, a maximum of two cutter suction dredges may operate at any given time unless otherwise prescribed in an approved Water Quality Monitoring Program required under conditions attached to the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).
- 38. The TSHD must not operate in overflow mode except during the last one hour of flood tide and first three hours of ebb tide unless otherwise in accordance with the approved Water Quality Monitoring Program.
- 39. The TSHD must not operate in overflow mode for more than 30 minutes per cycle, with no more than two cycles per tide unless otherwise in accordance with the approved Water Quality Monitoring Program.
- 40. Where construction and/or dredging methods with lower environmental impacts are identified to be practical, these methods must be implemented.
- 41. In this condition, "at any given time" means at any given time with any other dredging operations being undertaken by another holder of an approval relating to dredging activities in the Port of Gladstone.

Note: Similarly to conditions attached to the approval for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904), these conditions are intended to limit the number of dredges being operated at any one time in Port Curtis.

#### Shipping Activity Management Plan

- 42. The proponent must prepare a Shipping Activity Management Plan ('the Plan') for shipping undertaken by or under the control of the proponent which includes:
  - (a) provision for the protection of Dugongs (Dugong dugon); Green Turtles (Chelonia mydas);
     Loggerhead Turtles (Caretta caretta); Flatback Turtles (Natator depressus); Water Mouse,

- (Xeromys myoides) and the seagrass species Halodule uninervis, Halophila ovalis, Halophila decipens, Halophila minor, Halophila spinulosa, and Zostera capricomi;
- (b) identification of the habitats, activities, and environmental tolerances in relation to the shipping activity associated with this referral for the species specified in condition 42(a);
- (c) to minimise environmental disturbance to the species mentioned in condition 42(a):
  - (i) limits on vessel speeds, including speeds for particular vessel types;
  - (ii) limits on vessel movements, including the use of thrusters; and
  - (iii) limits on vessel light and sound.
- (d) a comprehensive outline of mitigation measures and controls for each of the types of shipping activities to minimise their impact on the species mentioned in condition 42(a), including actions to:
  - (i) prevent and respond to the impact of accidental fuel, oil or chemical spills;
  - (ii) minimise the impact of marine discharges, including those associated with vessel cleaning, anti-fouling and waste disposal;
  - (iii) minimise disturbance to the seagrass species mentioned in condition 42(a);
  - (iv) minimise the impact of bow-wash on Water Mouse (Xeromys myoides) nesting sites; and
  - (v) proposed remedial action in the event of any impacts directly attributable to the proponent's shipping activities on the species specified in condition 42(a), and the habitats identified in condition 42(b), including a feasible and beneficial offsets strategy.
- (e) a comprehensive outline of monitoring arrangements to determine the impact of shipping activity on the species specified in condition 42(a), which includes:
  - (i) recommendations on the timing and frequency of species surveys;
  - (ii) proposed monitoring arrangements; and
  - (iii) the nature and frequency of proposed reporting arrangements.
- 43. Subject to condition 44 and 45, the plan required under condition 42 must be submitted for the approval of the Minister before commencement. The action must not commence until the plan has been approved. The approved plan must be implemented.
- 44. The plan required under condition 42 may be provided in two parts, to address:
  - (a) shipping associated with the construction of the LNG plant; and;
  - (b) LNG tanker operation and LNG tanker activities.

45. If the plan required under condition 42 is provided in two parts, each part must be provided before the commencement of the activity to which that part relates.

Note: The requirements under condition 42 may be included in a plan which the proponent provides to the State, including in a Marine Traffic Management Plan or a Shipping Transport Management Plan. If these State plans are provided for this purpose, that plan should explicitly state that it is also provided for the purposes of this condition, and clearly reference matters addressing the requirements above. It is acknowledged that, before approval of the first part of the Plan, minor vessel movements may be undertaken to facilitate early site access including for the initial construction of the Construction Dock

#### Quarantine Management Plan

- 46. Before the commencement of construction of the LNG plant and ancillary onshore facilities, the proponent must prepare a Quarantine Management Plan (QMP). The objectives of the QMP are to prevent the introduction of non-endemic species on to Curtis Island. The QMP must include measures to:
  - (a) detect pests and weeds, and prevent weed introduction and/or proliferation;
  - (b) control and, unless otherwise determined by the relevant State authorities, eradicate detected non-indigenous terrestrial species (including weeds);
  - (c) mitigate adverse impacts of any control and eradication actions on indigenous species taken against detected pests and weeds;
  - (d) assess risk, manage supply chains, and manage and inspect vessels;
  - (e) mitigate any pest or weed impacts;
  - (f) report and record any quarantine incidents;
  - (g) identify performance standards to be achieved by the QMP; and
  - (h) undertake a review of the QMP and identify the need for any further studies.

Note: To avoid doubt, the QMP may be submitted in stages, for example to cover the period prior to any planned direct arrival at the MOF of international imports, and after this time.

47. The QMP must be submitted for the approval of the Minister. Commencement must not occur without the approval in writing of the Minister. The approved Plan must be implemented.

Note: To avoid doubt, if a condition of another approval held by the proponent requires a Quarantine Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan. The plan, or components thereof, may also be prepared and implemented in consultation with the Gladstone Ports Corporation or other bodies.

#### Environmental Management Plan – Water Mouse (Xeromys myoides)

- 48. To protect the Water Mouse (*Xeromys myoides*), the proponent must submit to the Minister an Environmental Management Plan (the Water Mouse Environmental Management Plan) which must include:
  - results of a pre-clearance survey undertaken at the appropriate time and season for the species;

- (b) a map of the location of potential habitat for the Water Mouse in proximity to the LNG plant and ancillary onshore and marine facilities;
- (c) measures that will be employed to avoid impacts on the Water Mouse or its potential habitat; and
- (d) if impacts on the Water Mouse or its potential habitat are unavoidable, propose offsets to compensate for the impacts.

Note: To avoid doubt, if a condition of another approval held by the proponent requires a Water Mouse Environmental Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan. The plan may also be prepared in consultation with the Gladstone Ports Corporation in accordance with conditions imposed for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).

49. The Water Mouse Environmental Management Plan must be submitted for the approval of the Minister within 6 months of this approval. The plan must be implemented.

# Environmental Management Plan - Migratory Shorebirds

- 50. The proponent must submit to the Minister an Environmental Management Plan (the Migratory Shorebirds Environmental Management Plan) which includes measures for:
  - a. managing the impacts of the action on listed Migratory Shorebirds including but not limited to the Whimbrel (*Numenius phaeopus*) and the Terek Sandpiper (*Xenus cinereus*);
  - determining baseline population densities and habitat utilisation for migratory shorebirds on or contiguous to the proponent's LNG facility site including, at a minimum, undertaking annual/twice annual surveys during northwards and southwards migrations;
  - minimising impacts from noise and light on the feeding and roosting sites of listed migratory shorebirds; and
  - d. monitoring the effect of the construction of the marine facilities on shorebirds, including but not limited to, and to the extent relevant:
    - i. dredge vessel movement;
    - ii. pile driving;
    - iii. construction dredging;
    - iv. noise impulse levels;
    - v. light spill;
    - vi. water quality reduction;
    - vii. decreased access to intertidal foreshore habitat;
    - viii. increased sedimentation; and
    - ix. displacement.

51. The Migratory Shorebirds Environmental Management Plan must be submitted for the approval of the Minister. Commencement, other than Construction Dock dredging, must not occur without approval. The approved plan must be implemented.

Note: To avoid doubt, the Migratory Shorebirds Environmental Management Plan may be prepared in consultation with the Gladstone Ports Corporation under conditions imposed for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).

#### Long-term Marine Turtle Management Plan

- 52. Within six months of this approval, the proponent must
  - (a) contribute an initial amount of \$150,000 towards preparation of a Long Term Marine Turtle Management Plan; and
  - (b) participate in industry wide discussions with the Gladstone Ports Corporation and other port users (including LNG proponents) with a view to establishing a Long Term Marine Turtle Management Plan and future funding requirements for the plan.
- 53. If terms of the Long Term Marine Turtle Management Plan cannot be agreed on an industry wide basis (within the Port of Gladstone) within six months of this approval, then the proponent must prepare a Long Term Marine Turtle Management Plan in consultation with other LNG proponents who have confirmed an intention to establish an LNG Facility on Curtis Island.
- 54. The plan (in either case referred to in 52 and 53 above), must include:
  - (a) a program to establish comprehensive baseline information on populations of marine turtles that utilise the beaches and nearby waters of Curtis and Facing Island (including the Green Turtle Chelonia mydas, the Loggerhead Turtle Caretta caretta, and the Flatback Turtle Natator depressus);
  - (b) a monitoring program to measure and detect changes to the marine turtle populations over a period of at least 10 years from commencement of the program. Monitoring methods must have the ability to detect changes at a statistical power of 0.8, or an alternative statistical power as determined in writing by the Minister;
  - (c) the identification of significant activities relating to the construction and operation of LNG facilities (or in the case of an industry wide plan, activities within the Port of Gladstone) with the potential to cause adverse impacts on marine turtles;
  - (d) management measures including operating controls and design features to help manage and avoid adverse impacts to marine turtles shown to be adversely impacted by LNG operations (or in the case of an industry wide plan, activities conducted within the Port of Gladstone). In relation to the LNG operations, management measures will include any reasonable and practicable measures found necessary or desirable to minimise disturbance to marine turtles from gas flaring, and from lighting of the LNG plant and ships moored at the loading berth (except where the adoption of measures would be in contravention of health and safety legislative requirements).
  - (e) identification of annual contributions by the proponent, other LNG proponents who have confirmed an intention to establish an LNG Facility on Curtis Island and, in the case of an industry wide plan, contributions by other port users.

- 55. The Long Term Marine Turtle Management Plan must be submitted for the approval of the Minister at least 3 months before the planned date of the commissioning of the first LNG train. The approved Plan must be implemented.
- 56. Within 60 days of each anniversary of the approval of the plan the proponent must provide a review report ("the Report") of the effectiveness of the management measures and operating controls directed at avoiding impacts on the marine turtle species.

Note: The review report may be provided by the Gladstone Ports Corporation or another entity on behalf of the proponent.

57. If an impact on any of the marine turtle species is identified, the report must recommend improvements to the conduct of those operations and activities which are found to have a causal connection with the identified impact, and provide the report to the Minister in writing within 30 days of identifying the impact. The Minister may require improvements to be implemented.

Note: To avoid doubt, if a condition of another approval held by the proponent requires a Turtle Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan. The plan may also be prepared and implemented in consultation with the Gladstone Ports Corporation or other bodies.

#### Decommissioning Plan

- 58. Unless the proponent advises the Department that it cannot decommission the site or sites where the LNG plant and ancillary onshore and marine facilities are located, because of lawful continuing use rights by a third party (that might include the State of Queensland), at least five years before the planned date of cessation of operations of the LNG Facility and associated infrastructure on Curtis Island the proponent must develop a Decommissioning Plan. The Plan must:
  - (a) ensure that, following the cessation of operations at the LNG Facility and associated infrastructure on Curtis Island, decommissioning arrangements are prepared;
  - (b) define a timetable for the future implementation of decommissioning including for:
    - the removal of remnant infrastructure and works that interfere with natural coastal processes, and human recreational and commercial activities;
    - (ii) the return of sediment levels and water quality in the immediate area of the LNG Facility to pre-construction background levels; and
    - (iii) the rehabilitation of the LNG Facility and associated sites to their natural state, and their ongoing management during rehabilitation.
- 59. If decommissioning does not commence on the date proposed in the initial Decommissioning Plan, the proponent must review the Decommissioning Plan before each subsequent third anniversary of the date of the submission of the initial Decommissioning Plan over the operational life of the LNG facility. The proponent must advise the Minister in writing of the outcomes of this review, including any proposed changes to the Decommissioning Plan. Any proposed changes to the Decommissioning Plan must be approved in writing by the Minister.
- 60. The Decommissioning Plan must be submitted for the approval of the Minister.

  Decommissioning must not occur without approval of the Minister. Subject to condition 58 the approved Plan must be implemented on decommissioning.

#### **Joint Plans**

- 61. A management plan required under these conditions may comprise a plan (a joint plan) submitted by the Gladstone Ports Corporation under conditions of approval for the Western Basin Dredging and Disposal Project (EPBC 2009/4904) or another LNG proponent. If a joint plan is submitted by the GPC or another LNG proponent for this purpose, it must also be specified as a plan for the purpose of (as relevant) these conditions.
- 62. If a joint plan is submitted under these conditions the plan may specify roles and responsibilities of the proponent, and the roles and responsibilities of another person. A role and responsibility of the proponent must be implemented by the proponent, unless otherwise specified in the joint plan.

Note: The purpose of this condition is to allow a single management plan to be submitted by different proponents to satisfy the requirements of conditions of separate but related approvals, so that actions with related potential impacts may be considered and addressed cumulatively

#### Notification of commencement

- 63. Within 20 business days of commencement of the action, the proponent must advise the Department in writing of the actual date of commencement.
- 64. If, at any time after five years from the date of this approval, the Minister notifies the proponent in writing that the Minister is not satisfied that there has been commencement of the action, the action must not commence without the written agreement of the Minister.

#### Request for variation of plans by proponent

- 65. If the proponent wants to act other than in accordance with a plan approved by the Minister under these conditions, the proponent must submit a revised plan for the Minister's approval.
- 66. If the Minister approves a revised plan, then that plan must be implemented instead of the plan originally approved.
- 67. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

#### Revisions to plans by the Minister

- 68. If the Minister believes that it is necessary or desirable for the better protection of a relevant controlling provision for the action, the Minister may request the proponent to make, within a period specified by the Minister, specified revisions to a plan approved by the Minister under these conditions.
- 69. If the Minister makes a request for revisions to a plan, the proponent must:
  - (a) comply with that request; and
  - (b) submit the revised plan to the Minister for approval within the period specified in the request.

- 70. The proponent must implement the revised plan, on written approval of the Minister.
- 71. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

#### Minimum timeframes for consideration of plans

72. For any plan required to be approved by the Minister under these conditions, the proponent must ensure the Minister is provided at least 20 business days for review and consideration of any plan, unless otherwise agreed in writing between the proponent and the Minister.

#### Compliance with State environmental and other authorities

73. The proponent must comply with all environmental authorisations issued by the State, including conditions of an environmental authority issued under the EP Act.

#### Provision of State plans

74. If a condition of a State approval requires the proponent to provide a plan then the proponent must also provide the plan to the Department or Minister on request, within the period specified in the request

#### **Timeframes**

75. If these conditions require the proponent to provide something by a specified time, a longer period may be specified in writing by the Minister.

#### Auditing

- 76. On the request of and within a period specified by the Department, the proponent must ensure that:
  - (a) an independent audit of compliance with these conditions is conducted; and
  - (b) an audit report, which addresses the audit criteria to the satisfaction of the Department, is published on the Internet and submitted to the Department
- 77. Before the audit begins, the following must be approved by the Department:
  - (a) the independent auditor; and
  - (b) the audit criteria
- 78. The audit report must include:
  - (a) the components of the project being audited;
  - (b) the conditions that were activated during the period covered by the audit;
  - (c) a compliance/non-compliance table;
  - (d) a description of the evidence to support audit findings of compliance or non-compliance;

- (e) recommendations on any non-compliance or other matter to improve compliance;
- (f) a response by the proponent to the recommendations in the report (or, if the proponent does not respond within 20 business days of a request to do so by the auditor, a statement by the auditor to that effect);
- (g) certification by the independent auditor of the findings of the audit report.
- 79. The financial cost of the audit will be borne by the proponent.
- 80. The proponent must:
  - (a) implement any recommendations in the audit report, as directed in writing by the Department;
  - (b) investigate any non-compliance identified in the audit report; and
  - (c) if non-compliance is identified in the audit report take action as soon as practicable to ensure compliance with these conditions.
- 81. If the audit report identifies any non-compliance with the conditions, within 20 business days after the audit report is submitted to the Department the proponent must provide written advice to the Minister setting out the:
  - (a) actions taken by the proponent to ensure compliance with these conditions; and
  - (b) actions taken to prevent a recurrence of any non-compliance, or implement any other recommendation to improve compliance, identified in the audit report

Note: To avoid doubt, independent third party auditing may include audit of the proponent's performance against the requirements of any plan required under these conditions.

#### Reporting non-compliance

- 82. The proponent must, when first aware of a non-compliance of any condition of this approval, or a plan required to be approved by the Minister under these conditions:
  - (a) report the non-compliance and remedial action to the Department within five business days; and
  - (b) bring the matter into compliance within a reasonable timeframe agreed to, in writing by the Department.

#### Record-keeping

- 83. The proponent must:
  - (a) maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures taken to implement a plan approved by the Minister under these conditions; and
  - (b) make those records available on request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with these conditions of approval.

Note: Summaries of audits carried out under these conditions, or under section 458 of the EPBC Act, will be posted on the Department's website. The results of such audits may also be publicised through the general media.

# Financial assurance

- 84. The proponent must:
  - (a) provide the Minister with a financial assurance in the amount and form required from time to time by the Minister for activities to which these conditions apply; and
  - (b) review and maintain the amount of financial assurance based on proponent reporting on compliance with these conditions, and any auditing of the activities.
- 85. The financial assurance is to remain in force until the Minister is satisfied that no claim is likely to be made on the assurance.

Note: The financial assurance may be used for rehabilitation of habitat and other purposes not addressed adequately by the proponent during the life of the project.

#### Annual Environmental Return

- 86. The proponent must produce an Annual Environmental Return which:
  - (a) addresses compliance with these conditions;
  - records any unavoidable adverse impacts on MNES, mitigation measures applied to avoid adverse impacts on MNES; and any rehabilitation work undertaken in connection with any unavoidable adverse impacts on MNES;
  - (c) identifies all non-compliances with these conditions;
  - (d) identifies any amendments needed to plans to achieve compliance with these conditions.
- 87. The proponent must publish the Annual Environmental Return on its website within 20 calendar days of each anniversary date of this approval. In complying with this publication requirement, the proponent must ensure that it has obtained relevant rights in relation to confidentiality and intellectual property rights of third parties.

## Survey data

88. If requested by the Department, the proponent must provide all species and ecological survey data and related survey information from ecological surveys undertaken for MNES. The data must be collected and recorded to conform to data standards notified from time to time by the Department.

#### **Publication of Plans**

- 89. All plans approved by the Minister under these conditions must be published on the proponent's website within 30 business days of approval by the Minister.
- 90. The Department may request the proponent to publish on the internet a plan in a specified location or format and with specified accompanying text. The proponent must comply with any such request.

#### **Dictionary**

91. In these conditions, unless otherwise indicated:

**CEMP** means the Construction Environmental Management Plan developed as required under conditions 24 to 26;

Conditions means these conditions attached to the approval of the action;

Commencement means the substantial commencement of construction of the proposed LNG plant and ancillary onshore and marine facilities as described in referral EPBC 2009/4977 received under the EPBC Act on 6 July 2009. Commencement does not include minor physical disturbance necessary to undertake pre-clearance surveys, to establish monitoring programs or associated with mobilisation of plant, equipment, materials, machinery and personnel prior to start of construction of the LNG plant and ancillary onshore and marine facilities;

**Commissioning** means the point at which, following completion of the construction of the first LNG train, it is tested to verify if it functions according to its design objectives or specifications;

**Construction workforce** means both personnel directly employed by the proponent and subcontracted personnel engaged on-site during the construction of the LNG facility, including associated works and infrastructure:

**Dredge material rehandling** means the dredging technique of temporary seabed deposition of dredged material with subsequent re-dredging;

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 and land reclamation sites.

**Department** means the Australian Government department responsible for administering Part 4 of the EPBC Act;

EP Act means the Environmental Protection Act 1994 (Qld);

**EPBC Act** means the Commonwealth Environment Protection and Biodiversity Conservation Act 1999;

*Minister* means the Minister responsible for Chapter 4 of the EPBC Act, and may include a delegate of the Minister under s.133 of the EPBC Act;

**MNES** means one or more matters of national environmental significance under the EPBC Act that are included within the controlling provisions determined by the Minister for the action;

**OEMP** means the Operational Environmental Management Plan developed as required under conditions 27 to 29;

Plan includes a report, study, plan, or strategy (however described);

**Proponent** means the person to whom the approval is granted, and includes any person acting on behalf of the proponent;

**QMP** means the Quarantine Management Plan developed as required under conditions 46 to 47;

Referral means a referral under the EPBC Act;

**SDPWO Act 1971** means the State Development and Public Works Organisation Act 1971 (Qid);

**Suitably qualified person** means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature;

**Vessel operators** means operators (whether or not employed by the proponent), and their employees, responsible for operating vessels travelling from the mainland to Curtis Island during the pre-clearance survey, construction, and operating phases of the LNG facility.

- 92. Unless the contrary is indicated, words in these conditions have the same meaning as in (in the following order of priority)
  - (a) the EPBC Act; and
  - (b) the EP Act.
- 93. Unless the contrary is indicated, in these conditions:
  - (a) words in the singular number include the plural and words in the plural number include the singular; and
  - (b) condition headings and notes are inserted for convenient reference only and have no effect in limiting or extending the language of condition to which they refer.

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 $Figure \ 1-Proposed \ location \ of \ APLNG \ LNG \ plant \ and \ ancillary \ on shore \ and \ marine \ facilities \ on \ Curtis \ Island$ 

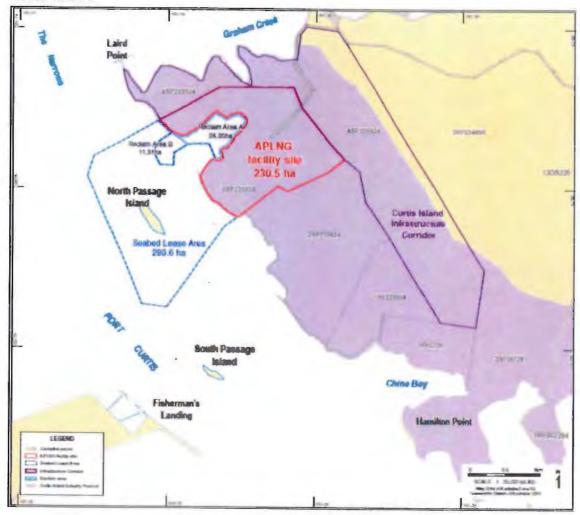
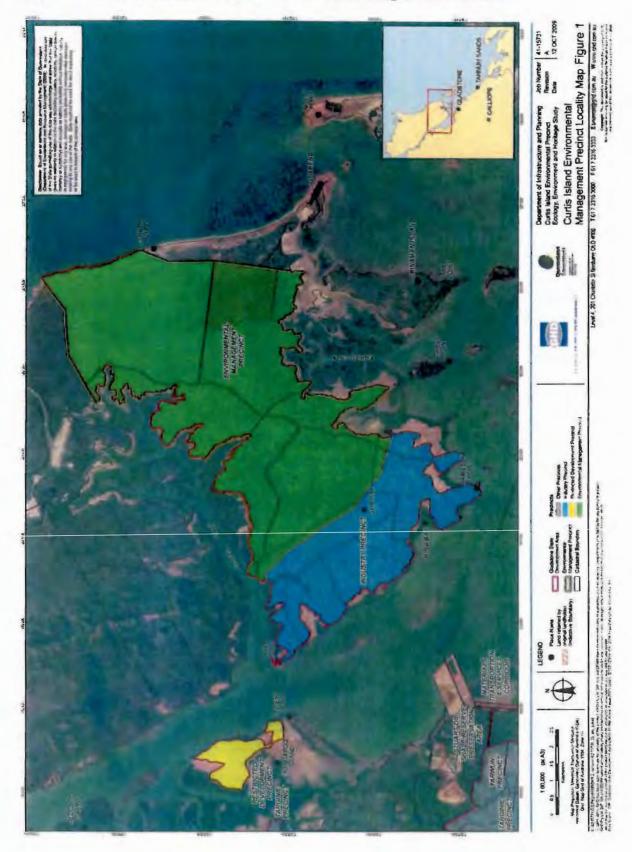


Figure 2 - Map of Curtis Island Environmental Management Precinct



# **Approval**

To develop, construct, operate and decommission a high pressure gas transmission pipeline network to link coal seam gas fields to a proposed LNG facility on Curtis Island (EPBC No 2009/4976)

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

person to whom the approval is granted	Australia Pacific LNG Pty Ltd
proponent's ABN	ABN: 68001646331
proposed action	To develop, construct, operate and decommission a high pressure gas transmission pipeline network to link coal seam gas fields in south-east Queensland to the proposed LNG facility located on Curtis Island, adjacent to Gladstone
	<ul> <li>as described in the proponent's referral received under the EPBC Act on 6 July 2009; and</li> </ul>
	<ul> <li>as described in the proponent's Environmental Impact Statement and supplementary information provided pursuant to section 35(2) of the QLD SDPWO Act.</li> </ul>
decision	To approve the proposed action for each of the following controlling provisions:
	<ul> <li>World Heritage properties (sections 12 and 15A)</li> </ul>
	<ul> <li>National Heritage Places (sections 15B and 15C)</li> </ul>
	<ul> <li>Listed threatened species and communities (sections 18 and 18A)</li> </ul>
	<ul> <li>Listed migratory species (sections 20 and 20A)</li> </ul>
	To not approve pipeline options one and two (alternative pipeline routes identified in pg 11-12 Chapter 3, Volume 3 of the EIS but not assessed) under s.133(1A) of the EPBC Act.
conditions of approval	This approval is subject to the conditions specified below.
expiry date of approval	This approval has effect until 22 February 2061.
name and position	The Hon Tony Burke MP Minister for Sustainability, Environment, Water, Population and Communities
signature	Tony Burks
date of decision	(121.2.11

# Conditions

# Project area

 The pipeline route and ROW is the area substantially depicted in the map at Attachment 1 and in the EIS and supplementary information provided pursuant to section 35(2) of the SDPWO Act 1971 (Qld).

# Environmental Management Plan (excluding the Narrows)

- The proponent must prepare an Environmental Management Plan to manage the impacts of construction, operation and decommissioning of the pipeline (other than in relation to the Narrows) on listed threatened species and ecological communities, listed migratory species and values of the World and National Heritage-listed Great Barrier Reef.
- 3. The Environmental Management Plan must include:
  - a. provisions for detailed pre-clearance surveys by a suitably qualified ecologist along the entire length of the ROW, in accordance with conditions 5 to 10;
  - measures to minimise native and riparian vegetation clearance and to minimise the impact on listed species, their habitat and ecological communities in accordance with management plans required for MNES under this approval;
  - measures to manage the impact of clearing on each listed species and ecological community in accordance with management plans required for MNES under this approval;
  - d. measures to regenerate vegetation on the ROW where natural regeneration is not successful;
  - e. measures to minimise impacts on fauna during pipeline construction, including:
    - measures to protect MNES in the areas of the ROW where trenching is being undertaken, including measures to exclude listed terrestrial fauna from gaining access to those areas of the ROW where trenching is currently being undertaken
    - ii. mechanisms to allow fauna to escape from the pipeline trench;
    - iii. daily morning surveys for trapped fauna;
    - iv. mechanisms for a suitably qualified person to relocate fauna; and
    - record keeping for all survey, removal and relocation activities.
  - f. machinery wash down procedures and ongoing monitoring to minimise the spread and establishment of weeds in the ROW. Monitoring of weed infestations within disturbed areas must occur at least monthly during construction and then quarterly for a period of two years after completion of construction. Appropriate weed control measures must be implemented. After the two-year period, the frequency of monitoring may be reconsidered by the proponent, based on the success of control measures, the level of infestations and pipeline maintenance activities;
  - g. measures to manage and control feral animals that may spread due to the establishment of the ROW;
  - management of ignition sources during construction, maintenance and decommissioning of the pipeline to protect habitat values from wild fire;
  - i. measures for the management of acid sulfate soils.

 The Environmental Management Plan must be submitted for the approval of the Minister. Commencement must not occur without approval. The approved plan must be implemented.

#### Pre-clearance surveys

- 5. Before the clearance of native vegetation in the pipeline ROW, the proponent
  - undertake pre-clearance surveys for the presence of listed threatened species and migratory species, their habitat and listed ecological communities.
  - b. alternatively, where recent surveys have already been undertaken and those surveys meet the Department's requirements for surveys for the relevant MNES, the proponent may elect to develop management plans based on those surveys in accordance with the requirements of condition 8.
- 6. Pre-clearance surveys must:
  - for each listed species, be undertaken in accordance with the Department's survey guidelines in effect at the time of the survey. This information can be obtained from the Department's website;
  - b. be undertaken by a suitably qualified ecologist approved by the Department in writing:
  - document the survey methodology, results and significant findings in relation to MNES:
  - d. apply best practice site assessment and ecological survey methods appropriate for each listed threatened species, migratory species, their habitat and listed ecological communities.
- Pre-clearance survey reports (which document the methods used and the results obtained) must be published by the proponent, on its website and be provided to the Department on request.
- 8. If a listed threatened species, migratory species or their habitat, or a listed ecological community is encountered during the surveys undertaken as required by condition 5 and is not specified in either condition 11 and 12, the proponent must submit a separate management plan for each species or ecological community to manage the unexpected impacts of clearing. In relation to each listed species or ecological community, each plan must address:
  - a. the relevant characteristics describing each species, species' habitat or ecological community;
  - a map of the location of species, species' habitat, or ecological community in proximity to the ROW;
  - measures that will be employed to avoid impact on the species, species' habitat, or ecological community;
  - d. a quantification of the unavoidable impact (in hectares and/or individual specimens);
  - e. where impacts are unavoidable and a disturbance limit is not specified for the listed species or ecological community under condition 11, propose offsets to compensate for the impact on the population of the species, species' habitat, or the ecological community;
  - f. current legal status (under the EPBC Act);
  - g. known distribution.

For listed species, each plan must also include:

- a. known species' populations and their relationships within the region;
- b. biology and reproduction;

- preferred habitat and microhabitat including associations with geology, soils, landscape features and associations with other native fauna and/or flora or ecological communities;
- anticipated threats to MNES from pipeline construction, operation and decommissioning;
- e. management practices and methods to minimise impacts, such as:
  - site rehabilitation timeframes, standards and methods;
  - ii. use of sequential clearing to direct fauna away from impact zones;
  - iii. re-establishment of native vegetation in linear infrastructure corridors;
  - iv. handling practices for flora specimens;
  - translocation and/or propagation practices and monitoring for translocation/propagation success;
  - vi. monitoring methods including for rehabilitation success and recovery;
- reference to relevant conservation advice, recovery plans, or other policies, practices, standards or guidelines relevant to MNES published or approved from time to time by the Department.

Note: Management plans should include sufficient detail to inform pipeline construction, management and decommissioning to minimise adverse impacts on MNES throughout the life of the project.

- Each plan required under condition 8 must be submitted for the approval of the Minister. Commencement in the location covered by the management plan must not occur without approval. Each approved plan must be implemented.
- 10. If, during construction a listed threatened species or migratory species or their habitat, or a listed ecological community is encountered and is not specified in the table at condition 11 or 12, the proponent must submit a separate management plan for each species or ecological community in accordance with condition 8 within 20 business days of encountering that MNES. Work must not continue at the construction site where the MNES is encountered until the relevant management plan has been approved. Each approved plan must be implemented.

#### Disturbance limits

11. (a) The following maximum disturbance limits apply to any disturbances authorised for unavoidable impacts on listed threatened communities and potential habitat for listed threatened species or migratory species as a result of the construction, operation and decommissioning of the pipeline (and all associated activities).

Ecological community	EPBC status	Disturbance limit (ha)
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	5.41
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nadewar Bioregions	Endangered	0.26
Species	EPBC status	Disturbance limit

Cycas megacarpa (Large-fruited Zamia)	Endangered	130 individuals
Cadellia pentasylis (Ooline)	Vulnerable	10 individuals
Xeromys myoides (Water Mouse)	Vulnerable	15.6

- (b) The proponent must prepare a reconciliation statement of impacts against the agreed limit of disturbance, as defined above in condition 11(a). It must be updated by the proponent every 12 months from commencement until construction is complete.
- 12. The proponent must prepare a management plan for each species in the table below. Each plan must be prepared in accordance with the requirements of condition 8.

Listed flora species	EPBC Act Status	
Philotheca sporadica	Vulnerable	
Cadellia pentasylis (Ooline)	Vulnerable	
Cupaniopsis shirleyana (Wedge-leaf Tuckeroo)	Vulnerable	
Bothriochloa biloba (Lobed Blue-grass)	Vulnerable	
Polianthum minutiflorum (Small-flowered polianthion)	Vulnerable	
Eucalyptus virens (Shiny-leaved Ironbark)	Vulnerable	
Quassia bidwillii (Quassia)	Vulnerable	
Tylophora linearis (Slender tylophora)	Endangered	
Westringia parvifolia (Small-leaved westringia)	Vulnerable	
Listed fauna species	EPBC Act Status	
Paradelma orientalis (Brigalow Scaly-foot)	Vulnerable	
Furina dunmalli (Dunmall's Snake)	Vulnerable	
Egernia rugosa (Yakka Skink)	Vulnerable	
Geophaps scripta scripta (Squatter pigeon - southern)	Vulnerable	
Nyctophilus timoriensis (Eastern Long-eared Bat)	Vulnerable	
Chalinolobus dwyeri (Large-eared Pied Bat)	Vulnerable	
Xeromys myoides (Water Mouse)	Vulnerable	
Delma torquate (Collared Delma)	Vulnerable	
Denisonia maculate (Ornamental Snake)	Vulnerable	

Note: The intent of the table above is to require preparation of management plans for those species that are likely to be encountered along the ROW, but where a disturbance limit has not been quantified. To the extent that the requirements of condition 8 are satisfied for each species, a single Species Management Plan may be prepared for this purpose.

- 13. Each management plan must be submitted for the approval of the Minister. Commencement in the location covered by the management plan must not occur without approval. Each approved plan must be implemented.
- 14. Disturbance of vegetation related to the construction and maintenance of the pipeline must be confined to the ROW. Any proposed siting of construction camps, vehicle access tracks, extra workspace and pipe lay-down areas outside the ROW during construction must be undertaken so as to minimise potential adverse impacts on MNES.

#### Offsets

# Cycas megacarpa

- 15. To offset the unavoidable impacts to Cycas megacarpa the proponent must:
  - within 12 months of the date of this approval, secure an area of at least 141
    hectares as an offset for receiving no less than 780 translocated and
    propagated individuals;
  - identify alternative recruitment methods if it is considered unlikely that translocation and propagation will be successful;
  - notify the Department in writing of the acquisition or transfer of ownership of the area identified in condition 15(a) within one month of securing the land;
  - d. if the proponent proposes any action within a proposed offset area, other than actions related to managing that area as an offset property, approval must be obtained, in writing from the Department. In seeking Departmental approval the proponent must provide a detailed assessment of the proposed action including a map identifying where the action is proposed to take place and an assessment of all associated adverse impacts on MNES. If the Department agrees to the action within the proposed offset site, the area identified for the action must be excised from the proposed offset and alternative offsets secured of equal or greater environmental value in relation to the impacted MNES;
  - demonstrate that the measures for securing and managing the offset will ensure that the offset is protected in perpetuity.

# Cycas megacarpa Management Plan

- The proponent must prepare a Cycas megacarpa Management Plan in consultation with an expert approved by the Department in writing.
- 17. The Cycas megacarpa Management Plan must include:
  - a. measures to ensure all Cycas megacarpa within the ROW are avoided. If avoidance is not possible, individual plants must be removed and kept offsite and replanted in the same location, or alternatively translocated. Where it can be demonstrated that removal and translocation of individuals is unlikely to succeed, translocation may be substituted by establishing propagated individuals;
  - measures to propagate and plant Cycas megacarpa individuals removed or impacted by construction activities to maintain a population of no less than 780 individuals within the offset site required by Condition 15(a);
  - a detailed methodology for translocation, propagation, and planting, including a map of the location of the offset site;

- d. details of funding required to secure, maintain and enhance the values of the offset site in perpetuity;
- details of a suitably qualified person to undertake translocation, propagation and planting;
- f. details of the erosion and sediment control measures to be implemented in the ROW in the Callide and Calliope Ranges;
- g. measures to rehabilitate the ROW in the Callide and Calliope Ranges;
- measures for the control and management of weeds, fire, feral animals, access and grazing in translocation sites;
- measures for the management, maintenance and protection of the population of Cycas megacarpa individuals in the offset site for a period of five years following final planting;
- j. details of monitoring practices to assess the success of proposed management regimes of the offset;
- k. performance measures, reporting requirements, trigger levels for corrective actions and identification of those actions to be taken to ensure performance measures are met.
- 18. The Cycas megacarpa Management Plan must be submitted for the approval of the Minister. Commencement in the location covered by the management plan must not occur without approval. The approved plan must be implemented.

# Migratory species

19. If a bundled pipeline crossing of the Narrows is not pursued then to offset the unavoidable impacts on listed migratory birds within the ROW at the Kangaroo Island wetlands west of the Narrows, the proponent must contribute at least \$250,000 to the Gladstone Port Corporation's migratory bird research study required by conditions for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).

#### The Narrows crossing

- 20. The proponent must prepare an Environmental Management Plan for the crossing of the Narrows. This must include:
  - a. if the crossing is undertaken concurrently with the construction of one or more additional gas transmission pipelines (a 'bundled crossing'):
    - the roles and responsibilities of each party involved in the bundled crossing;
    - ii. details of the final pipeline route, engineering design and construction methodology, including details of the total number of gas transmission pipes including any pipelines for water supply and/or sewerage;
    - iii. potential impacts from the construction of the pipeline on listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef;
    - iv. mitigation measures to reduce impacts on listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef;
    - v. proposed offset measures to compensate for unavoidable impacts on listed threatened species and ecological communities, listed migratory species and values of the World and National Heritage-listed Great Barrier Reef;
    - vi. measures for the management of acid sulfate soils (both potential and actual);

vii. measures for ongoing maintenance and decommissioning of the pipelines, or

If the proponent does not proceed in a bundled crossing:

- a construction method which, in the opinion of the Minister, will result in minimal surface disturbance to the Kangaroo Island Wetlands and minimal disturbance to the area of the estuary of the Narrows (preferably achieved by horizontal directional drilling or tunnelling);
  - details of the final pipeline route, design and construction methodology, including details of inclusion of pipes for water supply and sewerage;
  - potential impacts from the construction of the pipeline on listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef;
  - mitigation measures to reduce impacts to listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef;
  - iv. proposed offsets to compensate for the unavoidable impacts of the action on listed threatened species and ecological communities, listed migratory species and values of the World and National Heritage-listed Great Barrier Reef;
  - v. measures for the management of acid sulfate soils;
  - vi. measures for ongoing maintenance and decommissioning of the pipeline.

Note: 20(b) does not prescribe a particular construction method.

- 21. The Environmental Management Plan must be submitted for the approval of the Minister. The activity which is the subject of the Environmental Management Plan must not start without approval. The approved plan must be implemented.
- 22. If the pipeline construction involves dredging to be undertaken by the proponent under the approval to which these conditions are attached, the proponent must prepare a Dredge Management Plan.
- 23. The Dredge Management Plan required under these conditions must include:
  - a. details of dredging methods, planned commencement, duration and frequency of dredging;
  - identification of areas of potentially impacted seagrass habitat and their environmental tolerances;
  - c. site specific water quality objectives for the designated habitats as a guideline for habitat protection and that are in accordance with the National Water Quality Management Strategy including the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, the Australian Guidelines for Water Quality Monitoring and Reporting, the Great Barrier Reef Water Quality Guidelines and the Queensland Water Quality Guidelines;
  - d. measures to refine the plume modelling data presented in the proponent's Environmental Impact Statement;
  - e. mitigation measures and controls for the dredging and spoil disposal activities;
  - f. triggers for initiating adaptive management and potential remediation measures;
  - g. monitoring of:
    - potential impacts of dredging on seagrass including but not limited to turbidity and light attenuation:
    - ii. the triggers established under condition 23(f); and
    - iii. the long term impacts of the action:

- options, linked to the triggers established under condition 23(f), for adaptively managing the action – including options for varying the timing and location of dredging and spoil disposal activities;
- details for monitoring of dredging activities, including timing and variables measured such as turbidity and light attenuation in a format as directed by the Department to allow validation of other modelling of dredging impacts relating to the Port of Gladstone;
- measures to minimise the impact on listed migratory birds from noise associated with construction activities;
- k. measures to prevent and respond to the introduction of marine pest species;
- measures to protect dugongs and listed turtles including the use of turtle excluder devices;
- m. details of dredge spoil placement;
- n. provisions to sample and analyse dredge spoil composition.
- 24. The Dredge Management Plan must be submitted for the approval of the Minister. The activity subject to the Dredge Management Plan must not occur without approval. The approved plan must be implemented.

# Location of pipeline (Callide range)

25. East of the Callide Range, the proponent must locate the pipeline within the Callide Infrastructure Corridor State Development Area substantially as indicated in the map at Attachment 1.

# Water crossings

- 26. Where reasonably possible horizontal directional drilling must be used for major waterway crossings, including:
  - a. those within the Dawson and Calliope River catchments and any water crossing within the known distribution of the Fitzroy River Turtle (Rheodytes leukops) and Murray Cod (Maccullochella peelii). Pipeline construction across waterways must not take place during the nesting and breeding season of the Fitzroy River Turtle;
  - b. Humpie and Targinie Creeks.

Note: 'major waterways' may include creeks, streams, rivers or other waterways that support habitat for MNES (at the point of the crossing or downstream).

- 27. Trenchless techniques are not required in dry creek beds within the known distribution of the Fitzroy River Turtle (Rheodytes leukops) and Murray Cod (Maccullochella peelii peelii) where the distance to the nearest water is sufficient to buffer any potential impacts resulting from the crossing technique or where the aquatic assessment has identified that MNES values can be protected through alternative construction methods.
- 28. The proponent must prepare an Aquatic Values Management Plan. This plan must include:
  - a detailed assessment of aquatic values, including animal breeding locations for listed threatened and migratory species within the ROW;
  - measures to minimise impacts on listed riparian, aquatic and water dependent flora and fauna;
  - c. measures to minimise erosion and sediment impacts to waterways;
  - d. measures to maintain water quality and water flow requirements, including treatment and disposal methods for hydrostatic test water;

- site-specific mitigation measures for any potential impacts from construction and operation of the pipeline on listed threatened species, including but not limited to the Fitzroy River Turtle (including use of shallow turbid pools);
- f. details of an MNES survey of the site where the pipeline will cross Cockatoo Creek. To avoid impacts to the *Eriocaulon carsonii* (Salt Pipewort), the requirements for the Aquatic Values Management Plan (a) to (e) above should be presented separately for Cockatoo Creek.
- 29. The Aquatic Values Management Plan must be approved in writing by the Minister. Activities the subject of the plan must not start without approval. The Plan must be implemented.

# Impacts on EPBC-listed species resulting from activities associated with the pipeline crossing at Cockatoo Creek

30. If an EPBC-listed species is identified during the survey required in condition 28(f), the Proponent must develop and implement a management plan in accordance with the requirements of condition 8.

#### Notification of commencement

- 31. Within 20 business days of commencement, the proponent must advise the Department in writing of the actual date of commencement.
- 32. If, at any time after five years from the date of this approval, the Minister notifies the proponent in writing that the Minister is not satisfied that there has been commencement of the action, the action must not commence without the written agreement of the Minister.

# Request for variation of plans by proponent

- 33. If the proponent wants to act other than in accordance with a plan approved by the Minister under these conditions, the proponent must submit a revised plan for the Minister's approval.
- 34. If the Minister approves the revised plan, then that plan must be implemented instead of the plan originally approved.
- 35. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

# Revisions to plans by the Minister

- 36. If the Minister believes that it is necessary or desirable for the better protection of a relevant controlling provision for the action, the Minister may request the proponent to make, within a period specified by the Minister, revisions to a plan approved under these conditions.
- 37. If the Minister makes a request for revision to a plan, the proponent must:
  - a. comply with that request; and
  - submit the revised plan to the Minister for approval within the period specified in the request.
- 38. The proponent must implement the revised plan on approval of the Minister.
- 39. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

# Minimum timeframes for consideration of plans

40. For any plan required to be approved by the Minister under these conditions, the proponent must ensure the Minister is provided at least 20 business days for review and consideration of the plan, unless otherwise agreed in writing between the proponent and the Minister.

# Compliance with State environmental and other authorities

41. The proponent must comply with all environmental authorisations issued by the State, including conditions of an environmental authority issued under the EP Act.

# **Provision of State plans**

42. If a condition of a State approval requires the proponent to provide a plan then the proponent must also provide the plan to the Department or Minister on request, within the period specified in the request.

#### **Timeframes**

43. If these conditions require the proponent to provide something by a specified time, a longer period may be specified in writing by the Minister.

#### **Auditing**

- 44. On the request of and within a period specified by the Department, the proponent must ensure that:
  - a. an independent audit of compliance with these conditions is conducted; and
  - an audit report, which addresses the audit criteria to the satisfaction of the Department, is published on the Internet and submitted to the Department.
- 45. Before the audit begins, the following must be approved by the Department:
  - a. the independent auditor; and
  - b. the audit criteria.
- 46. The audit report must include:
  - a. the components of the project being audited;
  - b. the conditions that were activated during the period covered by the audit;
  - c. a compliance/non-compliance table;
  - d. a description of the evidence to support audit findings of compliance or noncompliance;
  - e. recommendations on any non-compliance or other matter to improve compliance;
  - f. a response by the proponent to the recommendations in the report (or, if the proponent does not respond within 20 business days of a request to do so by the auditor, a statement by the auditor to that effect);
  - g. certification by the independent auditor of the findings of the audit report.
- 47. The financial cost of the audit will be borne by the proponent.
- 48. The proponent must:
  - a. implement any recommendations in the audit report, as directed in writing by the Department after consultation with the proponent;
  - b. investigate any non-compliance identified in the audit report, and

- c. if non-compliance is identified in the audit report take action as soon as practicable to ensure compliance with these conditions.
- 49. If the audit report identifies any non-compliance with the conditions, within 20 business days after the audit report is submitted to the Department the proponent must provide written advice to the Minister setting out the:
  - a. actions taken by the proponent to ensure compliance with these conditions;
     and
  - actions taken to prevent a recurrence of any non-compliance, or implement any other recommendation to improve compliance, identified in the audit report.

Note: To avoid doubt, independent third party auditing may include audit of the proponent's performance against the requirements of any plan required under these conditions.

# Reporting non-compliance

- 50. The proponent must, when first becoming aware of a non-compliance with these conditions, or a plan required to be approved by the Minister under these conditions:
  - a. report the non-compliance and remedial action to the Department within five business days;
  - b. bring the matter into compliance within a reasonable time frame specified in writing by the Department.

# Record-keeping

- 51. The proponent must:
  - maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures taken to implement a plan approved under these conditions; and
  - make those records available on request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with these conditions.

Note: Audits or summaries of audits carried out under these conditions, or under section 458 of the EPBC Act, may be posted on the Department's website. The results of such audits may also be publicised through the general media.

#### Financial assurance

- 52. The proponent must:
  - a. provide the Minster with a financial assurance in the amount and form required from time to time by the Minster for activities to which these conditions apply; and
  - review and maintain the amount of financial assurance based on proponent reporting on compliance with these conditions, and any auditing of the activities.
- 53. The financial assurance is to remain in force until the Minister is satisfied that no claim is likely to be made on the assurance.

Note: The financial assurance may be used for rehabilitation of habitat and other purposes not addressed adequately by the proponent during the life of the project.

#### Annual Environmental Return

- 54. The proponent must produce an Annual Environmental Return which:
  - a. addresses compliance with these conditions;
  - records any unavoidable adverse impacts on MNES, mitigation measures applied to avoid adverse impacts on MNES; and any rehabilitation work undertaken in connection with any unavoidable adverse impact on MNES;
  - c. identifies all non-compliances with these conditions; and
  - d. identifies any amendments needed to plans to achieve compliance with these conditions.
- 55. The proponent must publish the Annual Environmental Return on its website within 20 calendar days of each anniversary date of this approval. In complying with this publication requirement, the proponent must ensure that it has obtained relevant rights in relation to confidentiality and intellectual property rights of third parties.

# Survey data

56. If requested by the Department, the proponent must provide all species and ecological survey data and related survey information from ecological surveys undertaken for MNES. The data must be collected and recorded to conform to data standards notified from time to time by the Department.

#### **Publication of Plans**

- 57. All plans approved by the Minister under these conditions must be published on the proponent's website within 30 business days of approval by the Minister.
- 58. The Department may request the proponent to publish on the internet a plan in a specified location or format and with specified accompanying text. The proponent must comply with any such request.

# **Dictionary**

59. In these conditions, unless the contrary is indicated:

**Bundled crossing** means the dredging, trenching and other construction activities associated with the placement of multiple gas transmission pipelines across the Kangaroo Island Wetlands and the Narrows;

Clearance of native vegetation means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of native vegetation;

**Commencement** means clearing of vegetation that is a listed threatened species or community or that is habitat of listed threatened species or listed migratory species or pipeline construction (including trenching). Commencement does not include:

- minor physical disturbance necessary to undertake pre-clearance surveys or establish monitoring programs or associated with the mobilisation of the plant, equipment, materials, machinery and personnel prior to the start of pipeline development or construction;
- b. activities that are critical to commencement that are associated with mobilisation of plant and equipment, materials, machinery and personnel prior to the start of pipeline development or construction only if such activities will have no adverse impact on MNES, and only if the proponent has notified the Department in writing before an activity is undertaken.

Department means the Australian Government department responsible for administering Part 4 of the EPBC Act;

EP Act means Environmental Protection Act 1994 (Qid);

EPBC Act means the Commonwealth Environment Protection and Biodiversity Conservation Act 1999:

Extra workspace means the additional work area adjacent to and in addition to the ROW reasonably required for a specific purpose during pipeline construction. Examples of extra work space requirements include for creek crossings, road crossings, steep inclines, where additional burial depth is required, equipment storage areas, turn around areas and areas for in-field pipe bending;

**Minister** means the Minister responsible for Part 4 of the EPBC Act, and may include a delegate of the Minister under s.133 of the EPBC Act;

**MNES** means matters of national environmental significance, being the relevant matters protected under Part 3 of the EPBC Act;

Plan includes a protocol, report, study, plan, or strategy (however described);

**Proponent** means the person to whom the approval is granted, and includes any person acting on behalf of the proponent;

Referral means a referral under the EPBC Act including any variation of the referral:

**ROW** means the pipeline right of way where any disturbance or construction is to be restricted to a corridor in which the pipeline may be placed. This corridor includes the area required for related activities such as access tracks. The corridor is illustrated in Attachment 1;

SDPWO Act 1971 means the State Development and Public Works Organisation Act 1971 (Qld);

Substantial commencement means delivery of coal seam gas through the pipeline.

- 60. Unless the contrary is indicated, words in these conditions have the same meaning as in (in the following order of priority):
  - (a) the EPBC Act; and
  - (b) the EP Act.
- 61. Unless the contrary is indicated, in these conditions:
  - (a) words in the singular number include the plural and words in the plural number include the singular; and
  - (b) condition headings and notes are inserted for convenient reference only and have no effect in limiting or extending the language of condition to which they refer.

Attachment 1 – Proposed pipeline route 151.50 ·ar-Facility 151.50 AUSTRALIA PACIFIC LNG PROJECT Volume 3 Chapter 23 re 23.1 Location - Indica gas pipeline route





# **Australian Government**

Department of Sustainability, Environment, Water, Population and Communities

# **Approval**

# Queensland Curtis LNG Project – LNG Plant and Onshore Facilities – EPBC No 2008/4402

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

Biodiversity Conserva	ation Act 1999 (EPBC Act).
person to whom the approval is granted	Queensland Gas Company Limited (QGC) and BG International Ltd (BG)
proponent's ABN	ABN: 089 642 553 (QGC) ABN: 72 114 818 825 (BG)
proposed action	<ul> <li>The development, construction, operation and decommissioning of a multi-train liquefied natural gas (LNG) processing plant (LNG Facility) and associated onshore facilities within the Curtis Island Industry Precinct of the Gladstone State Development Area, in the south-west section of Curtis Island adjacent to Gladstone:</li> <li>as described in the proponent's referral received under the EPBC Act on 18 August 2008; and</li> <li>as described in the proponent's Environmental Impact Statement and Supplementary Environmental Impact Statement; and</li> <li>as described in the application for material change of use for the Curtis Island LNG Facility submitted to the Queensland Department of Infrastructure and Planning on 30 June 2010.</li> </ul>
decision	To approve the proposed action for each of the following controlling provisions:
	<ul> <li>World Heritage properties (sections 12 and 15A, EPBC Act)</li> <li>National Heritage Places (sections 15B and 15C, EPBC Act)</li> <li>Listed threatened species and communities (sections 18 and 18A, EPBC Act)</li> </ul>
	<ul> <li>Listed migratory species (sections 20 and 20A, EPBC Act)</li> </ul>
conditions of approval	This approval is subject to the conditions specified below.
expiry date of approval	This approval has effect until 31 October 2060.
name and position	The Hon Tony Burke MP Minister for Sustainability, Environment, Water, Population and Communities
signature	Tom Bucks
date of decision	22.10.10
1	

# **Conditions**

# **LNG Facility site**

1. The LNG Facility site is the area outlined on the map at Figure 1.

#### Visual impact of construction and operation

- 2. The proponent must minimise the visual impact of the construction and operation of the LNG Facility by:
  - (a) constructing the LNG Facility within the site identified in Figure 1;
  - (b) applying a colour scheme to the LNG Facility and buildings, other than the LNG storage tanks and any necessary corrosion-protected structures and pipe insulation, from the palette of predominant colours found in the locality (Curtis Island) except where to do so would be in contravention of health and safety legislative requirements;
  - (c) ensuring site works minimise tree clearing, with stabilisation and rehabilitation works on disturbed areas fully implemented within twelve months of completing each component of the LNG Facility (the worker accommodation facility and associated infrastructure; LNG storage tanks; and LNG trains and ancillary equipment and infrastructure); and
  - (d) minimising light spill and direct views of lights outside the LNG Facility boundary except where to do so would be in contravention of health and safety legislative requirements.

# Conduct of construction and operation workforce

- 3. The proponent must not bring private motor vehicles onto the LNG site, or private watercraft into waters within 100 metres of the LNG site boundary, except for activities directly relating to pre-clearance surveys, site clearance, and the construction and operation of the LNG facility.
- The proponent must not bring animals and plants (including domestic cats and dogs and other
  potential pests and weeds), other than for landscaping and rehabilitation purposes onto the
  LNG site, or on to Curtis Island.
  - Note 1: For clarity, plants that are brought to Curtis Island for landscaping and rehabilitation purposes must be native Australian species sourced from the South Eastern Queensland and/or Brigalow Belt bioregion/s)
- 5. Entry into the Curtis Island Environmental Management Precinct, as identified in <u>Figure 2</u>, must be prohibited for all the proponent's construction workers, construction contractors, and its employees, whilst they are rostered on shifts or accommodated by the proponent on Curtis Island, except with the prior consent in writing of the authority responsible for the management of this Precinct.
- 6. An induction program must be implemented for all the proponent's employees and subcontractors at the time or before they commence work on Curtis Island. The induction program must include:
  - (a) an overview that clearly explains to all the proponent's employees and sub-contractors engaged on the construction and operation of the LNG Facility that they are working in a World Heritage Area and an explanation of the environmental values of the World Heritage Area:

- (b) information on listed species and ecological communities and other native species that are found in the area, and the related responsibilities of the proponent, its employees and subcontractors;
- (c) an explanation of the Rodds Bay Dugong Protection Area, and Great Barrier Reef Marine Park zoning on the eastern side of Curtis Island, Rodds Peninsula and the Capricorn Bunker group, and the responsibilities of the proponent, its employees and subcontractors within and in relation to these areas. This explanation must include the provision of maps depicting the zones, an explanation as to what can and cannot be done in the various zones, and information about how important the terrestrial and marine environments of the Capricorn Bunker group are to conserving biodiversity within the Great Barrier Reef Marine Park; and
- (d) information that fosters a culture of environmental awareness of the values of the area and also raises awareness among all employees and sub-contractors of the compliance and enforcement programs of the Great Barrier Reef Marine Park Authority and penalties that apply for offences.
- 7. The obligations under conditions 3, 4, 5 and 6 must also apply to any visitors to the LNG site, or to Curtis Island, who are under the direction or control of the proponent.
- 8. Within 20 business days of the final investment decision to proceed with the proposed action, the proponent must submit to the Minister for approval:
  - (a) a Curtis Island environment protection code of conduct for the construction workforce while on site and while travelling to and from the mainland and the construction site; and
  - (b) a code of conduct implementation strategy for enforcing compliance with the Curtis Island environment protection code of conduct.
- 9. The code of conduct shall include, but not necessarily be limited to, the requirements set out in conditions 3 .4. 5 and 6.
- 10. The approved Curtis Island environment protection code of conduct must be implemented.

Note 1: Pending approval of the Curtis Island environment protection code of conduct, the revised draft code of conduct submitted by QGC to DSEWPAC on 8 October 2010, is to apply and the proponent must allow no more than 100 persons at any one time to enter and remain on the site of the proposed LNG plant and associated infrastructure on Curtis Island.

11. At least 60 business days before the commissioning of the first LNG train, the proponent must review, and if necessary revise, the Curtis Island environment protection code of conduct and implementation strategy and provide the Minister with evidence that this review has been carried out. If the Curtis Island environment protection code of conduct and/or implementation strategy are revised, the revised document or documents must be submitted to the Minister for approval within 20 business days of the review being finalised. Once the Minister has approved in writing the revised code of conduct and/or implementation strategy, the approved code of conduct and/or implementation strategy must be implemented.

#### **Offsets**

# Plan to secure and manage environmental offsets

- 12. An Environmental Offsets Plan to offset the loss of habitat and associated World Heritage and National Heritage values caused by the construction and operation of the LNG facility, must be developed.
- 13. The Plan must address, but not necessarily be limited to, impacts on vegetation, biodiversity and landscape aesthetics arising from:
  - (a) the development and operation of the LNG facility:
  - (b) other activities on Curtis Island that are associated with the LNG Facility (including workers' accommodation facilities, port works for the project, and ancillary works); and
  - (c) increased risks to biodiversity values of the World Heritage and National Heritage property arising from increased shipping movements and other subsequent or indirect impacts beyond the immediate development site such as water quality impacts and increased recreational access arising from the development and operation of the LNG facility.

#### 14. The Plan must detail:

- (a) the principles adopted in the Plan. These principles must reflect the objective of identifying, protecting, conserving, presenting, transmitting to future generations and, if necessary, rehabilitating, the World Heritage and National Heritage values of the Great Barrier Reef property;
- (b) the predicted total loss (in extent and type) of areas of ecological and aesthetic value, (including remnant vegetation, high value regrowth, significant conservation species, habitat, biodiversity corridors, scenic vistas of outstanding natural beauty);
- (c) the methodology for identifying the requirements for environmental offsets for specific components of the LNG Facility over the life of the project;
- (d) a proposed timeline for implementing the Environmental Offsets Plan;
- (e) relevance to any Commonwealth or State government requirements for offsets;
- (f) in relation to any land retained at the time of preparation of the Plan, the location, size and environmental values of the offsets (land);
- (g) in relation to any land retained at the time of preparation of the Plan, the management measures, including funding, required to secure, maintain and enhance the values of the proposed offset (land); and

- (h) a system for reporting to the Minister on offset arrangements, their management and how offset values are being maintained.
- 15. The Environmental Offsets Plan must as a minimum include:
  - (a) to offset direct impacts, the securing by the proponent of an offset property:
    - (i) that contains attributes or characteristics at least corresponding with those of the LNG facility site; and
    - (ii) at a ratio of no less than 5:1 of the LNG facility site area (that is, a property of at least 1,375 ha in total area);
  - (b) a commitment by the proponent must use its best endeavours to secure National Park status for the offset property. At a minimum the proponent must ensure the retention and management for conservation purposes, under a secure permanent land tenure arrangement, of the offset property.
  - (c) to offset indirect impacts, a strategy for contributions to field management and visitor awareness of the Great Barrier Reef World Heritage Area. The strategy must:
    - (i) provide for activities to support field management to address the increased pressures on the Great Barrier Reef World Heritage Area, including but not limited to, pressures on populations of vulnerable species, increased risks from shipping and increased use of the Area:
    - (ii) be developed in consultation with the Great Barrier Reef Marine Park Authority, to give priority to objectives for the protection of the Great Barrier Reef Marine Park and World Heritage Area identified (from time to time), which may include (without limitation) patrols, support for incident response planning and preparedness, data collection, and assistance in visitor management;
    - (iii) provide for the submission of periodic reports to the Great Barrier Reef Marine Park Authority on the activities conducted;
    - (iv) provide for a budget of at least \$200,000 per annum for the life of the project (indexed at CPI) and in addition \$100,000 per annum (indexed at CPI) for each operating LNG Train (commencing on commissioning of the relevant Train) to support implementation of the strategy.

Note 1: For clarity, contributions or offsets negotiated with the Queensland Government with respect to the LNG Facility site (e.g. including under the Environmental Management Precinct Agreement) may, in whole or in part, meet the requirements of condition 15(a).

Note 2: A Plan which sufficiently addresses the requirements of condition 15 will be considered to meet the purposes of the Plan as described in condition 13.

- 16. Subject to condition 17, any property that is purchased or otherwise retained under a secure land tenure arrangement for the purposes of the Environmental Offsets Plan must be located within the Great Barrier Reef World Heritage Area, preferably on Curtis island or nearby.
- 17. If, within the Great Barrier Reef World Heritage Area, no area of land containing attributes or characteristics at least corresponding with those of the LNG facility site can be secured and protected in the manner described in condition 15 within 24 months of the Minister's approval of this project, an alternative proposal and timetable for acquiring (by purchase, lease or otherwise) property other than in the GBRWHA must be provided to the Minister for approval in writing.
- 18. To avoid doubt, the offset required under condition 15 is additional to any similar offset required under an EPBC Act condition of approval for another proponent for an LNG facility on Curtis Island.

#### **Environmental Offsets Plan**

19. Within 6 months of the final investment decision to proceed with the proposed action, the Environmental Offsets Plan must be submitted in writing for the approval of the Minister. The approved plan must be implemented.

Note: To avoid doubt, The Environmental Offsets Plan, or components of it, may be prepared and implemented in consultation with the Gladstone Ports Corporation or other bodies.

# Construction and operation environmental management requirements and plans

20. At least one week before the commencement of clearance of native vegetation associated with the construction and operation of the LNG facility, the proponent must undertake preclearance surveys to verify the presence or absence of listed ecological communities, listed threatened species, listed migratory species, their habitat, and species identified as contributing to the World Heritage and National Heritage values of the Great Barrier Reef World Heritage Area.

#### 21. Pre-clearance surveys must:

- (a) be undertaken consistent with the Department's survey guidelines in effect at the time of the survey. This information can be obtained from http://www.environment.gov.au/epbc/guidelines-policies.html#threatened;
- (b) take account and reference previous ecological surveys undertaken by the proponent for the area and relevant new information on likely presence or absence of MNES;
- (c) be undertaken by a suitably qualified ecologist approved in writing by the Department;
- (d) document the survey methodology, targeted species and ecological communities, results and significant findings in relation to MNES; and
- (e) apply best practice site assessment and ecological survey methods appropriate for each listed threatened species, listed migratory species, their habitat, and listed ecological communities. Pre-clearance survey reports (which document the methods used and the results obtained) must be published by the proponent on the internet before commencement and provided to the Department on request.

- 22. If a listed threatened species or migratory species or their habitat, is found during the verification surveys undertaken as required by condition 2, and is not specified in conditions 32-39 inclusive, the proponent must submit a separate management plan for each such species, ecological community or other MNES, to manage the impacts of construction and operation of the LNG facility. Each such plan must be submitted before the commencement of construction of the LNG facility. Each plan must include:
  - (a) a map of the location of species or species habitat in relation to the LNG Facility and its associated infrastructure;
  - (b) a description of the measures that will be employed to avoid impact on the species or species habitat
  - (c) where impacts are unavoidable, and if an impacted species is not specified in conditions 32-39 inclusive, propose offsets to compensate for the impact on the population or impact on the species habitat
- 23. Before commencement the proponent must prepare a Construction Environmental Management Plan (CEMP). The CEMP may be submitted in stages (Staged CEMP) in which case commencement of a stage covered by the staged CEMP cannot commence until submitted and approved by the Minister.
- 24. The CEMP must address, but not necessarily be limited to, an identification of all activities with potential to adversely impact on MNES proposed to be undertaken during the construction of LNG facilities, including the construction camp and supporting facilities. The CEMP must include:
  - (a) design plans showing the type and extent of the works proposed;
  - (b) a construction schedule and methodology, including plans and maps showing discharge points and emission controls for all construction stages;
  - (c) an environmental monitoring and a sampling program which details baseline data collection and provides the basis for ongoing monitoring of specified parameters for the construction and operational phases, including appropriate triggers for mitigation and cessation of works;
  - (d) any potential impacts or effects of the proposed works on the environment during both the construction and operational phases and the means by which adverse impacts will be avoided or mitigated;
  - (e) details of the sewage treatment plant and desalination plant, including:
    - (i) design and operational performance information for sewage treatment and desalination (including acoustic performance of pumps and other machinery);
    - (ii) design and operational performance information for any outfalls and diffusers for emissions, including liquid and solid emissions into Port Curtis including detailed analysis of existing water quality, effluent contaminants, acute and chronic toxic effects of contaminants on fauna and flora and any long term ecological effects from outfalls and emissions;
    - (iii) a detailed description of impacts from the discharge of treated sewage and brine. Source water quality data and characteristics of additives must be provided, and the disposal methods to be used must be described in the plan. The information must be

- used to determine the site specific mitigation measures proposed, including monitoring and reporting regimes;
- (iv) information on the eco-toxicity of effluent at the point of release, in the mixing zone, and cumulative impacts of contaminants in the marine ecosystem over time;
- (v) the assumptions, adequacy and limitations of any modelling used to predict the dimensions and duration of the mixing zone.
- (f) details on any other plant, equipment or activities that involve emissions to the environment, including:
  - (i) a description of the plant, equipment or activities;
  - (ii) design and operational performance information for plant, equipment or activities; and
  - (iii) the potential for unforseen or accidental incidents and proposed responses to these incidents.
- (g) a detailed list of waste streams including their handling, treatment and disposal arrangements;
- (h) the environmental protection commitments proposed for the activities (including all associated accommodation and recreation activities on the Island) to protect the environmental values under best practice environmental management;
- a rehabilitation program for land proposed to be disturbed during construction of all infrastructure (including associated accommodation and recreation activities) on Curtis Island;
- (j) details of a response plan, with appropriate triggers, which will be initiated in response to any significant impacts on the environment from the works.
- (k) identification and characterisation of all wastes and emissions produced by the LNG Facility and its associated support infrastructure including its source, handling, treatment, disposal or release to the environment.
- 25. The CEMP, or a stage of the CEMP, must be submitted for the approval of the Minister. Commencement of the action to which the staged CEMP relates must not occur without the approval in writing of the Minister of the CEMP. The approved plan must be implemented.
- 26. Before the commissioning of the first LNG train, an Operational Environmental Management Plan (OEMP) must be prepared.
- 27. The OEMP must address the matters required to be included in the CEMP while incorporating changes and any additions the proponent believes are necessary to reflect the shift from the construction phase to the operational phase.
- 28. The OEMP must be submitted for the approval of the Minister. Commissioning of the first LNG train must not occur without the approval in writing of the Minister. The approved plan must be implemented.

Note: To avoid doubt, if a condition of another approval held by the proponent requires a Construction Environmental Management Plan and/or Operational Environmental Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan.

#### Discharge of sewage effluent

29. Any discharge of treated sewage effluent into the waters surrounding Curtis Island must, at minimum, meet the definition of tertiary treatment as specified in section 135(3) of the *Great Barrier Reef Marine Park Regulations 1983* and be in accord with GBRMPA Sewage Discharge Policy March 2005, unless studies required to develop the CEMP under conditions 23 and 24 indicate that more stringent pollutant limits are necessary.

#### **Quarantine Management Plan**

- 30. Before the commencement of construction of the LNG facility, the proponent must prepare a Quarantine Management Plan (QMP). The objectives of the QMP are to prevent the introduction of non-endemic species on to Curtis Island. The QMP must include measures to:
  - (a) detect pests and weeds, and prevent weed introduction and/or proliferation;
  - (b) control and, unless otherwise determined by the relevant State authorities, eradicate detected non-indigenous terrestrial species (including weeds); and
  - (c) mitigate adverse impacts of any control and eradication actions on indigenous species taken against detected pests and weeds.
  - (d) assess risk, manage supply chains, and manage and inspect vessels;
  - (e) mitigate any pest or weed impacts;
  - (f) report and record any quarantine incidents;
  - (g) identify performance standards to be achieved by the QMP; and
  - (h) undertake a review of the QMP and identify the need for any further studies.

Note: To avoid doubt, the QMP may be submitted in stages, for example to cover the period prior to any planned direct arrival at the MOF of international imports, and after this time.

31. The QMP must be submitted for the approval of the Minister. Commencement must not occur without the approval in writing of the Minister. The approved Plan must be implemented.

Note: To avoid doubt, if a condition of another approval held by the proponent requires a Quarantine Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan. The plan, or components thereof, may also be prepared and implemented in consultation with the Gladstone Ports Corporation or other bodies.

#### Environmental Management Plan –Water Mouse (Xeromys myoides)

- 32. To protect the Water Mouse (*Xeromys myoides*), the proponent must submit to the Minister an Environmental Management Plan (the Water Mouse Environmental Management Plan) which must include:
  - (a) results of a pre-clearance survey undertaken at the appropriate time and season for the species;
  - (b) a map of the location of potential habitat for the Water Mouse in proximity to marine facilities:
  - (c) measures that will be employed to avoid impacts on the Water Mouse or its potential habitat; and

(d) if impacts on the Water Mouse or its potential habitat are unavoidable, propose offsets to compensate for the impacts.

Note: To avoid doubt, if a condition of another approval held by the proponent requires a Water Mouse Environmental Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan. The plan may also be prepared in consultation with the Gladstone Ports Corporation in accordance with conditions imposed for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).

33. The Water Mouse Environmental Management Plan must be submitted for the approval of the Minister within 6 months of this Approval. The plan must be implemented.

#### **Long-term Marine Turtle Management Plan**

- 34. Within six months of this approval, the proponent must
  - (a) contribute an initial amount of \$150 000 towards preparation of a long term marine turtle management plan; and
  - (b) participate in industry wide discussions with the Gladstone Ports Corporation and other port users (including LNG proponents) with a view to establishing a long term marine turtle management plan and future funding requirements for the plan.
- 35. If terms of the long term marine turtle management plan cannot be agreed on an industry wide basis (within the Port of Gladstone) within six months of this approval, then the proponent must prepare a long term marine turtle management plan in consultation with other LNG proponents who have confirmed an intention to establish an LNG Facility on Curtis Island.
- 36. The plan (in either case referred to in 34 and 35 above), must include:
  - (a) a program to establish comprehensive baseline information on populations of marine turtles that utilise the beaches and nearby waters of Curtis and Facing Island (including the Green Turtle *Chelonia mydas*, the Loggerhead Turtle *Caretta caretta*, and the Flatback Turtle *Natator depressus*):
  - (b) a monitoring program to measure and detect changes to the marine turtle populations over a period of at least 10 years from commencement of the program. Monitoring methods must have the ability to detect changes at a statistical power of 0.8, or an alternative statistical power as determined in writing by the Minister;
  - (c) the identification of significant activities relating to the construction and operation of LNG facilities (or in the case of an industry wide plan, activities within the Port of Gladstone) with the potential to cause adverse impacts on marine turtles;
  - (d) management measures including operating controls and design features to help manage and avoid adverse impacts to marine turtles shown to be adversely impacted by LNG operations (or in the case of an industry wide plan, activities conducted within the Port of Gladstone). In relation to the LNG operations, management measures will include any reasonable and practicable measures found necessary or desirable to minimise disturbance to marine turtles from gas flaring, and from lighting of the LNG plant and ships moored at the loading berth (except where the adoption of measures would be in contravention of health and safety legislative requirements).
  - (e) Identification of annual contributions by the proponent, other LNG proponents who have confirmed an intention to establish an LNG Facility on Curtis Island and, in the case of an industry wide plan, contributions by other port users.

- 37. The Turtle Management Plan must be submitted for the approval of the Minister at least 3 months before the planned date of the commissioning of the first LNG train. The approved Plan must be implemented.
- 38. Within 60 days of each anniversary of the approval of the plan the proponent must provide a review report ("the Report") of the effectiveness of the management measures and operating controls directed at avoiding impacts on the marine turtle species.

Note: The review report may be provided by the Gladstone Ports Corporation or another entity on behalf of the proponent.

39. If an impact on any of the marine turtle species is identified, the report must recommend improvements to the conduct of those operations and activities which are found to have a causal connection with the identified impact, and provide the report to the Minister in writing within 30 days of identifying the impact. The Minister may require improvements to be implemented.

Note: To avoid doubt, if a condition of another approval held by the proponent requires a Turtle Management Plan, the proponent may simultaneously meet the relevant requirements of both conditions by submitting a single plan. The plan may also be prepared and implemented in consultation with the Gladstone Ports Corporation or other bodies.

#### **Decommissioning Plan**

- 40. Unless the proponent advises the Department that it cannot decommission the site because of lawful continuing use rights by a third party (that might include the State of Queensland), at least five years before the planned date of cessation of operations of the LNG Facility and associated infrastructure on Curtis Island the proponent must develop a Decommissioning Plan. The Plan must:
  - (a) ensure that, following the cessation of operations at the LNG Facility and associated infrastructure on Curtis Island, decommissioning arrangements are prepared;
  - (b) define a timetable for the future implementation of decommissioning including for:
    - (i) the removal of remnant infrastructure and works that interfere with natural coastal processes, and human recreational and commercial activities;
    - (ii) the return of sediment levels and water quality in the immediate area of the LNG Facility to pre-construction background levels; and
    - (iii) the rehabilitation of the LNG Facility and associated sites to their natural state, and their ongoing management during rehabilitation.
- 41. If decommissioning does not commence on the date proposed in the initial Decommissioning Plan, the proponent must review the decommissioning plan before each subsequent third anniversary of the date of the submission of the initial decommissioning plan over the operational life of the LNG facility. The proponent must advise the Minister in writing of the outcomes of this review, including any proposed changes to the decommissioning plan. Any proposed changes to the decommissioning plan must be approved in writing by the Minister.
- 42. The Decommissioning Plan must be submitted for the approval of the Minister. Decommissioning must not occur without approval of the Minister. Subject to condition 40 the approved Plan must be implemented on decommissioning.

# **Notification of commencement**

- 43. Within 20 business days of commencement of the action, the proponent must advise the Department in writing of the actual date of commencement.
- 44. If, at any time after five years from the date of this approval, the Minister notifies the proponent in writing that the Minister is not satisfied that there has been commencement of the action, the action must not commence without the written agreement of the Minister.

# Request for variation of plans by proponent

- 45. If the proponent wants to act other than in accordance with a plan approved by the Minister under these conditions, the proponent must submit a revised plan for the Minister's approval.
- 46. If the Minister approves a revised plan, then that plan must be implemented instead of the plan originally approved.
- 47. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

# Revisions to plans by the Minister

- 48. If the Minister believes that it is necessary or desirable for the better protection of a relevant controlling provision for the action, the Minister may request the proponent to make, within a period specified by the Minister, specified revisions to a plan approved by the Minister under these conditions.
- 49. If the Minister makes a request for revisions to a plan, the proponent must:
  - (a) comply with that request; and
  - (b) submit the revised plan to the Minister for approval within the period specified in the request.
- 50. The proponent must implement the revised plan, on written approval of the Minister.
- 51. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

#### Minimum timeframes for consideration of plans

52. For any plan required to be approved by the Minister under these conditions, the proponent must ensure the Minister is provided at least 20 business days for review and consideration of any plan, unless otherwise agreed in writing between the proponent and the Minister.

#### Compliance with State environmental and other authorities

53. The proponent must comply with all environmental authorisations issued by the State, including conditions of an environmental authority issued under the EP Act.

#### Provision of State plans

54. If a condition of a State approval requires the proponent to provide a plan then the proponent must also provide the plan to the Department or Minister on request, within the period specified in the request

#### **Timeframes**

55. If these conditions require the proponent to provide something by a specified time, a longer period may be specified in writing by the Minister.

#### **Auditing**

- 56. On the request of and within a period specified by the Department, the proponent must ensure that:
  - (a) an independent audit of compliance with these conditions is conducted; and
  - (b) an audit report, which addresses the audit criteria to the satisfaction of the Department, is published on the Internet and submitted to the Department
- 57. Before the audit begins, the following must be approved by the Department:
  - (a) the independent auditor; and
  - (b) the audit criteria
- 58. The audit report must include:
  - (a) the components of the project being audited;
  - (b) the conditions that were activated during the period covered by the audit;
  - (c) a compliance/non-compliance table;
  - (d) a description of the evidence to support audit findings of compliance or non-compliance;
  - (e) recommendations on any non-compliance or other matter to improve compliance;
  - (f) a response by the proponent to the recommendations in the report (or, if the proponent does not respond within 20 business days of a request to do so by the auditor, a statement by the auditor to that effect);
  - (g) certification by the independent auditor of the findings of the audit report.
- 59. The financial cost of the audit will be borne by the proponent.
- 60. The proponent must:
  - (a) implement any recommendations in the audit report, as directed in writing by the Department;
  - (b) investigate any non-compliance identified in the audit report; and
  - (c) if non-compliance is identified in the audit report take action as soon as practicable to ensure compliance with these conditions.

- 61. If the audit report identifies any non-compliance with the conditions, within 20 business days after the audit report is submitted to the Department the proponent must provide written advice to the Minister setting out the:
  - (a) actions taken by the proponent to ensure compliance with these conditions; and
  - (b) actions taken to prevent a recurrence of any non-compliance, or implement any other recommendation to improve compliance, identified in the audit report

Note: To avoid doubt, independent third party auditing may include audit of the proponent's performance against the requirements of any plan required under these conditions.

#### Reporting non-compliance

- 62. The proponent must, when first aware of a non-compliance of any condition of this approval, or a plan required to be approved by the Minister under these conditions:
  - (a) report the non-compliance and remedial action to the Department within five business days; and
  - (b) bring the matter into compliance within an a reasonable timeframe agreed to, in writing by the Department.

# Record-keeping

- 63. The proponent must:
  - (a) maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures taken to implement a plan approved by the Minister under these conditions; and
  - (b) make those records available on request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with these conditions of approval.

Note: Summanes of audits carried out under these conditions, or under section 458 of the EPBC Act, will be posted on the Department's website. The results of such audits may also be publicised through the general media.

#### Financial assurance

- 64. The proponent must:
  - (a) provide the Minister with a financial assurance in the amount and form required from time to time by the Minister for activities to which these conditions apply; and
  - (b) review and maintain the amount of financial assurance based on proponent reporting on compliance with these conditions, and any auditing of the activities.
- 65. The financial assurance is to remain in force until the Minister is satisfied that no claim is likely to be made on the assurance.

Note: The financial assurance may be used for rehabilitation of habitat and other purposes not addressed adequately by the proponent during the life of the project.

#### Annual Environmental Return

- 66. The proponent must produce an Annual Environmental Return which:
  - (a) addresses compliance with these conditions;
  - (b) records any unavoidable adverse impacts on MNES, mitigation measures applied to avoid adverse impacts on MNES; and any rehabilitation work undertaken in connection with any unavoidable adverse impacts on MNES:
  - (c) identifies all non-compliances with these conditions;
  - (d) identifies any amendments needed to plans to achieve compliance with these conditions.
- 67. The proponent must publish the Annual Environmental Return on its website within 20 calendar days of each anniversary date of this approval. In complying with this publication requirement, the proponent must ensure that it has obtained relevant rights in relation to confidentiality and intellectual property rights of third parties.

# Survey data

68. If requested by the Department, the proponent must provide all species and ecological survey data and related survey information from ecological surveys undertaken for MNES. The data must be collected and recorded to conform to data standards notified from time to time by the Department.

#### **Publication of Plans**

- 69. All plans approved by the Minister under these conditions must be published on the proponent's website within 30 business days of approval by the Minister.
- 70. The Department may request the proponent to publish on the internet a plan in a specified location or format and with specified accompanying text. The proponent must comply with any such request.

#### **Dictionary**

71. In these conditions, unless otherwise indicated:

**CEMP** means the Construction Environmental Management Plan developed as required under conditions 22 to 24.

**Conditions** means these conditions attached to the approval of the action;

**Commencement** means the substantial commencement of construction of the proposed LNG Facility as described in referral EPBC 2008/4402, received under the EPBC Act on 18 August 2008. Commencement does not include minor physical disturbance necessary to undertake pre-clearance surveys, to establish monitoring programs or associated with mobilisation of plant, equipment, materials, machinery and personnel prior to start of construction of the LNG facility.

**Commissioning** means the point at which, following completion of the construction of the first LNG train, it is tested to verify if it functions according to its design objectives or specifications.

**Construction workforce** means both personnel directly employed by the proponent and subcontracted personnel engaged on-site during the construction of the LNG facility, including associated works and infrastructure.

**Department** means the Australian Government department responsible for administering Part 4 of the EPBC Act;

**EPBC Act** means the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*:

*Minister* means the Minister responsible for Chapter 4 of the EPBC Act, and may include a delegate of the Minister under s.133 of the EPBC Act;

**MNES** means one or more matters of national environmental significance under the EPBC Act that are included within the controlling provisions determined by the Minister for the action.

**OEMP** means the Operational Environmental Management Plan developed as required under conditions 25 to 27.

Plan includes a report, study, plan, or strategy (however described);

**Proponent** means the person to whom the approval is granted, and includes any person acting on behalf of the proponent.

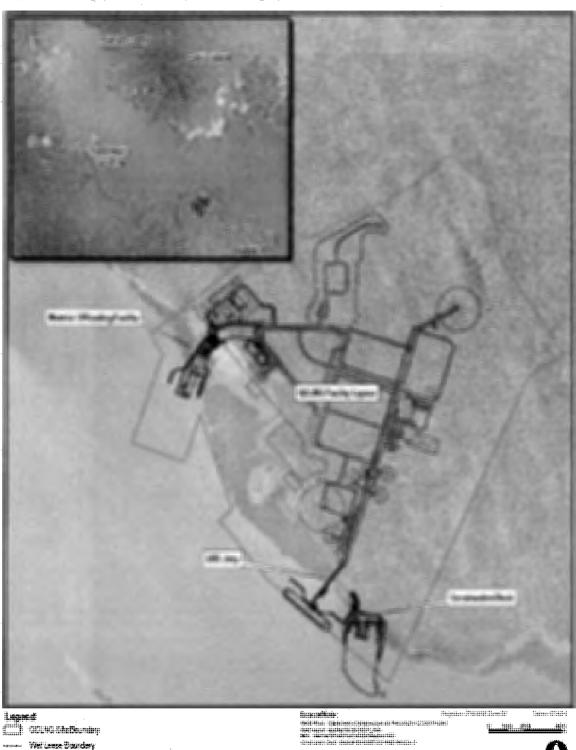
**QMP** means the Quarantine Management Plan developed as required under conditions 29 to 30.

Referral means a referral under the EPBC Act including any variation of the referral.

**Vessel operators** means operators (whether or not employed by the proponent), and their employees, responsible for operating vessels travelling from the mainland to Curtis Island during the pre-clearance survey, construction, and operating phases of the LNG facility.

- 72. Unless the contrary is indicated, words in these conditions have the same meaning as in (in the following order of priority)
  - (a) the EPBC Act; and
  - (b) the EP Act.
- 73. Unless the contrary is indicated, in these conditions:
  - (a) words in the singular number include the plural and words in the plural number include the singular; and
  - (b) condition headings are inserted for convenient reference only and have no effect in limiting or extending the language of condition to which they refer.

Figure 1 - Proposed location of LNG components on Curtis Island



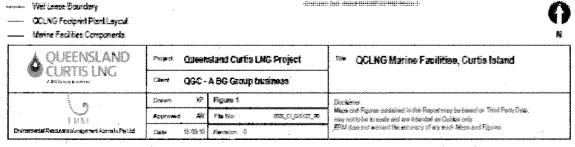


Figure 2 - Map of Curtis Island Environmental Management Precinct



Department of Sustainability, Environment, Water, Population and Communities

# **Approval**

To develop, construct, operate and decommission a 730km pipeline network to link coal seam gas fields in the Surat Basin, Queensland to the proposed Queensland Curtis LNG Plant located on Curtis Island as described in referral EPBC 2008/4399

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

person to whom the approval is granted	Queensland Gas Company Ltd (QGC) and BG International Limited (BG)		
proponent's ABN	ABN: 089 642 553 (QGC) ABN: 72 114 818 825 (BG)		
proposed action	To develop, construct, operate and decommission an 730km		
	pipeline network to link coal seam gas fields in the Surat Basin, Queensland to the proposed Queensland Curtis LNG Plant located on Curtis Island, adjacent to Gladstone:		
	as described in the proponents referral received under the EPBC Act on 18 August 2008; and		
	<ul> <li>as described in the proponent's Environmental Impact Statement and Supplementary Environmental Impact</li> </ul>		
	Statement.		
decision	To approve the proposed action for each of the following controlling provisions:		
	<ul> <li>World Heritage properties (sections 12 and 15A, EPBC Act)</li> </ul>		
	<ul> <li>National Heritage Places (sections 15B and 15C, EPBC Act)</li> </ul>		
	<ul> <li>Listed threatened species and communities (sections 18 and 18A, EPBC Act)</li> </ul>		
	<ul> <li>Listed migratory species (sections 20 and 20A, EPBC Act); and</li> </ul>		
	to not approve Option 1 (the alternative pipeline route described in the proponent's EIS, which will not proceed) under s.133(1A) of the EPBC Act.		
conditions of approval	This approval is subject to the conditions specified below.		
expiry date of approval	This approval has effect until 31 October 2060.		
name and position	The Hon Tony Burke MP Minister for Sustainability, Environment, Water, Population and Communities		
signature	Jony Burks		
date of decision	22.10.10		
	*** **** *****************************		

# **Conditions**

# Project area

1. The pipeline route and Right Of Way (ROW) is depicted in the map at Attachment 1.

# **Environmental Management Plan (excluding the Narrows)**

- The proponent must prepare an Environmental Management Plan to manage the impacts of construction, operation and decommissioning of the pipeline (other than in relation to the Narrows) on listed threatened species and ecological communities, listed migratory species and values of the World and National Heritage-listed Great Barrier Reef.
- 3. The Environmental Management Plan must include:
  - a. provisions for detailed pre-clearance surveys by a suitably qualified ecologist along the entire length of the ROW, in accordance with conditions 5 to 10;
  - measures to minimise native and riparian vegetation clearance and to minimise the impact on listed species, their habitat and ecological communities in accordance with management plans required for MNES under this approval;
  - measures to manage the impact of clearing on each listed species and ecological community in accordance with management plans required for MNES under this approval;
  - measures to regenerate vegetation on the ROW where natural regeneration is not successful to a condition at least equivalent to the ROW condition prior to commencement;
  - e. measures to minimise impacts on fauna during pipeline construction, including:
    - i. measures to protect MNES in the areas of the ROW where trenching is being undertaken, including measures to exclude listed terrestrial fauna from gaining access to those areas of the ROW where trenching is being undertaken
    - ii. mechanisms to allow fauna to escape from the pipeline trench;
    - iii. daily morning surveys for trapped fauna;
    - iv. mechanisms for a suitably qualified person to relocate fauna; and
    - v. record keeping for all survey, removal and relocation activities.
  - f. machinery wash down procedures and ongoing monitoring to minimise the spread and establishment of weeds in the ROW. Monitoring of weed infestations within disturbed areas must occur at least monthly during construction and then quarterly for a period of two years after completion of construction. Appropriate weed control measures must be implemented. After the two-year period, the frequency of monitoring must be reconsidered by the proponent, based on the success of control measures, the level of infestations and pipeline maintenance activities;
  - g. measures to manage and control feral animals that may spread due to the establishment of the ROW;
  - measures for the management of ignition sources during construction, maintenance and decommissioning of the pipeline to protect habitat values from wild fire:
  - i. measures for the management of acid sulfate soils;

4. The Environmental Management Plan must be submitted for the approval of the Minister. Commencement must not occur without approval (except for activities critical to commencement and associated with mobilisation of plant, equipment, materials, machinery and personnel prior to start of pipeline construction which will have no adverse impact on MNES). The approved plan must be implemented.

# Pre-clearance surveys

- 5. Before the clearance of native vegetation in the pipeline ROW, the proponent must:
  - undertake pre-clearance surveys for the presence of listed threatened species and migratory species, their habitat and listed ecological communities.
  - b. alternatively, where recent surveys have already been undertaken and those surveys meet the Department's requirements for surveys for the relevant MNES, the proponent may elect to develop management plans based on those surveys in accordance with the requirements of condition 8.
- 6. Pre-clearance surveys must:
  - a. for each listed species, be undertaken in accordance with the Department's survey guidelines in effect at the time of the survey. This information can be obtained from <a href="http://www.environment.gov.au/epbc/guidelines-policies.html#threatened">http://www.environment.gov.au/epbc/guidelines-policies.html#threatened</a>;
  - b. be undertaken by a suitably qualified ecologist approved by the Department in writing:
  - document the survey methodology, results and significant findings in relation to MNES; and
  - apply best practice site assessment and ecological survey methods appropriate for each listed threatened species, migratory species, their habitat and listed ecological communities.
- 7. Pre-clearance survey reports (which document the methods used and the results obtained) must be published by the proponent and provided to the Department at the time of publication.
- 8. If a listed threatened species or migratory species or their habitat, or a listed ecological community is encountered during the surveys undertaken as required by condition 5 and is not specified in the Table 1 or 2 at condition 11 and 12, the proponent must submit a separate management plan for each species or ecological community to manage the unexpected impacts of clearing. In relation to each listed species or ecological community, each plan must address:
  - a. the relevant characteristics describing each ecological community
  - a map of the location of species, species' habitat, or ecological community in proximity to the ROW;
  - c. measures that will be employed to avoid impact on the species, species' habitat, or ecological community;
  - d. a quantification of the unavoidable impact (in hectares and/or individual specimens);
  - e. where impacts are unavoidable and a disturbance limit is not specified for the listed species or ecological community under condition 11, propose offsets to compensate for the impact on the population of the species' habitat, or the ecological community;

- f. current legal status (under the EPBC Act); and
- g. known distribution.

For listed species, each plan must also include:

- a. known species' populations and their relationships within the region;
- b. biology and reproduction;
- preferred habitat and microhabitat including associations with geology, soils, landscape features and associations with other native fauna and/or flora or ecological communities;
- d. anticipated threats to MNES from pipeline construction, operation and decommissioning;
- e. management practices and methods to minimise impacts, such as:
  - i. site rehabilitation timeframes, standards and methods;
  - ii. use of sequential clearing to direct fauna away from impact zones;
  - iii. re-establishment of native vegetation in linear infrastructure corridors;
  - iv. handling practices for flora specimens;
  - v. translocation and/or propagation practices and monitoring for translocation/propagation success;
  - vi. monitoring methods including for rehabilitation success and recovery; and
- f. reference to relevant conservation advice, recovery plans, or other policies, practices, standards or guidelines relevant to MNES published or approved from time to time by the Department.

Note: Management plans should include sufficient detail to inform pipeline construction, management and decommissioning to minimise adverse impacts on MNES throughout the life of the project.

- 9. Each plan required under condition 8 must be submitted for the approval of the Minister. Commencement in the location covered by the management plan must not occur without approval. Each approved plan must be implemented.
- 10. If, during construction, a listed threatened species or migratory species or their habitat, or a listed ecological community is encountered and is not specified in the table at condition 11 or 12, the proponent must submit a separate management plan for each species or ecological community in accordance with condition 8 within 20 business days of encountering that MNES. Work must not continue at the construction site where the MNES is encountered until the relevant management plan has been approved.

#### **Disturbance limits**

11. The following maximum disturbance limits apply to any disturbances authorised for unavoidable impacts on listed threatened communities and potential habitat for listed threatened species or migratory species as a result of the construction, operation and decommissioning of the pipeline (and all associated activities).

Table 1: EPBC - listed threatened ecological communities				
Ecological community	EPBC status	Disturbance limit (ha)		
Brigalow ( <i>Acacia harpophylla</i> dominant and co-dominant)	Endangered	14.42		
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	2.47		
Species	EPBC status	Disturbance limit (ha)		
Cycas megacarpa (Large-fruited Zamia)	Endangered	3		
Philotheca Sporadica	Vulnerable	5		

Note: These conditions provide offsets for species identified in Table 1 except for Brigalow, for which offsets are provided in EPBC 2008/4398 (QCLNG coal seam gas fields expansion).

12. The proponent must prepare a management plan for each species in the table below. Each plan must be prepared in accordance with the requirements of condition 8.

Table 2: Species management plans required before commencement		
Listed species	EPBC Act Status	
Cadellia pentasylis (Ooline)	Vulnerable	
Paradelma orientalis (Brigalow Scaly-foot)	Vulnerable	
Furina dunmalli (Dunmall's Snake)	Vulnerable	
Egernia rugosa (Yakka Skink)	Vulnerable	
Geophaps scripta scripta (Squatter pigeon – southern)	Vulnerable	
Nyctophilus timoriensis (Eastern Long-eared Bat)	Vulnerable	
Chalinolobus dwyeri (Large-eared Pied Bat)	Vulnerable	
Xeromys myoides (Water Mouse)	Vulnerable	

Note: The intent of the table above is to prepare management plans for those species that are likely to be encountered along the ROW and where a disturbance limit has not been quantified. To the extent that the requirements of condition 8 are satisfied for each species, a single Species Management Plan may be prepared for this purpose.

13. Each management plan must be submitted for the approval of the Minister. Commencement must not occur without approval. Commencement in the location covered by the management plan must not occur without approval. Each approved plan must be implemented. 14. Disturbance of vegetation related to the construction and maintenance of the pipeline must be confined to the ROW. Any proposed siting of the construction camps, vehicle access tracks and pipe lay-down areas outside the ROW during construction must be undertaken so as to minimise potential adverse impacts on MNES and must comply with conditions 5 to 13.

#### **Offsets**

Plan to secure offsets

- 15. Within 12 months of the commencement of pipeline development the proponent must prepare an Offset Plan to provide an offset area for the approved disturbance limits relating to *Philotheca sporadica* and Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions (SEVT) within the project area. The offset area to be secured must be an area of private land which includes at least:
  - a. 40 ha of Philotheca sporadica habitat; and
  - b. 19.76 ha of Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions

Note: Offsetting requirements for this approval can be accommodated as part of a single offset plan addressing the requirements of this approval and those required by EPBC 2008/4398.

- 16. The Offset Plan must include details of the offset area including: the timing and arrangements for property acquisition, maps and site description, environmental values relevant to MNES, connectivity with other habitats and biodiversity corridors, a rehabilitation program, and mechanisms for long-term protection, conservation and management.
- 17. The Offset Plan must be submitted for the approval of the Minister within 12 months of the commencement of gas field development. The approved Offset Plan must be implemented within 30 business days of approval.
- 18. If the approved Offset Plan cannot be implemented because of failure of arrangements to secure the necessary area of private land then the proponent must submit for the Minister's approval an alternative Offset Plan. The alternative Offset Plan must provide at least an equivalent environmental outcome to those specified under condition 15. The approved alternative Offset Plan must be implemented.
- 19. If the proponent proposes any action within a proposed offset area, other than actions related to managing that area as an offset property, approval must be obtained, in writing from the Department. In seeking Departmental approval the proponent must provide a detailed assessment of the proposed action including a map identifying where the action is proposed to take place and an assessment of all associated adverse impacts on MNES. If the Department agrees to the action within the proposed offset site, the area identified for the action must be excised from the proposed offset and alternative offsets secured of equal or greater environmental value in relation to the impacted MNES.
- 20. The proponent must secure the offset within 2 years of commencement.

- 21. Within 12 months of securing the offset area required under the approved Offset Plan, the proponent must develop an Offset Area Management Plan which must specify measures to improve the environmental values of the offset area in relation to MNES, including:
  - a. the documentation and mapping of current environmental values relevant to MNES of the area;
  - measures to address threats to MNES including but not limited to grazing pressure and damage by livestock and adverse impacts from feral animals and weeds;
  - c. measures to provide fire management regimes appropriate for the MNES:
  - d. measures to manage the offset area to improve the condition of the MNES specified at condition 15 within the offset area and to increase the areal extent of MNES specified at condition 15 within the offset area as objectives of the program;
  - e. monitoring, including the undertaking of ecological surveys to assess the success of the management measures against identified milestones and objectives;
  - f. performance measures and reporting requirements against identified objectives, including trigger levels for corrective actions and the actions to be taken to ensure performance measures and objectives are met.
- 22. Within 12 months of securing the offset area the Offset Area Management Plan must be submitted for the approval of the Minister. The approved Offset Area Management Plan must be implemented.

# Cycas megacarpa

- 23. To offset unavoidable impacts to *Cycas megacarpa* from all activities associated with this approval, the proponent must:
  - a. within 12 months of the date of this approval, secure an area of at least 18ha as an offset for receiving no less than 1104 translocated and/or propagated individuals;
  - b. identify alternative recruitment methods if it is considered unlikely that translocation and propagation will be successful;
  - c. notify the Department in writing of the acquisition or transfer of ownership of the area identified in condition 23(a) within one month of securing the land;
  - d. if the proponent proposes any action within a proposed offset area, other than actions related to managing that area as an offset property, approval must be obtained, in writing from the Department. In seeking Departmental approval the proponent must provide a detailed assessment of the proposed action including a map identifying where the action is proposed to take place and an assessment of all associated adverse impacts on MNES. If the Department agrees to the action within the proposed offset site, the area identified for the action must be excised from the proposed offset and alternative offsets secured of equal or greater environmental value in relation to the impacted MNES;
  - e. demonstrate that the measures for securing and managing the offset will ensure that the offset is protected in perpetuity.

- 24. The proponent must prepare a *Cycas megacarpa* Management Plan in consultation with an expert approved by the Department in writing.
- 25. The Cycas megacarpa Management Plan must include:
  - a. measures to ensure all Cycas megacarpa within the ROW are avoided using, for example suitable trenchless technique(s) as necessary or, if avoidance is not possible, individual plants must be removed and kept offsite and replanted in the same location, or alternatively translocated. Where it can be demonstrated that removal and translocation of individuals is unlikely to succeed, translocation may be substituted by establishing propagated individuals:
  - b. measures to propagate and plant *Cycas megacarpa* individuals removed or impacted by construction activities to maintain a population of no less than 1104 individuals within the offset site required by condition 23(a);
  - c. a detailed methodology for translocation, propagation and planting, including a map of the location of the offset site;
  - d. details of funding required to secure, maintain and enhance the values of the offset site in perpetuity;
  - e. details of a suitably qualified person to undertake translocation, propagation and planting;
  - f. details of the erosion and sediment control measures to be implemented in the ROW in the Callide and Calliope Ranges;
  - g. measures to rehabilitate the ROW in the Callide and Calliope Ranges;
  - h. measures for the control and management of weeds, fire, feral animals, access and grazing in translocation sites;
  - i. measures for the management, maintenance and protection of the population of *Cycas megacarpa* individuals in the offset site for a period of five years following final planting:
  - details of monitoring practices to assess the success of proposed management regimes of the offset;
  - k. performance measures, reporting requirements, trigger levels for corrective actions and identification of those actions to be taken to ensure performance measures are met; and
  - a reconciliation statement of impacts against the agreed limit of disturbance, as defined above in condition 11 must be updated by the proponent every 12 months from commencement until construction is complete.
- 26. The Cycas megacarpa Management Plan must be submitted for the approval of the Minister. Commencement in the location covered by the management plan must not occur without approval. The approved plan must be implemented.
- 27. To avoid doubt, a single offset management plan can be submitted to meet all offset management plan requirements.

28. To offset unavoidable impacts on listed migratory birds within the ROW at the Kangaroo Island wetlands west of the Narrows, the proponent must contribute at least \$250,000 to the Gladstone Port Corporation's migratory bird research study required by conditions for the Gladstone Western Basin Dredging and Disposal Project (EPBC 2009/4904).

# The Narrows crossing

- 29. The proponent must prepare an Environmental Management Plan for the crossing of the Narrows. This must include:
  - a. if the crossing is undertaken concurrently with the construction of one or more additional gas transmission pipelines (a 'bundled crossing'):
    - the roles and responsibilities of each party involved in the bundled crossing:
    - ii. details of the final pipeline route, engineering design and construction methodology, including details of the total number of gas transmission pipes including any pipelines for water supply and/or sewerage;
    - iii. potential impacts from the construction of the pipeline on listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef:
    - iv. mitigation measures to reduce impacts on listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef;
    - v. proposed offset measures to compensate for unavoidable impacts on listed threatened species and ecological communities, listed migratory species and values of the World and National Heritage-listed Great Barrier Reef;
    - vi. measures for the management of acid sulfate soils (both potential and actual);
    - vii. measures for ongoing maintenance and decommissioning of the pipelines, or

If the proponent does not proceed in a bundled crossing:

- a construction method which, in the opinion of the Minister, will result in minimal surface disturbance to the Kangaroo Island Wetlands and minimal disturbance to the area of the estuary of the Narrows (preferably achieved by horizontal directional drilling or tunnelling);
  - i. details of the final pipeline route, design and construction methodology, including details of inclusion of pipes for water supply and sewerage;
  - ii. potential impacts from the construction of the pipeline on listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef;
  - iii. mitigation measures to reduce impacts to listed threatened species, ecological communities, migratory species and World and National Heritage-listed values of the Great Barrier Reef;
  - iv. proposed offsets to compensate for the unavoidable impacts of the action on listed threatened species and ecological communities, listed migratory species and values of the World and National Heritage-listed Great Barrier Reef;
  - v. measures for the management of acid sulfate soils;

vi. measures for ongoing maintenance and decommissioning of the pipeline.

Note: 29(b) does not prescribe a particular construction method.

- 30. The Environmental Management Plan must be submitted for the approval of the Minister. The activity the subject of the Environmental Management Plan must not start without approval. The approved plan must be implemented.
- 31. If the pipeline construction involves dredging to be undertaken by the proponent under the approval to which these conditions are attached, the proponent must prepare a Dredge Management Plan.
- 32. The Dredge Management Plan required under these conditions must include:
  - a. details of dredging methods, planned commencement, duration and frequency of dredging;
  - b. identification of areas of potentially impacted seagrass habitat and their environmental tolerances:
  - c. site specific water quality objectives for the designated habitats as a guideline for habitat protection;
  - d. measures to refine the plume modelling data presented in the proponent's Environmental Impact Statement;
  - e. mitigation measures and controls for the dredging and spoil disposal activities:
  - f. triggers for initiating adaptive management and potential remediation measures;
  - g. monitoring of:
    - potential impacts of dredging on seagrass including but not limited to turbidity and light attenuation;
    - ii. the triggers established under condition 32(f); and
    - iii. the long term impacts of the action;
  - h. options, linked to the triggers established under condition 32(f), for adaptively managing the action including options for varying the timing and location of dredging and spoil disposal activities:
  - details for monitoring of dredging activities, including timing and variables measured such as turbidity and light attenuation in a format as directed by the Department to allow validation of other modelling of dredging impacts relating to the Port of Gladstone;
  - j. measures to minimise the impact on listed migratory birds from noise associated with construction activities;
  - k. measures to prevent and respond to the introduction of marine pest species;
  - measures to protect dugongs and listed turtles including the use of turtle excluder devices;
  - m. details of dredge spoil placement;
  - n. provisions to sample and analyse dredge spoil composition.
- 33. The Dredge Management Plan must be submitted for the approval of the Minister. The activity the subject of the Dredge Management Plan must not start without approval. The approved plan must be implemented.

# Location of pipeline (Callide range)

34. East of the Callide Range, the proponent must locate the pipeline within the Callide Infrastructure Corridor State Development Area as indicated in the map at Attachment 1.

# Water crossings

- 35. Where reasonably possible, horizontal directional drilling must be used for major waterway crossings, including:
  - a. those within the Dawson, Calliope and Condamine River catchments and any water crossing within the known distribution of the Fitzroy River Turtle (Rheodytes leukops) and Murray Cod (Maccullochella peelii peelii). Pipeline construction across waterways within the known distribution of the Fitzroy River Turtle must not take place during the nesting and breeding season;
  - b. Humpie and Targinie Creeks.
- 36. Trenchless techniques are not required in minor creek beds within the known distribution of the Fitzroy River Turtle (*Rheodytes leukops*) and Murray Cod (*Maccullochella peelii peelii*) where there is no water at the crossing site and the distance to the nearest water is sufficient to buffer any potential impacts resulting from the crossing technique.
- 37. The proponent must prepare an Aquatic Values Management Plan. This plan must include:
  - a. a detailed assessment of aquatic values, including animal breeding locations for listed threatened and migratory species within the ROW;
  - b. measures to minimise impacts on listed riparian, aquatic and water dependent flora and fauna;
  - c. measures to minimise erosion and sediment impacts to waterways;
  - d. measures to maintain water quality and water flow requirements, including treatment and disposal methods for hydrostatic test water;
  - e. site-specific mitigation measures for any potential impacts from construction and operation of the pipeline on listed threatened species, including but not limited to the Fitzroy River Turtle.
- 38. The Aquatic Values Management Plan must be approved in writing by the Minister. Activities the subject of the Plan must not start without approval. The Plan must be implemented.

#### Notification of commencement

- 39. Within 20 business days of commencement, the proponent must advise the Department in writing of the actual date of commencement.
- 40. If, at any time after 5 years from the date of this approval, the Minister notifies the proponent in writing that the Minister is not satisfied that there has been commencement of the action, the action must not commence without the written agreement of the Minister.

# Request for variation of plans by proponent

- 41. If the proponent wants to act other than in accordance with a plan approved by the Minister under these conditions, the proponent must submit a revised plan for the Minister's approval.
- 42. If the Minister approves the revised plan, then that plan must be implemented instead of the plan originally approved.
- 43. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

# Revisions to plans by the Minister

- 44. If the Minister believes that it is necessary or desirable for the better protection of a relevant controlling provision for the action, the Minister may request the proponent to make, within a period specified by the Minister, revisions to a plan approved under these conditions.
- 45. If the Minister makes a request for revision to a plan, the proponent must:
  - a. comply with that request; and
  - b. submit the revised plan to the Minister for approval within the period specified in the request.
- 46. The proponent must implement the revised plan, on approval of the Minister.
- 47. Until the Minister has approved the revised plan, the proponent must continue to implement the original plan.

# Minimum timeframes for consideration of plans

48. For any plan required to be approved by the Minister under these conditions, the proponent must ensure the Minister is provided at least 20 business days for review and consideration of the plan, unless otherwise agreed in writing between the proponent and the Minister.

# Compliance with State environmental and other authorities

49. The proponent must comply with all environmental authorisations issued by the State, including conditions of an environmental authority issued under the EP Act.

# **Provision of State plans**

50. If a condition of a State approval requires the proponent to provide a plan then the proponent must also provide the plan to the Department or Minister on request, within the period specified in the request.

#### **Timeframes**

51. If these conditions require the proponent to provide something by a specified time, a longer period may be specified in writing by the Minister.

#### **Auditing**

- 52. On the request of and within a period specified by the Department, the proponent must ensure that:
  - a. an independent audit of compliance with these conditions is conducted; and
  - b. an audit report, which addresses the audit criteria to the satisfaction of the Department, is published on the Internet and submitted to the Department.
- 53. Before the audit begins, the following must be approved by the Department:
  - a. the independent auditor; and
  - b. the audit criteria.
- 54. The audit report must include:

- a. the components of the project being audited:
- b. the conditions that were activated during the period covered by the audit;
- c. a compliance/non-compliance table;
- d. a description of the evidence to support audit findings of compliance or non-compliance;
- e. recommendations on any non-compliance or other matter to improve compliance;
- f. a response by the proponent to the recommendations in the report (or, if the proponent does not respond within 20 business days of a request to do so by the auditor, a statement by the auditor to that effect);
- g. certification by the independent auditor of the findings of the audit report.
- 55. The financial cost of the audit will be borne by the proponent.
- 56. The proponent must:
  - a. implement any recommendations in the audit report, as directed in writing by the Department;
  - b. investigate any non-compliance identified in the audit report; and
  - c. if non-compliance is identified in the audit report take action as soon as practicable to ensure compliance with these conditions.
- 57. If the audit report identifies any non-compliance with the conditions, within 20 business days after the audit report is submitted to the Department the proponent must provide written advice to the Minister setting out the:
  - actions taken by the proponent to ensure compliance with these conditions;
  - actions taken to prevent a recurrence of any non-compliance, or implement any other recommendation to improve compliance, identified in the audit report.

Note: To avoid doubt, independent third party auditing may include audit of the proponent's performance against the requirements of any plan required under these conditions.

# Reporting non-compliance

- 58. The proponent must, when first becoming aware of a non-compliance with these conditions, or a plan required to be approved by the Minister under these conditions:
  - a. report the non-compliance and remedial action to the Department within five business days;
  - b. bring the matter into compliance within a reasonable time frame specified in writing by the Department.

# Record-keeping

- 59. The proponent must:
  - maintain accurate records substantiating all activities associated with or relevant to these conditions of approval, including measures taken to implement a plan approved under these conditions; and
  - b. make those records available on request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with these conditions.

Note: Audits or summaries of audits carried out under these conditions, or under section 458 of the EPBC Act, may be posted on the Department's website. The results of such audits may also be publicised through the general media.

# Financial assurance

- 60. The proponent must:
  - a. provide the Minster with a financial assurance in the amount and form required from time to time by the Minster for activities to which these conditions apply; and
  - b. review and maintain the amount of financial assurance based on proponent reporting on compliance with these conditions, and any auditing of the activities.
- 61. The financial assurance is to remain in force until the Minister is satisfied that no claim is likely to be made on the assurance.

Note: The financial assurance may be used for rehabilitation of habitat and other purposes not addressed adequately by the proponent during the life of the project.

# **Annual Environmental Return**

- 62. The proponent must produce an Annual Environmental Return which:
  - a. addresses compliance with these conditions:
  - records any unavoidable adverse impacts on MNES, mitigation measures applied to avoid adverse impacts on MNES; and any rehabilitation work undertaken in connection with any unavoidable adverse impact on MNES;
  - c. identifies all non-compliances with these conditions; and
  - d. identifies any amendments needed to plans to achieve compliance with these conditions.
- 63. The proponent must publish the Annual Environmental Return on its website within 20 calendar days of each anniversary date of this approval. In complying with this publication requirement, the proponent must ensure that it has obtained relevant rights in relation to confidentiality and intellectual property rights of third parties

# Survey data

64. If requested by the Department, the proponent must provide all species and ecological survey data and related survey information from ecological surveys undertaken for MNES. The data must be collected and recorded to conform to data standards notified from time to time by the Department.

# **Publication of Plans**

- 65. All plans approved by the Minister under these conditions must be published on the proponent's website within 30 business days of approval by the Minister.
- 66. The Department may request the proponent to publish on the internet a plan in a specified location or format and with specified accompanying text. The proponent must comply with any such request.

# **Dictionary**

67. In these conditions:

**Bundled crossing** means the dredging, trenching and other construction activities associated with the placement of multiple gas transmission pipelines across the Kangaroo Island Wetlands and the Narrows in a common corridor constructed by the approved proponent;

**Clearance of native vegetation** means the cutting down, felling, thinning, logging, removing, killing, destroying, poisoning, ringbarking, uprooting or burning of native vegetation;

**Commencement** means clearing of vegetation that is a listed threatened species or community or that is habitat of listed threatened species or listed migratory species or pipeline construction (including trenching). Commencement does not include:

- minor physical disturbance necessary to undertake pre-clearance surveys or establish monitoring programs or associated with the mobilisation of the plant, equipment, materials, machinery and personnel prior to the start of pipeline development or construction;
- b. activities that are critical to commencement that are associated with mobilisation of plant and equipment, materials, machinery and personnel prior to the start of development only if such activities will have no adverse impact on MNES, and only if the proponent has notified the Department in writing before an activity is undertaken.

**Department** means the Australian Government department responsible for administering Part 4 of the EPBC Act;

EP Act means Environmental Protection Act 1994 (Qld);

**EPBC Act** means the Commonwealth Environment Protection and Biodiversity Conservation Act 1999;

*Minister* means the Minister responsible for Chapter 4 of the EPBC Act, and may include a delegate of the Minister under s.133 of the EPBC Act;

**MNES** means matters of national environmental significance, being the relevant matters protected under Part 3 of the EPBC Act;

**Plan** includes a protocol, report, study, plan, or strategy (however described);

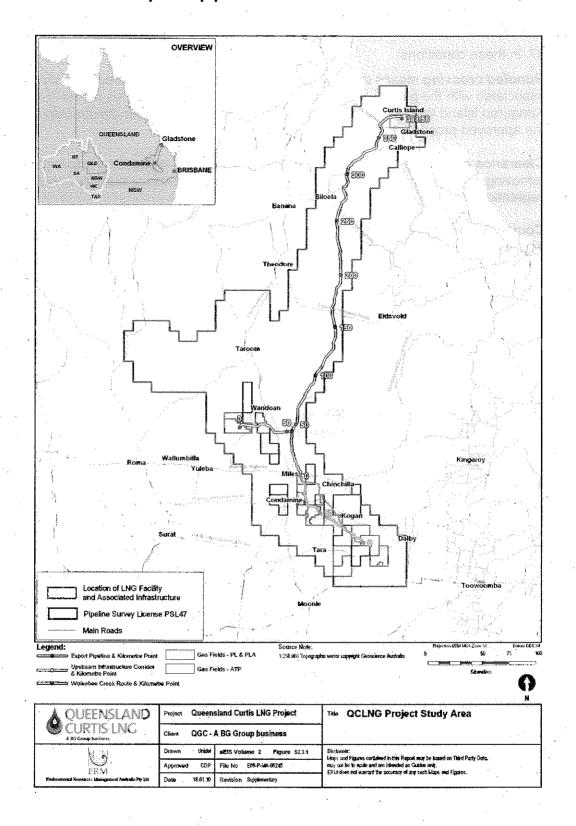
**Proponent** means the person to whom the approval is granted, and includes any person acting on behalf of the proponent;

**Referral** means a referral under the EPBC Act including any variation of the referral.

**ROW** means the pipeline right of way where any disturbance or construction is to be restricted to a corridor in which the pipeline may be placed. This corridor includes the area required for related activities such as access tracks. The corridor is illustrated in Attachment1;

**Substantial commencement** means delivery of coal seam gas through the pipeline.

# Attachment 1 - Proposed pipeline route



# APPENDIX B: MONTE CHRISTO INTERIM OFFSET AREA MANAGEMENT PLAN

# INTERIM OFFSET AREA MANAGEMENT PLAN MONTE CHRISTO

**PROJECT** Monte Christo

Santos GLNG, Australia Pacific LNG and Queensland

PREPARED FOR Curtis LNG
PREPARED BY Ecofund

**DATE** 8 August 2013



## **COMMERCIAL IN CONFIDENCE**

This document has been prepared by Ecofund Queensland Pty Ltd ABN 92 142 542 774 (Ecofund) in conjunction with, and based on information provided by, Santos Ltd ABN 80 007 550 923 (Santos or the Client), QGC Ltd ABN 89 642 553 and Australia Pacific LNG Ltd 68 001 646 331.

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This advice is for the sole benefit of the Client and its Related Entities.

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Consultant Tara D'Arcy Evans

Version: **FINAL** 

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8 August 2013 Date:

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#### 1 THE MANAGEMENT AREA

#### 1.1 Background

Three liquefied natural gas (LNG) projects are being developed near Gladstone in central Queensland: the Queensland Curtis LNG Project (QCLNG), the Santos GLNG Project (GLNG) and the Australia Pacific LNG Project. Each project involves the development of:

- an LNG and export facility on Curtis Island
- associated marine facilities on Curtis Island and the mainland, Gladstone
- a gas transmission pipeline (GTP) from Curtis Island to central Queensland, including crossing of The Narrows
- CSG fields in central Queensland.

QCLNG<sup>1</sup>, GLNG<sup>2</sup> and Australia Pacific LNG<sup>3</sup> (the LNG proponents) have received conditional approval from the Queensland and Australian Governments to progress their respective LNG projects. The LNG proponents propose to collaboratively deliver the Monte Christo Offset Proposal (the Proposal) to acquit the environmental offset requirements for the each of the LNG proponent's:

- LNG plants and marine facilities on Curtis Island
- respective GTP right-of-ways on Curtis Island
- GTP marine crossings of the Kangaroo Island Wetlands and The Narrows.

The Monte Christo property (Lot 4 CP860403, Lots 297 and 298 DT4023) is located wholly within the Great Barrier Reef World Heritage Area (GBRWHA) on Curtis Island, north of the city of Gladstone in central Queensland (Figure 1). The property was identified as a priority offset option by the Queensland Government through the protected areas for the future program and also fulfils Australian Government requirements regarding locating offsets within a World Heritage Area. As such, the long term protection and management of the environmental values of the Monte Christo property will serve to enhance the World and National Heritage values of the Great Barrier Reef, in particular those values that relate to natural beauty and aesthetic importance, ecological and biological processes, and natural habitats for biological diversity.

#### 1.2 Purpose of Interim Offset Area Management Plan

This Interim Offset Area Management Plan (OAMP) provides a description of the offset values on the Monte Christo property and outlines the recommended management, monitoring and reporting requirements to achieve an overall positive conservation outcome. The OAMP forms a key part of the LNG proponents' Proposal and is consistent with approval conditions placed on them by the Australian and Queensland Governments.

<sup>&</sup>lt;sup>1</sup> QGC a BG Group Business .

<sup>&</sup>lt;sup>2</sup> PAPL (Downstream) Pty Limited, Total GLNG Australia, KGLNG LIQUEFACTION PTY LTD, SANTOS GLNG

<sup>&</sup>lt;sup>3</sup> Australia Pacific LNG Pty Limited.

The Department of Environment and Heritage Protection (DEHP) has indicated that the Monte Christo property will be declared as future protected area tenures (i.e. either conservation park and/or national park under the Nature Conservation Act 1992 (NC Act) after the Monte Christo property is transferred and surrendered to the Queensland Government (Barry Broe Coordiantor-General pers comm. 5 November 2012). Once the Monte Christo property is transferred and surrendered to the Queensland Government the proponents intend for this OAMP to assist the Queensland Government updating the current draft statement of 'island-wide' management intent for the Curtis Island Protected Areas and forests (Appendix A). The development of the interim or declared management intent by the Queensland Government is a fundamental component of the formal declaration process under the NC Act.

#### 1.3 **Management Strategy**

The acquisition of the Monte Christo property will assist with the establishment of a wholeof-island management approach to improve management outcomes across Curtis Island. The Monte Christo property will be transferred and surrendered to the Queensland Government as follows:

- Lots 297 and 298 DT4023 (freehold) purchase of lots followed by transfer to the Queensland Government and subsequent dedication as part of the Curtis Island Conservation Park under the NC Act.
- Lot 4 CP860403 (leasehold) purchase of the lot and subsequent dedication as part of the Curtis Island Conservation Park under the NC Act following relinquishment of the current grazing lease to the Queensland Government.

This will result in all control of the Monte Christo property being vested in the Queensland Government, including tenures and subsequent active management. The LNG proponents propose to minimise the transitional period between securing the Monte Christo property and the subsequent transfer and surrender of freehold and leasehold lands to the Queensland Government. This will ensure that the transition to protected area under the NC Act occurs as quickly as possible to guarantee the appropriate management arrangements are formally in place and are consistent with the long term management objectives for Curtis Island's protected areas.

Upon surrender and transfer of Lots 297 and 298 DT4023 and Lot 4 CP860403 (less the Retained Area and the Reserve for Strategic Land Management, see Section 1.6) to the Queensland Government, the Monte Christo property will be protected and managed as either national park or conservation park according to the management principles prescribed for the area. The Monte Christo property will be incorporated into the Queensland Government's island-wide conservation management program for Curtis Island for the purposes of its long term management and conservation.

#### 1.4 **Property and Current Ownership Details**

Name of Registered Owner(s) / Licensee/s or Trustee/s	Monte Christo Pty Ltd
Postal Address	C/- Agribusiness Management Services,
1 Ostal Address	PO Box 1108,
	CALOUNDRA QLD 4551
Phone	(07) 5491 5124
Fax	(07) 5491 5122
Email Address	daviddouglas1@bigpond.com
Real Property Description	Lot 4 CP860403 (Leasehold)
	Lots 297 and 298 DT4023 (Freehold)
Property Name	Monte Christo
Area of Property	Lot 4 CP860403: 2,841 ha
	Lots 297 and 298 DT4023: 706 ha
	Total: 3,547 ha
Local Government Area	Gladstone Regional Council
Tenure Type	Leasehold and Freehold

#### 1.5 Registered Interests<sup>4</sup>

PARCEL (LOT AND PLAN)	TYPE OF REGISTERED INTEREST*	REGISTERED INTEREST HOLDER'S NAME AND CONTACT DETAILS
Lot 523 NPW700 (Lots 2 and 5 CP860403) Curtis Island Conservation Park	Lease	Monte Christo Pty Ltd
Lot 27 FTY1866 (Lot 1 CP860403) Curtis Island State Forest	Grazing Term Lease Expires 1 May 2034	Monte Christo Pty Ltd

#### **Eco-tourism precinct and Reserve for Strategic Land Management** 1.6

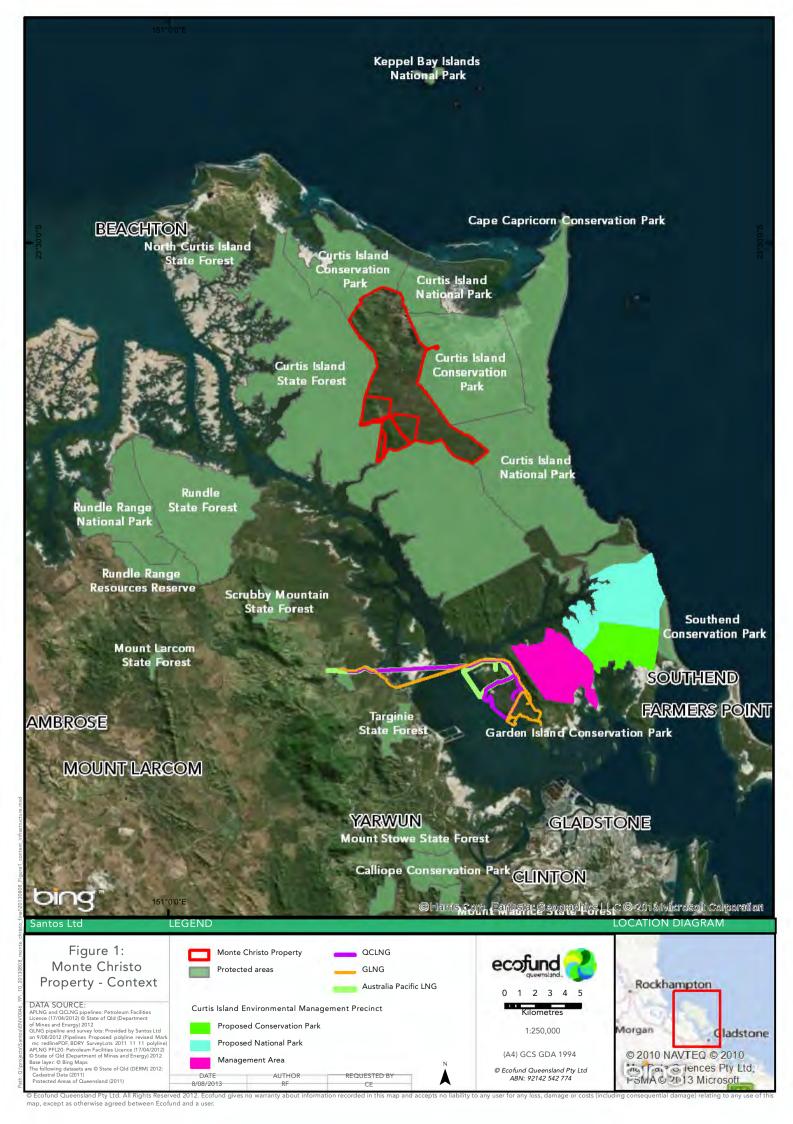
#### 1.6.1 Eco-tourism precinct

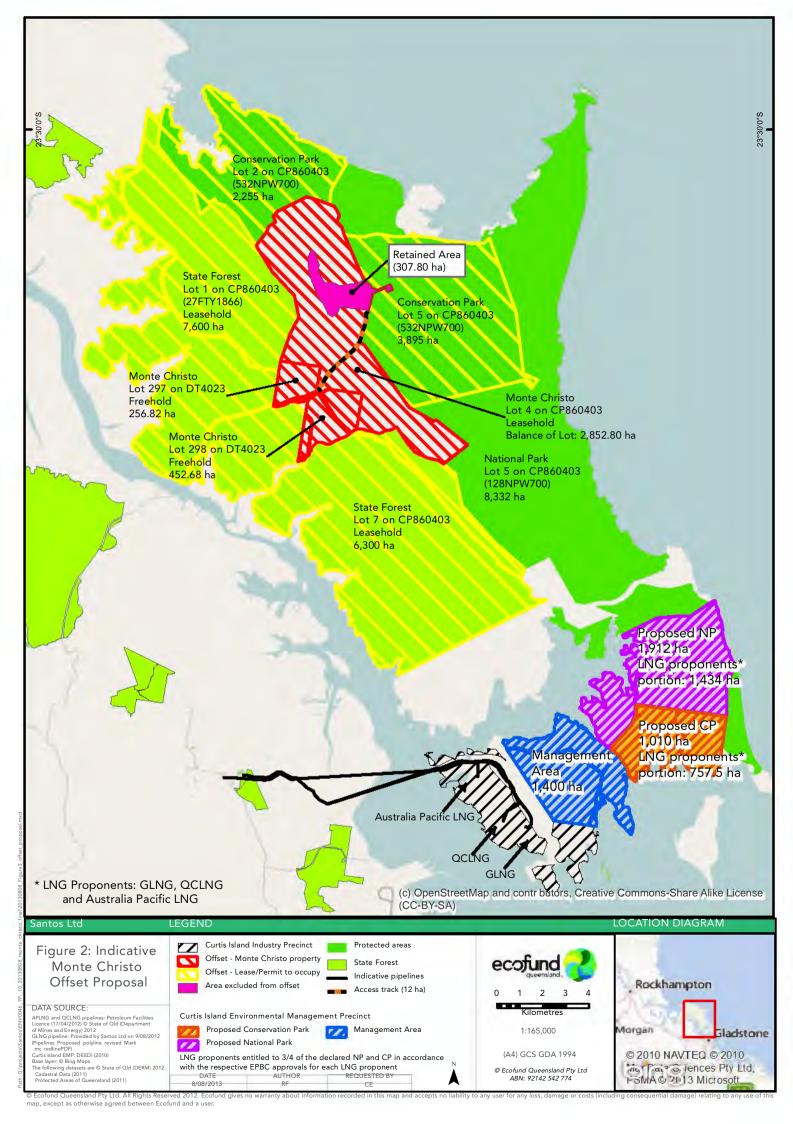
The proposed offset area is currently subject to a development right held by the current Monte Christo lessee; however, the Proposal limit's this development right to an ecotourism lease (approximately 308 ha) outside the proposed offset areas. The lease conditions only allow for low impact eco-tourism activities consistent with the management principles for conservation parks under the NC Act. The activities will be confined to the Retained Area of Lot 4 and the adjoining Lot 5 CP860403 and include low impact horseback riding and four wheel driving on existing tracks. These low impact activities are consistent with the management principles for conservation parks as outlined under NC Act. These activities are recognised in the approved management plans for these protected areas prepared by the Department of National Parks, Recreation, Sport and Racing (DNPRSR).

<sup>&</sup>lt;sup>4</sup> Registered interests are mortgages, leases, subleases, covenants, profit á prendes, easements and building management statements, that have been registered on title under the Land Act 1994 or the Land Title Act 1994.

#### 1.6.2 Reserve for Strategic Land Management

The Queensland Government through the Department of Agriculture, Forestry and Fisheries (DAFF) has declared its intention to establish a 200 ha area of Lot 4 CP80403 as a future Reserve for Strategic Land Management (RSLM) for quarry and gravel extraction (Barry Broe Coordinator-General pers comm. 5 November 2012). The RSLM will be formalised at some stage after the land is surrendered to the Queensland Government. The activities involving the extraction of quarry and gravel within the RSLM will be subject to a separate approval processes and is not related to the LNG proponents' intention to secure the lands that form part of this Proposal. The RSLM will not form part of the future offsets that are being secured by the LNG proponents. To minimise impacts to the surrounding future protected area estate, DAFF has indicated that the RSLM would also include a buffer zone within the 200 ha lot that would minimise potential impacts to the adjacent protected area estate. Should the Queensland Government not pursue its intention to establish the RSLM, the subject land could be resumed into the adjoining protected area estate.





#### 2 **DESCRIPTION OF MANAGEMENT AREA**

#### 2.1 Management Area Location and Size

The Monte Christo property (Lot 4 CP860403, Lot 297 DT4023 and Lot 298 DT4023) is located wholly within the GBRWHA on Curtis Island, north of the city of Gladstone in central Queensland. The property is located in the Gladstone Regional Council local government area and occurs within the Burnett - Curtis Hills and Ranges subregion of the South East Queensland bioregion. The offset area on the Monte Christo property is approximately 3,562.10 ha in size consisting of 2,852.60 ha on Lot 4 CP860403 (Leasehold) and 709.50 ha on lots 297 and 298 DT4023 (Freehold; Figure 2). The Monte Christo property is strategically located on Curtis Island, as an inholding, bordering the Curtis Island National Park, Curtis Island Conservation Park and Curtis Island State Forest (Figure 2). The property owner currently holds grazing leases over the Curtis Island Conservation Park and State Forest, which forms part of the overall property portfolio that will be transferred to the LNG proponents upon acquisition of the property.

#### Land Zone and Geology 2.2

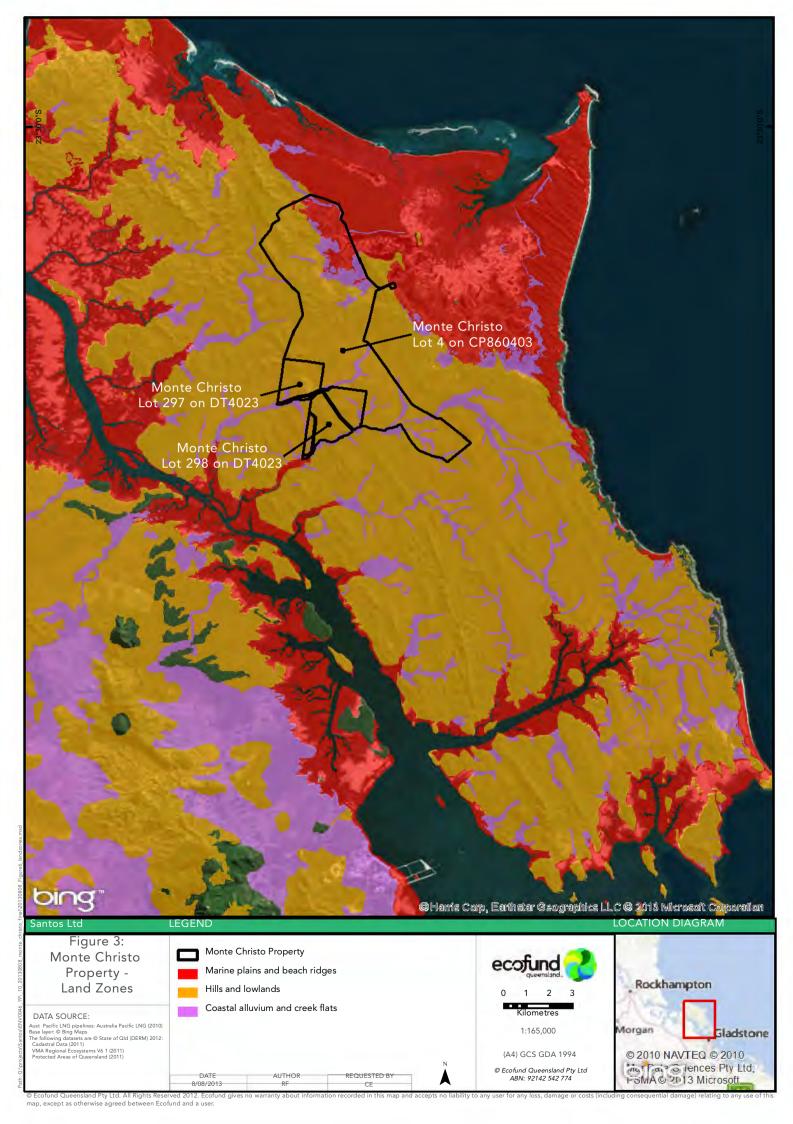
The landscape of the Monte Christo property consists of hills and ranges that form part of a central ridge extending along the length of Curtis Island, alluvial plains around creeks and waterways, coastal dunes and beach ridges, and a broad marine plain with mudflats and marine couch grasslands. The property supports land zones 1, 2, 3 and 11 as outlined below (Figure 3):

- beach ridges, marine plain and saltpans (land zones 1 and 2)
- coastal alluvium and creek flats (land zone 3)
- hills and lowlands (land zone 11).

The geology of the property ranges from metamorphosed rocks, forming ranges, hills and lowlands to estuarine and marine deposits subject to periodic inundation by saline or brackish marine waters. Soils present on the Monte Christo property reflect the underlying geology and range from soils that are of low to moderate fertility in the hills and lowlands, higher fertility alluvial soils on creek flats, through to mudflats, clays and sands on the marine plain (Table 1).

Table 1: Monte Christo property - geology and soils

LAND ZONE	GEOLOGY	SOILS
1	Mud, sandy mud, muddy sand and minor gravel: estuarine channels and banks, tidal flats and coastal grasslands	Predominantly Hydrosols (saline muds, clays and sands) or beach sand
2	Moderately well-sorted, fine to coarse- grained quartzose to shelly sand and some gravel: beach ridges and cheniers	Predominantly Rudosols and Tenosols (siliceous or calcareous sands), Podosols and Organosols
3	Clay, silt, sand, gravel; floodplain alluvium	Predominantly Vertosols and Sodosols, also with Hydrosols in higher rainfall areas
11	Wandilla Formation – mudstone, lithic sandstone, siltstone, jasper, chert, slate; local schist	Shallow, gravelly Rudosols and Tenosols, with Sodosols and Chromosols on lower slopes and gently undulating areas



#### 2.2.1 Regional ecosystems

Based on Queensland Government regional ecosystem (RE) mapping (version 6.0b) the Monte Christo property contains approximately 3,470 ha of remnant vegetation, 53 ha of high value regrowth (HVR) vegetation and 38 ha of non-remnant areas (Table 2). Ecological surveys conducted within the Monte Christo property in November 2012 were undertaken to assess the condition of significant vegetation and validate these REs present to allow LNG proponents to compare the REs subject to offset requirements that have been impacted by the LNG facilities with the same REs located on the Monte Christo property. Ground truthed RE mapping was not developed as a result of ecological surveys; however the current split of 70% RE 12.3.7 and 30% RE 12.3.3 of heterogeneous polygons identified by DEHP mapping is too conservative and suggested that a split of 30% RE 12.3.7 and 70% RE 12.3.3 is more accurate based on ground validation (QGC 2013a).

Table 2 Remnant, HVR and non-remnant regional ecosystems – Monte Christo property

	STA	TUS	EPBC ACT			NON
RE	VM ACT <sup>5</sup>	BD <sup>6</sup>	ECOLOGICAL COMMUNITY	REMNANT (ha)	HVR (ha)	REMNANT (ha)
12.1.1 – Casuarina glauca open forest on margins of marine clay plains	ОС	Е	NA	0.74	-	-
12.1.2 - saltpan vegetation	LC	NC	NA	306.18	-	4.70
12.1.3 - mangrove shrubland to low closed forest on marine clay plains and estuaries	LC	NC	NA	0.03	-	-
12.2.2 - vine forest on beach ridges	ОС	E	Littoral rainforest and vine thickets- critically endangered	12.88	-	-
12.2.11 - Corymbia, Eucalyptus, Acacia forest on beach ridges	LC	NC	NA	2.77	-	-
12.3.3 - Eucalyptus tereticornis woodland to open forest on alluvial plains	Е	E	NA	121.95	1.33	0.09
12.3.5 – paperbark forest on coastal alluvial plains	LC	ОС	NA	193.46	0.84	0.67
12.3.7 – blue gum fringing community	LC	NC	NA	94.43	0.56	0.04
12.3.11 - blue gum forest on alluvial plains	ОС	ОС	NA	20.37	-	-
12.11.4 - semi-evergreen vine thicket	ОС	ОС	NA	49.95	9.37	3.50
12.11.6 – bloodwood, ironbark open forest	LC	NC	NA	1540.74	4.30	13.47
12.11.7 – ironbark woodland	LC	NC	NA	0.68	-	0.16
12.11.14 - Eucalyptus crebra, E. tereticornis woodland	ОС	ОС	NA	85.39	5.25	2.37
12.11.18 – gum-topped box open forest	LC	NC	NA	912.68	32.18	13.66
12.11.21 - Allocasuarina luehmannii, Melaleuca nervosa woodland	ОС	ОС	NA	127.98	-	-
TOTAL				3,470.23	53.83	38.66

<sup>&</sup>lt;sup>5</sup> Vegetation Management Act 1999 status: Endangered (E), Of Concern (OC), Least Concern (LC) <sup>6</sup> Biodiversity status: Endangered (E), Of Concern (OC), No Concern at Present (NC)

# Description of Vegetation within Management Area

Beach ridges, marine plain and saltpans

More than 307 ha of remnant marine plain and saltpan ecosystems are present on the Monte Christo property. These areas consist predominantly of marine couch (Sporobolus virginicus) grassland and samphire herbland with broad areas of bare saltpans where tidal influence is greatest (Photo 1). Marine couch grasslands are routinely grazed and these areas are critical to the viability of Monte Christo as a grazing operation. While current grazing operations involve approximately 1,500 head of cattle, these operations compromise the ecological value of the marine plain for migratory shorebirds, waterbirds, the water mouse (Xeromys myoides), the yellow chat (Epthianura crocea macgregori), and as a nursery area for fish and crustacean species.

DNPRSR has expressed concern that continuation of the current management regime will degrade the area, noting a decrease in ecological condition over the last 30 years (Kershaw (DNPRSR) 2012 pers. comm. 25 June). Ecological surveys conducted in November 2012 have confirmed that the current land management practices at Monte Christo are having a detrimental effect on sensitive environmental values, particularly marine plains (QGC 2013a).

The Monte Christo property also supports approximately 15 ha of remnant beach ridge ecosystems. These ecosystems consist of vine forest and Corymbia, Eucalyptus and Acacia open forests. Of note, the vine forest on beach ridges RE forms part of the EPBC Act listed critically endangered Littoral Rainforest and Coastal Vine Thickets of Eastern Australia ecological community.



Photo 1: Marine Plain - Monte Christo

## Coastal alluvium and creek flats

Approximately 430 ha of remnant coastal alluvium and creek flat ecosystems are present on the Monte Christo property. These areas consist predominantly of paperbark (Melaleuca quinquenervia) open forest on coastal alluvium (Photo 2), and blue gum (Eucalyptus tereticornis) fringing forest on creeks and waterways. Whilst pest plant infestations on the Monte Christo property are minimal, pest plants such as rubber vine (Cryptostegia grandiflora) and lantana (Lantana camara) are present in isolated patches in coastal alluvium and creek flat ecosystems. In addition, creek flat ecosystems are regularly grazed and have been cleared to establish pastures. Coastal alluvium and creek flat ecosystems provide habitat for a range of threatened species including the koala (Phascolarctos cinereus), wallum froglet (Crinia tinnula), tusked frog (Adelotus brevis), water mouse (Xeromys sheathtail bat (Taphozous coastal australis). glossy black-cockatoo (Calyptorhynchus lathami), and the powerful owl (Ninox strenua).



Photo 2: Paperbark open forest on coastal alluvium - Monte Christo

Hills and lowlands

Approximately 2,730 ha of hill and lowland ecosystems are present on the Monte Christo property. These areas consist predominantly of spotted gum (Corymbia citriodora) and narrow-leaved ironbark (Eucalyptus crebra) open forest (Photo 3) and gum-topped box (Eucalyptus moluccana) open forest. Hill and lowland ecosystems are typically in excellent condition with little or no pest plant infestation. Grazing operations are currently minimal given the low to moderate fertility of hill and lowland ecosystems; however, these areas are susceptible to significant degradation if grazing operations are intensified through the use of stock supplements (e.g. dry lick urea). Areas have also been cleared for infrastructure such as buildings and roads. These ecosystems provide habitat for threatened species such as the koala (Phascolarctos cinereus), glossy black-cockatoo (Calyptorhynchus lathami), and the powerful owl (Ninox strenua).



Photo 3: Spotted gum and ironbark open forest - Monte Christo

# World Heritage values

The Monte Christo property is located wholly within the GBRWHA. As such, the long term protection and management of the environmental values of the property, under a dedicated conservation management regime, will serve to enhance the World and National Heritage values of the Great Barrier Reef, in particular those values that relate to natural beauty and aesthetic importance, ecological and biological processes, and natural habitats for biological diversity.

#### 2.3.3 Essential habitat

The Monte Christo property contains mapped essential habitat for the koala (*Phascolarctos* cinereus) listed as MNES under the EPBC Act and vulnerable under the NC Act and the wallum froglet (Crinia tinnula) classified as vulnerable under the NC Act. In total, approximately 1,790 ha of essential habitat is mapped (Regional Ecosystem Maps 2012).

## 2.3.4 Water mouse habitat

RE-based water mouse habitat modelling, developed by the LNG proponents, identified over 500 ha of suitable water mouse (Xeromys myoides) habitat within the Monte Christo property (Table 4; Figure 4). REs considered to provide suitable habitat for water mouse (Xeromys myoides) were based on extensive information gathered from field surveys including results of the LNG project site surveys on Curtis Island and radio tracking associated with water mouse (Xeromys myoides) conducted within the Port Curtis region (QGC 2013b). The Department of Environment and Heritage Protection's Essential Habitat Database was also interrogated to refine applicable RE within the Southeast Queensland Bioregion that satisfies the habitat preferences of water mouse (Xeromys myoides).

Within the Monte Christo property four REs were determined to provide habitat for water mouse (Xeromys myoides) and have been categorised into 'core', 'essential' and 'general' habitat based on DEHP's Biodiversity Assessment and Mapping Methodology (BAMM) habitat type definitions. Water mouse (Xeromys myoides) habitat modelling associated areas of RE 12.1.2 within 1km of RE 12.1.3 as 'essential habitat' while areas of 12.1.2 beyond 1km of RE 12.1.3 can be generally regarded as 'core habitat' (Table 3; QGC 2013b).

Table 3: RE associated with water mouse habitat in the Monte Christo property

REGIONAL ECOSYSTEM	REGIONAL ECOSYSTEM DESCRIPTION	HABITAT ATTRIBUTES FOR WATER MOUSE	HABITAT TYPE (ACCORDING TO QLD BAMM HABITAT DEFINITIONS)
12.1.1	Estuarine wetlands. Casuarina glauca open forest on margins of marine clay plains	Nesting habitat primarily especially along supra- littoral banks. Also key foraging habitat.	Core
12.1.2	Saltpan vegetation including grassland and herb land on marine clay plains	Nesting habitat primarily especially along supra- littoral banks. Also important foraging habitat	Essential <1 km of 12.1.3 Core >1 km of 12.1.3
12.2.11	Corymbia spp., Eucalyptus spp., Acacia spp. open forest to low closed forest on beach ridges in northern half of bioregion	Mainly a support area	General
12.3.5	Melaleuca quinquenervia open forest on coastal alluvium	Possible nesting habitat. Support area.	General

Areas of RE 12.1.2 (Saltpan vegetation including grassland and herb land on marine clay plains), in the Monte Christo property, at the supralittoral limits (above highest astronomical tide) offer protection from large tidal ranges within Port Curtis and provide below ground nesting opportunities within close proximity to intertidal foraging grounds of RE 12.1.3. RE 12.1.3 (Mangrove shrub land to low closed forest on marine clay plains and estuaries) is considered essential habitat for the water mouse as it contains important foraging habitat within intertidal zones associated with high abundances of food sources including small crustaceans.

#### 2.3.5 Threatened species

A number of other threatened fauna species listed under both the NC Act and EPBC Act are likely to be present on the Monte Christo property based on the presence of suitable habitat, including habitat for the critically endangered yellow chat (Epthianura crocea macgregori). The Monte Christo property provides an opportunity to protect and enhance large areas of habitat for threatened species to offset the impacts of the projects as illustrated in Table 4.

# Yellow chat habitat

Habitat critical to the survival of the yellow chat (Epthianura crocea macgregori) is wetlands and associated grasslands on seasonally inundated marine plains. Important shelter and nesting habitat for yellow chat (Epthianura crocea macgregori) include areas of moderate to tall rush/sedge or grass vegetation along drainage lines and depressions. Foraging habitat comprises of areas near nesting and shelter habitat with open vegetation types, particularly sparse grasslands and samphire (Houston and Melzer 2008).

The Monte Christo property contains over 310 ha of habitat for yellow chat (Epthianura crocea macgregori) which includes areas of RE 12.1.2 consisting of marine plains dominated by Sporobolus virginicus with sparse samphire forbs, including Sesuvium portulacastrum and Haloscaria spp (Table 4; Figure 5; QGC 2013a). High densities of feral pigs and cattle grazing currently threaten important nesting, shelter and foraging habitat of yellow chat (Epthianura crocea macgregori) on the Monte Christo property.

Table 4: Threatened species habitat -- Monte Christo

	STA	ATUS	SUITABLE REGIONAL	POTENTIAL	
SPECIES	NCT ACT <sup>7</sup>	EPBC ACT <sup>8</sup>	ECOSYSTEMS PRESENT	HABITAT (ha)	
Koala (Phascolarctos cinereus)	V	V	12.3.3 12.3.7 12.3.11 12.11.18	1,159.06	
Glossy black- cockatoo (Calyptorhynchus lathami)	V	-	12.1.1 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.6 12.11.7 12.11.14 12.11.18	2,984.52	
Powerful owl (Ninox strenua)	V	-	12.1.1 12.2.2 12.3.3 12.3.5 12.3.7 12.3.11 12.11.4 12.11.6 12.11.18	2,837.06	
Beach stone curlew (Esacus magnirostris)	V	-	12.1.1 12.1.2	311.62	
Sooty oyster catcher (Haematopus fuliginosus)	NT	-	12.1.1 12.1.2	311.62	
Yellow chat (Epthianura crocea macgregori)	E	Critically Endangered	12.1.2	310.88	

<sup>&</sup>lt;sup>7</sup> Nature Conservation Act status: Endangered (E), Vulnerable (V), Near threatened (NT)

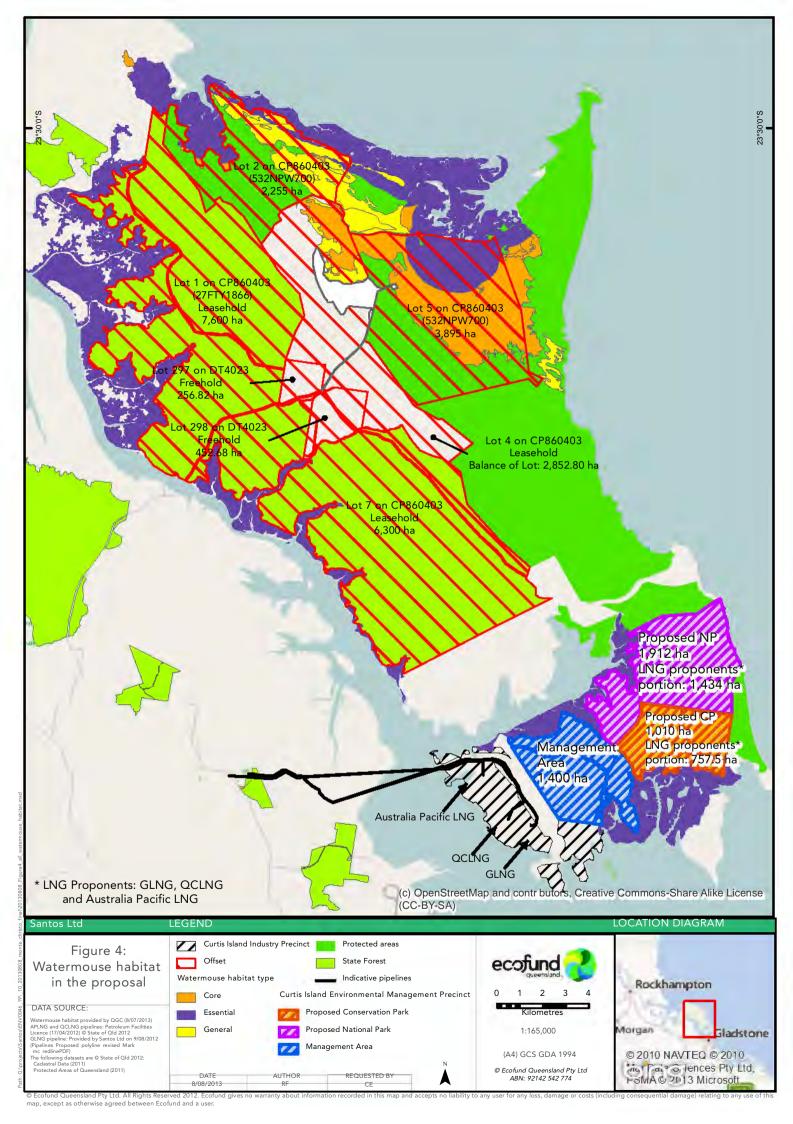
<sup>8</sup> EPBC Act status: Vulnerable (V)

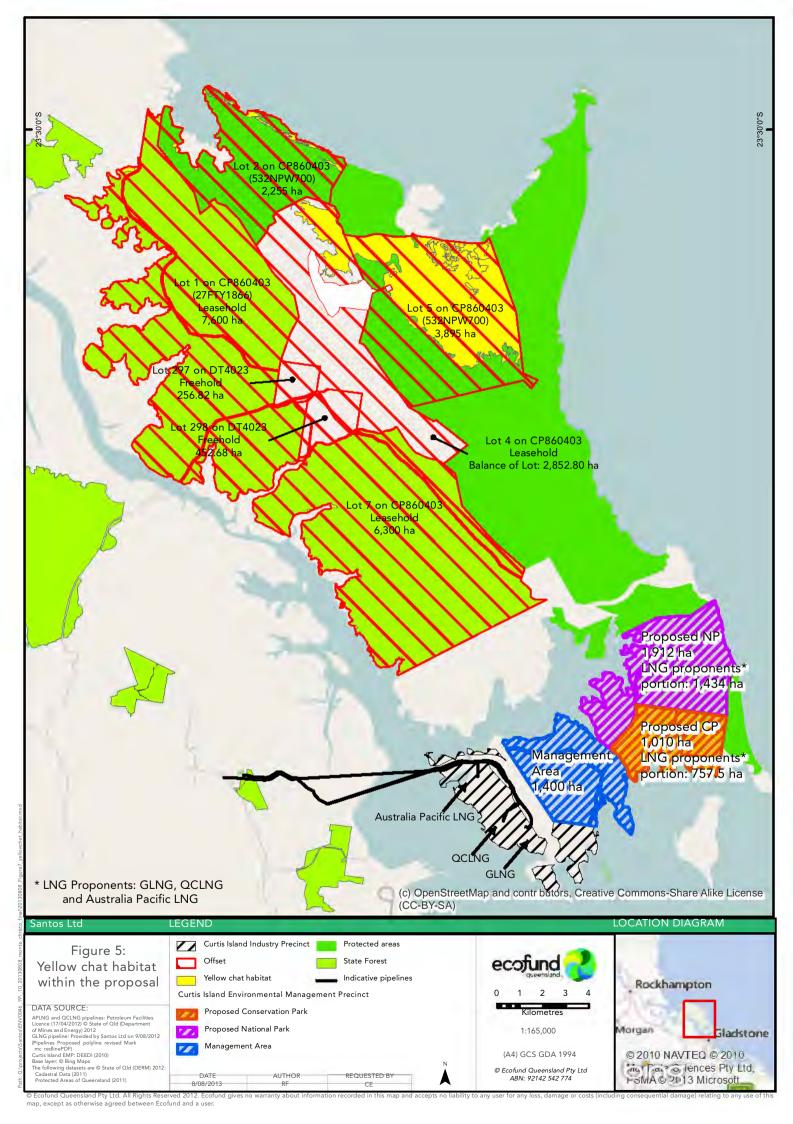
	STA	ATUS	SUITABLE REGIONAL	POTENTIAL
SPECIES	NCT ACT <sup>7</sup>	EPBC ACT <sup>8</sup>	ECOSYSTEMS PRESENT	HABITAT (ha)
Water mouse (Xeromys myoides)	V	V	12.1.1 12.1.2 12.2.11 12.3.5	502.54°
Tusked frog (Adelotus brevis)	V	-	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.4 12.11.21	630.99
Eastern curlew (Numenius madagascariensis)	NT	-	12.1.1 12.1.2	311.62
Migratory shorebirds (whimbrel, red- necked stint)	-	Migratory	12.1.1 12.1.2	311.62
Coastal sheathtail bat (Taphozous australis)	V	-	12.1.1 12.1.2 12.2.11 12.2.2 12.3.11 12.3.3 12.3.5 12.3.7	761.07
Red goshawk (Erythrotriorchis radiatus)	E	V	12.1.1 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.3 12.11.14 12.11.18 12.11.20 12.11.21	3,175.65

<sup>&</sup>lt;sup>9</sup> Based on the LNG proponents RE based water mouse habitat model (QGC, 2013b)

	STA	ATUS	SUITABLE REGIONAL	POTENTIAL	
SPECIES	NCT ACT <sup>7</sup>	EPBC ACT8	ECOSYSTEMS PRESENT	HABITAT (ha)	
Rainbow bee-eater (Merops ornatus)	NA	Marine/ migratory	12.1.1 12.1.2 12.1.3 12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.4 12.11.6 12.11.7 12.11.14 12.11.18 12.11.18	3,562.10	
White-bellied sea- eagle (Haliaeetus leucogaster)	NA	Marine/ migratory	12.12.17 12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11	449.45	
Little tern (Sternula albifrons)	E	Marine/ migratory	12.1.1 12.1.2 12.1.3	311.65	
Caspian tern (Sterna caspia)	NA	Marine/ migratory	12.1.1 12.1.2 12.1.3	311.65	
Squatter pigeon (Geohaps scripta scritpa)	V	V	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.4 12.11.6 12.11.7 12.11.14 12.11.18 12.11.20 12.11.21 12.12.19	3,250.45	
Cattle egret (Ardea ibis)	NA	Marine/ migratory	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11	449.45	
Great egret (Ardea modesta)	NA	Marine/ migratory	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11	449.45	

	STATUS		SUITABLE REGIONAL	POTENTIAL	
SPECIES	NCT ACT <sup>7</sup>	EPBC ACT <sup>8</sup>	ECOSYSTEMS PRESENT	HABITAT (ha)	
Migratory woodland species Black-faced monarch (Monarcha melanopsis) Spectacled monarch (Monarcha trivirgatus) Satin flycatcher (Myiagra cyanoleuca) Rufous fantail (Rhipidura rufifrons) Oriental cuckoo (Cuculus optatus) Dollarbird (Eurystomus orientalis)	NA	Marine/ migratory	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11 12.11.4 12.11.6 12.11.7 12.11.14 12.11.18 12.11.18 12.11.20 12.11.21	3,250.45	
Eastern osprey (Pandion haliaetus)	NA	Marine/ migratory	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11	449.45	
Australian painted snipe (Rostratula australis)	V	E	12.2.2 12.2.11 12.3.3 12.3.5 12.3.7 12.3.11	449.45	





#### 2.3.6 Marine fish habitat values

The Monte Christo property supports approximately 307 ha of remnant marine fish habitat comprising marine couch grassland and samphire herbland, saltpans and mangroves. These areas are of high ecological value for migratory shorebirds, waterbirds, the water mouse (Xeromys myoides; Section 2.3.4), and as a nursery area for fish and crustacean species.

#### Wetlands 2.3.7

A total of approximately 507 ha of wetland communities are present on the Monte Christo property. These comprise mangroves, salt flats and salt marshes, floodplain tree swamps and riverine wetlands as described in Table 5. These areas are of high ecological value for migratory shorebirds, waterbirds, the water mouse (Xeromys myoides), the yellow chat (Epthianura crocea macgregori) and as a nursery area for fish and crustacean species.

DESCRIPTION	CLASSIFICATION	AREA (ha)
Mangroves, salt flats, salt marshes	Estuarine	307.56
Floodplain tree swamps (Melaleuca and Eucalypt)	Palustrine	191.25
Creeks and waterways	Riverine	8.18
Total		506.99

Table 5: Wetland communities - Monte Christo

#### 2.4 Condition

The current ecological condition of the Monte Christo property reflects a long history of cattle grazing pressure. The property has been run as a commercial grazing operation for decades, dating back to early occupation during the late 1800s. The vast majority of the Monte Christo property supports intact REs with only approximately 3% of it cleared for the current grazing operations. Department of National Parks, Recreation, Sport and Racing officers have expressed concern that continuation of the current management regime (including grazing) will degrade the property, particularly sensitive marine plains, noting a decrease in ecological condition over the last 30 years (Kershaw (DNPRSR) 2012 pers. comm. 25 June). Without active and routine management for conservation purposes the ecological values of this property will continue to decline. Condition assessments of the Monte Christo property were undertaken in November 2012 (QGC 2013a). These assessments followed the Queensland Government Ecological Equivalence Methodology Guideline and confirmed the concerns of DNPRSR staff. The results of these assessments are summarised in Section 2.6.

Grazing intensity has varied based on seasonal and economic factors with an average stocking rate of approximately 1500 head of cattle per year. The Monte Christo property is currently subject to an active low intensity fire regime. Burning occurs during winter/spring to encourage new palatable grass growth during the spring/summer rainfalls. The area of forest country burnt each year varies and is dependent on fuel load and weather conditions.

Weeds, in particular, lantana (Lantana camara) and rubber vine (Cryptostegia grandiflora) are an issue and are present in isolated occurrences in coastal alluvium and creek flat ecosystems and have been the subject of on-going weed control across the whole property. Recent ecological assessments (November 2012) concluded that rubber vine control has been mostly successful however the presence of lantana still remains an issue. Giant rat's tail grass (Sporobolus pyramidalis) and parthenium weed (Parthenium hysterophorus) have also been reported to be introduced to the Monte Christo property; however no species were observed during recent ecological assessments (QGC 2013a).

Feral animals, particularly pigs, foxes and wild horses, are also a management concern. Pigs have the ability to degrade marine plain ecosystems. Department of National Parks, Recreation, Sport and Racing currently carry out ongoing extensive pig trapping and shooting as well as fox programs.

# Regional Ecosystems on Hill Slopes and Lowlands

The property includes broad areas of hills rising to about 200 m asl and undulating country covering about 2,530 ha of remnant vegetation in Land Zone 11 most of which is in good ecological condition, despite ongoing grazing operations. These areas scored highly for coarse woody debris and habitat features, which is consistent with mature forest areas that have had low levels of impact from fires/logging/other clearing. Limited evidence of disturbance was observed adjacent to access tracks. As intact areas of continuous, high quality forests, especially in the southern half of the property, there is potential for high quality habitat for a range of threatened species (Photo 4).

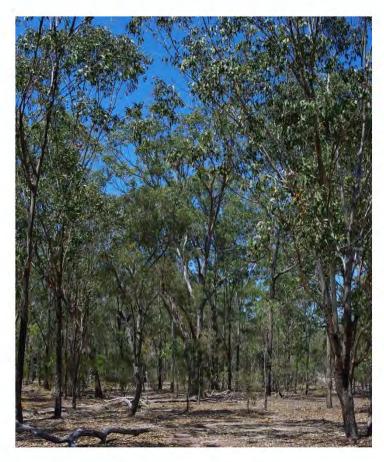


Photo 4: Gum-topped Box open forest - Monte Christo

# Streams and Alluvial Flood Plains

The condition of streams and alluvial flood plains varied depending on proximity to given areas to disturbance associated with cattle grazing operations. Materials from macropyhte production upstream including organic matter and nutrients are concentrated in ecosystems on the lower slopes and gullies. Because of the accumulation of materials on the alluvial flood plains, they are likely the most important terrestrial areas for macrophyte carbon production (per unit area). This, and the diversity of habitat associated with proximity of streams, steep banks, fallen logs and tree hollows, etc. makes them important areas for biodiversity.

Ecological equivalence assessment scores are higher, as expected, on assessment units located further from disturbed areas (e.g. tracks, areas easily accessible to cattle, logging area). In some areas RE 12.3.3 is recovering from earlier clearing and increasing biomass in all three vegetation classes (canopy, sub canopy and grasses/forbs). As biomass develops, niches for seeding from outside should also increase. With time and appropriate on-going management, greater biodiversity values are likely as more hollows and fallen logs and organic matter accumulate at ground level.

## Coastal Area and Estuarine Wetlands

In areas further downstream, stream flows diverge and spread out over the marine plains which are also under the influence of large (average 3.3 m) tides. The marine plains have high net production, and have fairly nutritious pasture, so cattle are grazed here for much of the year. Because the surface vegetation keeps the plains wet throughout the year, it appears to favour deposition of organic matter storages as underground peat. Feral animals, particularly pigs and wild horses, are a management concern. Pigs have the ability to degrade marine plain ecosystems and require ongoing control events to minimize impacts. Soil erosion is present in some areas of the property.

In coastal areas where fresh water inputs are higher, swamp forests (palustrine wetlands) with mainly Melaleuca quinquenervia, predominate. These areas have specialist swamp trees with high transpiration rates as they are not so limited by fresh water availability although the water table likely varies considerably over the course of a year. Coastal areas contain potential habitat for EPBC Act listed species including the vulnerable water mouse (Xeromys myoides) and critically endangered yellow chat (Epthianura crocea macgregori).

#### 2.5 Connectivity

The Monte Christo property is strategically connected (adjacent) to Curtis Island National Park, Curtis Island Conservation Park and Curtis Island State Forest and its acquisition as a protected area will enhance environmental connectivity on the island. The property also provides habitat for a range of threatened species and supports large areas mapped as Great Barrier Reef wetlands.

The Monte Christo property is located wholly within the GBRWHA. As such, the long term protection and management of the environmental values of the Monte Christo property will serve to enhance the World and National Heritage values of the Great Barrier Reef, in particular those values that relate to natural beauty and aesthetic importance, ecological and biological processes, and natural habitats for biological diversity.

#### 2.6 **Ecological Equivalence**

Ecological equivalence measures and compares ecological attributes between an area proposed to be impacted by development (the clearing area) and an area being offered in exchange for the potential impact (the offset area). Ecological condition and special features scores for the impact area and the offset area are determined by evaluating a series of 14 ecological attribute indicators. For the offset area and clearing area to be deemed ecologically equivalent, the offset area ecological condition and special features score must equal or exceed the clearing area ecological condition and special features score. Ecological equivalence assessments of the Monte Christo property based on the Queensland Government Ecological Equivalence Methodology have been undertaken (QGC 2013a).

Ecological equivalence assessments of the Monte Christo property were undertaken to satisfy the ecological due diligence of the Monte Christo Put and Call Option Agreement. Ecological assessments were conducted in accordance with the Ecological Equivalence Methodology Guideline - Policy for Vegetation Management Offsets, Old Biodiversity Offset Policy (Version 1). An assessment of the ecological condition of the clearing area was done based on an assessment of data from the proponent's preclearance surveys ecological assessments.

Seven ecological assessment units consisting of endangered and of concern REs were assessed to determine the suitability of vegetation communities present on the Monte Christo property to acquit offset requirements of LNG projects. Assessment units within endangered and of concern REs were identified based on ecological equivalence assessment methodology requirements, site accessibility and available field time.

The study area in particular shows high level of ecosystem integrity and connectivity, remarkable for a large coastal area with over 100 years of agricultural activity. The study area is shown to include a largely intact hydrological system that includes forested catchment areas, riverine wetlands and streams, floodplain swamps and estuarine wetlands (salt marshes, flats and intertidal wetlands; total about 507 ha in the study area). The ecosystems have self-organised to use more run-off in terrestrial areas. This infers higher productivity and autocatalytic material storages at the centre of the network that link the hilly areas with downstream conservation areas and national parks.

To help clarify this, the ecological equivalence assessment results were further synthesized using a systems ecology methodology. The systems model overview helps qualify the degree of integrity and connectivity between all the REs over the greater study area for comparison with the clearing areas.

Based on these assessments, the following four conclusions can be drawn:

- 1) There is a greater diversity of ecosystems across the study area (15 REs) compared to the clearing area (six REs). Network (ecosystems) power (values) would be expected to increase with increases in diversity of ecosystems, species richness, the complexity of interactions among species and total energy flow through the network.
- 2) The systems model shows the 'work' of floodplain forests and coastal wetlands particularly in the greater study area results in significant storages of materials that perform important and valuable ecological services to society including fisheries and hydrological regulation.

- 3) The study area is likely to benefit significantly from the removal of threatening processes; especially too frequent fire regimes, cattle and feral species grazing and disruption of hydrological systems.
- 4) Ecosystem values and services are dynamic over time. Mature ecosystems are the results of decades of ecosystem services and natural capital accrual. The forested uplands may take a century or more whereas the coastal wetlands are likely to have been accumulating more natural capital over longer time periods (turnover times are longer based on the largest storage and structure the organic sediments in the geologic basin).

These assessments demonstrate that the Monte Christo property is mostly in good condition with areas exposed to pastoral use in average condition (Table 5). While RE 12.3.11 scored lower at Monte Christo than the clearing site, the presence of two endangered and three of concern RE (including a EPBC Act listed critically threatened ecological community) will be used to supplement the offsets for this RE.

Table 6: Ecological equivalence of the Monte Christo property

REGIONAL	VM ACT STATUS	CLEARING AREA		MONTE CHRISTO OFFSET	
ECOSYSTEM		Ecological condition	Special features	Ecological condition	Special features
RE 12.3.3	Endangered	54.63		132.15	1
RE 12.3.11	Of concern	27.93	641	16.05	1,454
RE 12.11.14	Of concern	72.71		75.31	

#### 3 OVERALL MANAGEMENT OBJECTIVES

The environmental values of the Monte Christo property will be managed, enhanced and protected. Once surrendered to the Queensland Government, it is proposed management of the Monte Christo property will become the responsibility of DNPRSR. The property will then be managed as part of a whole-of-island management approach by DNPRSR.

#### 4 MANAGEMENT OUTCOMES

The environmental values of the Monte Christo property will be managed and improved to ensure that ecological values are maintained or enhanced. The proposed management actions for the Monte Christo property have been developed in consultation with DNPRSR. The management principles, prescriptions and actions for the property will be integrated into the current draft DNPRSR statement of management intent for the Curtis Island protected areas and forests (DNPRSR undated; Appendix A).

Potential risks inherent to enhancing the environmental values of the Monte Christo property include:

- unnecessary agricultural infrastructure
- pest plants
- pest animals
- habitat loss and destruction from feral and domestic stock
- inappropriate fire management
- conflicting land uses including grazing.

## 5 IDENTIFICATION OF CURRENT THREATS AND POTENTIAL RISKS TO **ACHIEVING MANAGEMENT OUTCOMES**

Table 7 outlines the threatening processes and associated management actions for the Monte Christo property.

Table 7: Current threats and potential risks to management outcomes

THREATENING PROCESS	SPECIFIC DETAILS	OBJECTIVES/ACTIONS	
Residual agricultural infrastructure	Fuel storage facility of three tanks and a number of empty drums and unnecessary fencing	Address contamination issues and remove unnecessary/dangerous infrastructure	
Pest Plants Lantana (Lantana camara) Rubber vine (Cryptostegia grandiflora)	Pest plants are an issue but are present only in isolated occurrences, particularly in coastal alluvium and creek flats ecosystems	Minimise the introduction, establishment and control of non-native pest plants	
Pest animals Pigs, foxes, feral cats, wild dogs, foxes and macropods	Feral animals, particularly pigs, are a management concern on the Monte Christo property	Control pest animals	
Fire Wildfire, inappropriate fire frequency	Fire is an essential factor in managing the environmental values of the Monte Christo property and has been used regularly to promote productivity in forest and woodland ecosystems	Develop and implement an appropriate fire management strategy	
Environmental restoration Grazing by stock potentially impacts on habitat quality and regeneration processes	The Monte Christo property will be destocked within a 3 month time period once the property is secured, in accordance with the lease surrender arrangement agreed upon. Cleared land will be allowed to revegetate through the availability of seed sources in neighbouring forested areas. Regeneration will be promoted through the exclusion of cattle, appropriate fire regimes, and the control of pest plants.	Biological diversity and integrity is enhanced and conserved	
Grazing Cattle	The Monte Christo property will be destocked within a 3 month time period once the property is secured in accordance with the lease surrender arrangement agreed upon. There is approximately 1,500 head of cattle are grazing Monte Christo and the marine plain area of neighbouring Conservation Park.	Exclude from the Monte Christo property	

#### MANAGEMENT AREA ACTIONS AND REQUIREMENTS 6

This section details the actions recommended to achieve management objectives and to minimise the risks associated with threatening processes, as identified in Section 5 of this OAMP.

#### 6.1 Residual agricultural infrastructure

Unnecessary fencing may be removed to prevent accidental impacts on native animals. Other agricultural infrastructure associated with the current grazing operation at Monte Christo will be managed and/ or removed in negotiation with the Queensland Government.

As part of the due diligence provisions under the Put and Call Option Agreement a preliminary land contamination assessment was performed by the LNG proponents over the portions of the Monte Christo property proposed to be surrendered. The assessment identified some legacy contamination issues located exclusively within Lot 297 DT4023, namely:

- limited above ground fuel and chemical storage
- waste disposal and storage which include various waste items including cars, building products, batteries and a small number of fibre cement sheets.

The above contamination issues are all associated with the Monte Christo grazing enterprise and are in close proximity to the homestead and workshop/storage infrastructure. The assessment concluded that the above contamination has relatively simple remedial solutions such as removal of waste, composting of soils contaminated by hydrocarbons and concrete capping of the workshop and storage floor. Remediation works are planned to commence after the Queensland Government confirms their intention to utilise the existing homestead and related infrastructure as a national park or conservation park outstation facility.

#### 6.2 Pest Plants

Minimise the introduction, establishment and spread of non-native pest plants

Pest plant management will involve a process of pest plant identification, control and monitoring, with vehicle and plant hygiene procedures being critical to the control process. Pest plant hygiene protocols will apply to all vehicles and persons accessing the Monte Christo property and may include visual inspection and brush down, wash down, and full clean.

No access to the Monte Christo property will be permitted without evidence of weed hygiene. Weed hygiene procedures will be conducted in accordance with the Queensland Checklist for Cleandown Procedures (Department of Primary Industries and Fisheries 2010) before entering and exiting the Monte Christo property. To ensure that weed seed spread into adjacent areas is prevented or minimised the vehicle wash down site will be located in a relatively flat area away from watercourses and drains to prevent weed seeds and runoff from polluting waterways. The site should be close to the infested area to prevent further weed spread and easily identified for future reference as this site will need to be monitored for future outbreaks.

DNPRSR currently manages pest plants on the Curtis Island State Forest and Conservation Park under the Land Protection (Pest and Stock Route Management) Act 2002 for:

- Class 1 pests under the Land Protection (Pest and Stock Route Management) Act 2002
- Pest plants identified in national programs such as Weeds of National Significance, and significant environmental weeds

Pest plant management, including hygiene procedures and on ground control, of the Monte Christo property will be incorporated into DNPRSR's whole-of-island pest plant management approach.

#### Control of pest plants

The control of pest plant species, particularly lantana (Lantana camara) and rubber vine (Cryptostegia grandiflora), is necessary to achieve the identified management outcomes at the Monte Christo property. Identification and mapping of priority areas for pest plant management must be undertaken to ensure that the right measures are implemented effectively. This will be undertaken by DNPRSR as part of DNPRSR's incorporation of the Monte Christo property into the whole-island management approach.

Lantana infestations in the Monte Christo property are currently subject to ongoing pest plant control. These efforts will continue as part of the coordinated management of conservation areas on Curtis Island. Giants rat's tail (Sporobolus pyramidalis) and parthenium weed (Parthenium hysterophorus) have been reported to be introduced into the Monte Christo property, however were not observed during recent field surveys. Should giants rat's tail (Sporobolus pyramidalis) and parthenium weed (Parthenium hysterophorus) be observed in the Monte Christo property during monitoring events, pest plant control will be carried out to eliminate infestations. Management of pest plants will be undertaken using appropriate methods which may include herbicide control, using a hand gun or knapsack to apply sufficient spray to wet the plant surface visibly without producing run-off. Herbicide control of pest plants can target specific pest plants in order to limit impacts on native vegetation and will likely involve the agents outlined in Table 8. If there is difficulty in managing pest plants through herbicide control, mechanical control of pest plants may be required.

Table 8: Pest Plant species and herbicide control method

PEST PLANTS	HERBICIDE	APPLICATION RATE	METHOD
Lantana (Lantana camara)	Glyphosate (Roundup 360)	1L/100L of water	Foliar (overall) spray
Rubber Vine (Cryptostegia grandiflora)	Triclopyr-butotyl (Garlon600)	1 L in 60 L of diesel	Cut/stump
Giant Rat's Tail Grass (Sporobolus pyramidalis)	Glyphosate (Roundup 360)	15 ml/L water	Spot spraying
Parthenium (Parthenium hysterophorus)	Dicamba (200 g/L)	0.7-2.8 L/ha or 0.1-0.19 L/100L	Boom spray or spot spraying

#### 6.3 Pest Animals

#### Control of pest animals

Feral animals, particularly pigs, are a management concern on the Monte Christo property. Pigs have the ability to degrade marine plain ecosystems and can have a dramatic effect on creeks and lakes. Disturbance of the soil and natural vegetation degrades water quality and the habitat for small terrestrial and aquatic animals. It also creates erosion and allows exotic pest plants to establish.

In accordance with the Queensland Feral Pig Control Manual (DAFF, 2008) the use of a range of control techniques is recommended to manage feral pigs including:

- poisoning this is the most appropriate techniques for large scale pig control and can reduce populations quickly
- trapping this is the most suitable for small scale pig control in areas of high significance with endangered or rare species;
- hunting this is the most suitable for small scale control in areas that are easily accessible
- exclusion fencing this is the most expensive control technique, however can offer successful pig control.

Feral pigs are difficult to control as they have a short gestation period and produce large numbers of offspring so repeated control methods are generally required to significantly reduce feral pig population numbers. Feral pigs also have large home ranges therefore control techniques need be conducted over a large area to be effective. The strategic management of feral pig populations will involve the use of a combination of the control techniques. Monitoring may be conducted regularly to determine the efficiency and effectiveness of feral pig control and evaluate control techniques being used (DAFF, 2010; Mitchell, 2008).

Pig populations on Curtis Island are currently subject to ongoing control by DNPRSR including shooting and trapping. Feral pig and other pest animal control will be regularly conducted depending upon population threat and numbers. These efforts will be monitored in accordance with the DNPRSR's island-wide management intent.

#### 6.4 Fire Management

Develop and implement an appropriate fire management strategy

Fire is an essential factor in managing the environmental values of the Monte Christo property and has been used regularly to promote productivity in forest and woodland ecosystems. A fire management strategy will be developed to ensure the frequency and intensity of burning is controlled to maintain conditions suitable for native plant and animal species. This strategy will form part of the coordinated management of conservation areas on Curtis Island and will include provision for:

- fuel reduction zones
- mosaic burning
- wildfire suppression strategies

ecological requirements of fire sensitive species and ecosystems, including marine plain ecosystems.

A mosaic fire burning strategy is to be established for the Monte Christo property as it is designed to support and maintain the highest flora and fauna species diversity compared to other strategic burning regimes. A mosaic fire burning strategy creates a patchwork of different ages of vegetation exposed to different time-since-fire. Patches of vegetation act as refuge for fauna species during fire and provide a source of food post fire. Varied ages of vegetation patches also reduce fuel loads within the larger area which can reduce the intensity and slow the rate of future bush fires. A mosaic burning regime also reduces local flora species extinction as individuals and propagules are allowed to persist in unburnt areas and recolonise in burnt areas (SEQ Fire and Biodiversity Consortium, 2002). The mosaic burning strategy will be developed in accordance with Regional Ecosystem Fire Guidelines for those RE present within the Monte Christo property (Queensland Herbarium, 2013).

Fuel reduction zones will be established around the boarder of highly vegetated areas to decrease the risk of unplanned high intensity bush fires entering the Monte Christo property. Fuel loads within fuel reduction zones and the whole of the Monte Christo property will be monitored and maintained in accordance with the fire management strategy.

Monitoring will be undertaken to assess the results of any controlled fire management on promoting regeneration and future fire management efforts can be modified accordingly. The impact of fire management on biodiversity will be monitored in accordance with the methods described in the Fire and Biodiversity Monitoring Manual (SEQ Fire and Biodiversity Consortium 2002).

#### 6.5 **Environmental Restoration**

Enhance and conserve biological diversity and integrity

Restoration efforts on the Monte Christo property should primarily involve assisted natural regeneration. Natural regeneration will be promoted through the exclusion of cattle, appropriate fire regimes, erosion management, sediment control and the control of pest plants.

Vehicular access for environmental management actions will utilise existing access tracks. No off-track access will occur to limit potential disturbance to wildlife habitat and restoration efforts. Access will be strictly controlled with all personnel accessing the Monte Christo property required to meet the requirements for transiting through the CIEMP and designated site access restrictions.

Existing eco-tourism development rights for the Retained Area (located within Lot 4 CP860403) will only allow for low impact eco-tourism activities, including horseback riding and four wheel driving. These activities are permitted only in the Retained area and on Lot 5 CP860403 under approved management plans for these protected areas prepared by the DNPRSR and will not impact offset areas within the Monte Christo property.

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#### 6.6 Grazing

#### Proposed exclusion of cattle

The Monte Christo property has supported grazing operations for many years. Currently, approximately 1,500 head of cattle are grazing the Monte Christo property and the marine plains area of the neighbouring Conservation Park. It is proposed all livestock will be removed within a 3 month time period from the Monte Christo property in order to enhance biodiversity values, especially in the marine plains area. This process will begin immediately following approval of the current Monte Christo landholder's revised tourism lease as per the contract of sale and will be staged as necessary; however, this will be reliant on suitable property access which is reliant on dry weather. The details of this will be set out in the final contract of sale between the LNG proponents and the current Monte Christo landholder. Once livestock have been removed, ongoing repair and maintenance of fences and gates will ensure the Monte Christo property remains free of cattle.

#### 7 PROPOSED OFFSET SECURITY

Discussions with the Queensland Government indicate that the Monte Christo property (and the future protected area estate) will be integrated into the overall management of the protected area estate on Curtis Island (Damien Head 2013 pers. comm. 13 May).

#### 7.1 Monitoring

Monitoring of the Monte Christo property will be undertaken according to the declared management intent prescribed by DNPRSR. Monitoring is to be conducted to assess the ecological changes of the property and progress towards achieving the management objectives as per DNPRSR's whole-of-island management approach. Under DNPRSR's whole-of-island management approach annual ecological condition monitoring is required to assess the overall condition of the vegetation and success of natural regeneration in certain areas.

#### 7.2 Reporting

Once the Monte Christo property has been surrendered and transferred to the Queensland Government the LNG proponents will provide annual updates to SEWPaC and the QLD CG. This will be based on monitoring and reporting on the progress of the offset undertaken by DNPRSR for the whole of island management, including the Monte Christo Property, as per the requirements of the NC Act.

#### 8 MANAGEMENT COSTS

#### Management funding

The LNG proponents will fund the offset management program for the Monte Christo property via the combined financial contributions arising from the LNG Proponents Environmental Management Precinct Contribution and Maintenance Deeds (EMPCM Deed; Damien Head 2013 pers. comm. 13 May); however, control over the tenures and subsequent management of the lease and freehold land will be the responsibility of the Queensland Government.

The LNG proponents propose to contribute a total of \$616,340 from the EMPCM Deed, delivered over a five-year period, to fund management of the Monte Christo property (Table 10). The combined financial contributions arising from the LNG proponents EMPCM Deeds will continue to be used to supplement the Queensland Government's island-wide conservation management program for Curtis Island, which would incorporate the newly acquired Monte Christo property. The acquisition of the Monte Christo property will assist with the establishment of a whole-of-island management approach to improve management outcomes and reduce management costs across the island.

#### 8.2 Management costing

The LNG proponent's ongoing management funding will ensure that ecological values of the Monte Christo property are enhanced and maintained. As noted in Section 2, while the Monte Christo property (Lots 4, 297 and 298) contains extensive areas of eucalypt woodlands, the sensitive marine plains are unique to Lot 4. Condition assessments undertaken at Monte Christo have identified that the property is in good condition with the exception of marine plain areas (QGC 2013).

Accordingly, management costs have been derived based on information provided by DNPRSR regarding the management of Lot 4 CP860403 as outlined in Table 9 (Kershaw (DNPRSR) 2012 pers. comm. 22 June). These costs account for management of degraded areas such as marine plains (i.e. more intensive management). This provides a sound basis from which to estimate the management costs for Lots 297 and 298 which are in a better condition than Lot 4. Across the 2,852.60 ha offset area on Lot 4 this equates to a per hectare management cost of approximately \$89/ha in the first year. Applying this per hectare value to Lots 297 and 298 DT4023 (709.50 ha) equates to an annual management cost of approximately \$63,111. This approach acknowledges that the management requirements of the Monte Christo property are dictated by the condition of the environment rather than cadastral boundaries.

Table 9: Summary of estimated management costs for year one of lot 4 CP860403

ACTIVITY	COST
General site management (fences, access tracks, firebreaks)	\$50,000
Utility services	\$50,000
Rehabilitation	\$30,000
Fire management	\$15,000
Weed/Pest management (pigs, declared weeds, stock fencing)	\$60,000
Annual monitoring and reporting	\$50,000
Total	\$255,000

Table 10 provides a summary of the management costs for the Monte Christo property for the first five years. The initial five year management period will begin once the Monte Christo property is declared protected area and transferred to the Queensland Government. Land contamination and remediation issues are not included in these costs; however, any land contamination, remediation and decommissioning requirements will be negotiated with the Queensland Government prior to surrender and may be drawn from the EMPCM Deeds.

Table 10: Summary of estimated management costs of the Monte Christo property

YEAR	4 CP860403	297 AND 298 DT4023	TOTAL
1	\$255,000	\$63,111	\$318,111
2	\$127,500	\$31,555	\$159,055
3	\$63,750	\$15,778	\$79,528
4	\$31,875	\$7,889	\$39,764
5	\$15,938	\$3,944	\$19,882
Total	\$494,063	\$122,277	\$616,340

#### 9 **REFERENCES**

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# APPENDIX A: CURTIS ISLAND PROTECTED AREAS AND FORESTS STATEMENT OF INTENT (DRAFT)

# Statement of management intent

# **Curtis Island Protected Areas and Forests**





# INTERNAL DRAFT

This document is for the purposes of discussion and comment. It does not commit the Government either to the views expressed or to future action. No liability will be accepted for actions taken on the basis of this document.

### **Purpose**

The statement of intent outlines the values of the protected areas and forests, objectives of management and the broad policies that will be implemented to achieve those objectives.

A detailed management plans will be drawn up based on the objectives for management set out in the statement of intent.

Community involvement and comment will continue to be sought in the preparation and drafting of the management plan.

#### **Values**

Curtis Island is a diverse undeveloped coastal region comprising of significant native fauna, flora, landform, hydrological, cultural, educational and research, recreational and scenic values.

The area contains elements of the Brigalow biogeographic region. An extensive parabolic dune system, largely in its natural state, lowland lagoons and swamps, rocky headlands, coastal beaches, hilly terrain and a highly active marine plain with minimal development on its foreshore combine to make Curtis Island highly valued for both its conservation and recreation values.

The parabolic dune system acts as stores water. The ability of the dunes to store water is closely linked to the base flow discharge in the adjacent marine plain.

Curtis Island has a largely unknown cultural heritage however similar coastal areas in Queensland contain significant cultural records. Cultural surveys need to be conducted to uncover this hidden record of which a number of midden sites have been already identified. The Cape Capricorn lighthouse precinct is listed on the Australian Heritage Register and has a heritage conservation plan.

The native fauna of the area is diverse with the area providing important habitat for nesting turtles, fish and shore birds. The importance of the area especially the marine plain as a wetland bird habitat is considered high but is yet to be demonstrated how significant through systematic assessment though *Yellow Chat* habitat has been identified. *Eucalyptus mollucana* woodland is only one of the distributionally significant communities found in

this area and the vegetation types include those with a high social/ecological value such as closed forest and heath.

The scenic values of Curtis Island are outstanding with large areas of undeveloped bush land, panoramic views, closed scrubs and forests, estuaries, lagoons, sandblows and flowering heathland areas. This area is an increasingly popular destination for people seeking nature-based recreational experiences. Popular recreational pursuits includes water based activities such as surfing, fishing and nature-based camping.

### **Need for management**

The Queensland Parks and Wildlife Service has been undertaking management of recreation and certain resource management issues, in particular pest animal control, over some of the Curtis Island.

Management of the resource and recreation outside of the existing protected areas and forests has largely been based on public goodwill as ranger staff have no legal jurisdiction.

Over 60% of Curtis Island is protected area and forest but some of the use and management problems occur on the other lands where there is no landholder presence.

The previous lack of jurisdiction has resulted in a wide range of problems including:

- · littering and poor waste disposal;
- destruction of vegetation through firewood collection, creation of vehicle tracks and clearing of campsites;
- dangerous beach driving and speeding;
- use of unregistered vehicles often with unlicensed drivers;
- camping adjacent to townships causing problems for residents;
- weed and pest problems;
- wildfires;
- · safety and emergency services; and
- trespass into the adjacent freehold properties.

Many environmental problems caused by unmanaged recreation can be overcome by the provision of suitable information, facilities and management. These services cannot be developed across the whole of the island under existing arrangements. The Queensland Parks and Wildlife Service would be able to provide the necessary services and management within the protected areas and forests.

The Queensland Parks and Wildlife Service collects camping fees on the existing national park, conservation park and forest parks these funds are indirectly returned to the area for onground management operations. The existence of State reserves and unallocated State lands with good camping sites provides the opportunity for fee avoidance.

While information co-operation between landholder agencies can overcome some of the existing problems it cannot ensure:

- uniform regulations and enforcement measures;
- allocation of funds based on need rather than tenure; and
- integrated permit and information sources.

the declaration of the Curtis Island protected areas and forests will ensure improved environmental protection, visitor safety and visitor services.

### Regional perspectives

Curtis Island is generally perceived by the public to be a remote area when compared to other parts of the Central Coast. While there are developed areas at Southend, the overall character of the area is typified by:

- relatively undeveloped natural/cultural environment:
- · relatively low numbers of visitors;
- little regimentation or control of visitors behaviour;
- · few if any built structures; and
- · ease of accessibility.

There are limited areas along the Central Queensland Coast with these characteristics. When a comparison of the coastal area is made on the basis of the recreational settings a clear pattern emerges.

The recreation characteristics of the area attract a range of visitors. Whilst some visitors come for a wide range of recreational activities, they are generally seeking a particular setting that is less available elsewhere in the region. Any significant changes to the physical, social or managerial environment may cause a

displacement of existing users and subsequent loss of a community resource. People seeking recreation in a more developed setting are well catered for within Central Queensland. The intention is to enhance the existing range and style of recreational opportunities within the whole area, whilst recognising that increasing development and use levels may pose a threat to the area's natural and cultural values. Through effective management and resourcing, the Protected areas and Forests will be safeguarding the areas' values whilst allowing appropriate and safe recreational use.

#### Overview

The future use and management of the Curtis Island has been the subject of considerable public discussion and debate. A number of public interest groups, state and local government organisations have released statements on the future use and management of the area. These statements have generally recognised the need to manage the whole of the Curtis Island to:

- conserve the area's very high natural and cultural values;
- limit development and exploitation to retain the area's low key relaxed character; and
- to allow public use and enjoyment consistent with the retention of the natural and cultural values and maintenance of the character of the area.

These directions are consistent with the proposed land tenure and management principles under the Nature Conservation Act (1992).

Detailed management plans have not been prepared for protected areas and forests on the Curtis Island. Any plans will need to be subject to extensive community consultation. The Curtis Coast Coastal Planning Advisory Group has co-ordinated some planning efforts to date. The Queensland Parks and Wildlife Service has adopted the Curtis Coast plan and contribute to its implementation.

# The protected area and forest system

#### Management

Curtis Island encompasses approximately 45,350 ha. The lands gazetted as Curtis Island protected areas and forests are shown on Map 1. From this map, it can be seen that the area would **include:** 

#### **National Park**

Existing Curtis Island National Park (NPW plan 846) approximately 8,752ha;

#### **Conservation Parks**

The 5,500 ha gazetted as the Cape Capricorn and Curtis Island Conservation Parks

#### State Forests

The land gazetted as Curtis Island State Forest (SF?) comprising 14,650 ha

#### Lands not included

Freehold, esplanades, leasehold, unallocated state lands (USL) and other State reserves making up the remaining 40% of the island.

# Plan of management

Under the *Nature Conservation Act* a plan must be prepared as soon as practicable after the declaration of a protected area.

The production of the management plan itself is a many faceted task. Synthesis of resource and visitor use information, demand studies and administrative constraints/opportunities is required to arrive at management options that achieve the stated objectives.

Through the combined agencies involved in the Curtis Coast Advisory Group some planning has already commenced and submissions from stakeholders sought on coastal management of the broader area.

On completion of draft management plans public comment will again be sought. The final plans will provide a detailed outline for the use and protection of the area.

#### Goals

- Manage the protected areas and forests to minimise impacts on the conservation, cultural and social values of the area;
- 2. Maintain and enhance the existing diversity of nature-based recreation opportunities;
- Ensure that the management/administration of the protected areas and forests does not detract from the natural, cultural and social amenities;
- Promote the educational, research and interpretive role of the area and the provision of information services;
- Ensure that the costs of managing recreation and tourism on Curtis Island are equitably distributed as broadly as possible amongst various user groups;
- Make management responsive to the needs of the user and broaden community expectations (within the constraints of Objective 1);
- 7. Support public health, safety and emergency services.

#### **Policies and Strategies**

Related to Goal 1

- monitor the impact of recreation on the natural, cultural and social values and where necessary take action to limit any changes that are unacceptable;
- where necessary take action to limit the levels or types of both management and recreational use in sensitive or critical areas especially foreshore/ littoral areas;
- encourage further research on the impacts of fire on the various communities and cultural resources present in the area; and
- weed and pest control programs will be continued and enhanced.

#### Related to Goal 2

- That no provision be made for additional twowheel drive access or mains power supply;
- that existing services, safety hazards and infrastructure requiring remedial work should be restored or removed prior to the provision of new facilities;
- that new or upgraded facilities will be consistent with the management plan and the area's nature-based recreation role;
- all new developments will require prior assessment of natural and cultural significance and developed in consultation with traditional owners; and
- that opportunities for pedestrian based recreation are assessed and developed.

#### Related to Goal 3

- Ensure that the system for obtaining permits and authorities is simple and convenient;
- education and behaviour modification will be used wherever possible rather than law enforcement;
- limit signage to ensure that the visual and recreational amenity is not degraded;
- allow users the greatest possible freedom of choice in their selection of camping and recreational site and activities consistent with Goal 1.

#### Related to Goal 4

- An interpretive program will be developed and implemented for the area:
- a scheme to train and accredit tour operations in the natural and cultural history of the area will only be implemented if demand warrants; and
- emphasis will be placed on explaining the range of opportunities available offsite so that visitors can make informed choices.

#### Related to Goal 5

- Establish a system of fees consistent with other protected areas and forests;
- that all those who derive a direct income from the area contribute to the cost of management; and
- the need for efficiency and accountability in the area's management is paramount.

#### Related to Goal 6

- enhance the existing relationship with representatives from the traditional owners and the various community stakeholders:
- encourage staff to liaise with the community and special interest groups including local tourism businesses;
- periodically carry out surveys of users to monitor expectations and satisfaction with management of the area;
- close liaison with the Gladstone City and Calliope Shire Councils, Central Queensland Ports Authority and other government agencies will be maintained; and
- compile a comprehensive management plan for the area in co-operation with the local community. This plan will be regularly reviewed to ensure it remains consistent with changing knowledge and community attitudes.

#### Related to Goal 7

- Impact monitoring will be undertaken at appropriate recreation sites in the area;
- management staff will have the necessary training and powers under the Nature Conservation Act, Forestry Act and Local Laws of the Council to manage unlicensed drivers, dangerous driving etc. Access will be managed to limit environmental impact, minimise conflict between user groups, and maximise public safety;
- emergency communications/responses will be improved with staff trained in the fields of search and rescue, fire control and first-aid; and
- water quality and other environmental factors will be monitored as necessary as to ensure good health and hygiene standards

#### Interim restoration works

Many of the most popular areas for visitors are also the most ecologically sensitive and diverse. There are several areas where quite urgent work is required to protect the resource yet still ensure they are available for people to visit and enjoy.

In line with the objective stated under Goal 2, it is planned to restore and rehabilitate a number of existing areas in the interim phase pending the production of the final management plan. Special emphasis will be placed on the provision of information off site to encourage visitor awareness of the natural and cultural values.

These projects are all in high visitation areas with long traditions of use. Work should commence as soon as possible.

Road network (several locations) in particular the coastal North South track

- overall circulation and maintenance plan for area;
- erosion control and restoration including stabilisation of access points;
- revegetation;
- drainage works on roads and tracks;
- directional signage and vehicle control. If appropriate;
- pulloffs and/or one-way allocations for improved safety where necessary; and
- stabilisation on slopes above 7°.

Black Head, South and North Turtle Street and Joey Lees

- · overall site plans;
- erosion restoration and control along banks;

- · rationalisation of camping sites;
- regulatory signage;
- · orientation signage and vehicle control; and
- rationalisation of vehicle movements.

Beach access (several foredune locations)

- · dune stabilisation; and
- · clear signage.

Illegal structures (several locations)

- clear seizure and notifications as per act;
- · safety signage where hazards identified;
- erosion restoration and control
- drainage works; and
- removal of all rubbish and building materials

The above projects are consistent with the interim management statement.



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### APPENDIX C: BREAKDOWN OF APPROVED GLNG MARINE FACILITIES DISTURBANCE

AREA	STRUCTURES/WORK AREA DESCRIPTION	LOCATION LIMITS FOR MARINE PLANT/HABITAT DISTURBANCE AREA	MARINE PLANT TYPE AND AUTHORISED DISTURBANCE	MARINE PLANTS/HABITAT APPROVED REMOVAL/DISTURBA NCE AREA (ha)	PERMIT/ AUTHORITY	APPROVAL DATE
1	Temporary Pioneer Facilities: 2 temporary barge ramps and temporary passenger ferry terminal)  MOF: Barge Ramp and ferry Berth (walkway and pontoon), Bulk Aggregarte Berth, LoLo Berth and RoRo Berth  2 Stormwater outlets: Treatment Batch Outflow and Quarantine Area Outflow	Within footprint of, and within path 5 metres wide surrounding the structures and stormwater outlets (in "work area" column) and associated dredge areas	Mangroves - Removal Benthic habitat* - Removal *includes potential seagrass habitat	1.06 ha mangrove 9.583 ha benthic habitat* *includes 0.663 ha potential seagrass habitat	2011DB0082	08-Apr-11
1	Up to 100 Jack Up Barge support legs (up to 100 m2) Up to 400 barge anchors or spud (up to 800 m2)	Immediately surrounding the footprint of the structures in Area 1 as and where required for construction of these structures	Temporary damage to areas of marine plants, potential seagrass habitat and benthic habitat as necessary	Up to 0.0900 ha	2011DB0082	08-Apr-11
1	Shoreward of Bulk Aggregate Berth and LoLo Berth	Immediately shoreward of the bulk Aggregate Berth and LoLo Berth (refer GLNG Drawing No. 3361-50-SK200 sheet 4 of 4)	Mangroves - Removal	0.1717 ha	2011DB0082	15-May-12

AREA	STRUCTURES/WORK AREA DESCRIPTION	LOCATION LIMITS FOR MARINE PLANT/HABITAT DISTURBANCE AREA	MARINE PLANT TYPE AND AUTHORISED DISTURBANCE	MARINE PLANTS/HABITAT APPROVED REMOVAL/DISTURBA NCE AREA (ha)	PERMIT/ AUTHORITY	APPROVAL DATE
1	Adjacent to Area 1 structures	Within an area of 0.38 ha mangroves and 0.47 ha of benthic habitat east of the RoRo Berth (refer Indirect disturbance Footprint on Figure 6-2 Revision E, URS, 28/03/2011) and along shoreline between Area 1 structures	Incidental damage to marine plants adjacent to structures	Adjacent to structures	2011DB0082	08-Apr-11
2	Haul road and site batters	Within footprint of Haul Road and Site Batters (refer Bechtel Drawing No. 100-CG-000-00040 rev 3, 2/3/11) and within path 5 metres wide surrounding Haul Road and Site Batters	Direct disturbance of mangroves, saltpan and saltmarsh marine plants, and benthic habitat	0.107 ha mangroves 0.178 ha saltpan and saltmarsh marine plants 0.211 ha of benthic habitat	2011DB0082	08-Apr-11
3	MOF Diffuser Pipeline	Within an area of 0.111 ha mangroves and 0.1983 ha benthic havitat for construction of proposed MOF Diffuser Pipeline. Refer GLNG Drawings: 3361-50-SK201 Sheet 2 of 4 (Rev 1, 20/03/2012) 3361-50-SK201 Sheet 3 of 4 (Rev 1, 20/03/2012)	Direct disturbance of mangroves and benthic habitat	0.111 ha mangrovesmangroves 0.1983 ha benthic habitat	2011DB0082	17-May-12

AREA	STRUCTURES/WORK AREA DESCRIPTION	LOCATION LIMITS FOR MARINE PLANT/HABITAT DISTURBANCE AREA	MARINE PLANT TYPE AND AUTHORISED DISTURBANCE	MARINE PLANTS/HABITAT APPROVED REMOVAL/DISTURBA NCE AREA (ha)	PERMIT/ AUTHORITY	APPROVAL DATE
4	Regional Ecosystem (RE) 12.1.2 on Appendix 2 - Figure 4: LNG facility Regional Ecosystem (URS, 18-2-2011) in the Environmental Authority	0.6 ha saltpan vegetation in RE 12.1.2 on Environmental Authority Appendix 2 - Figure 4: LNG facility Regional Ecosystem (URS, 18-2-2011)	0.6 ha saltpan vegetation - clearing (removal)	0.6 ha saltpan	PEN101623910 Condition BF1(c)	03-Mar-11
5	Regional Ecosystem (RE) 12.1.3 on Appendix 2 - Figure 4: LNG facility Regional Ecosystem (URS, 18-2-2011) in the Environmental Authority	0.1 ha mangrove shrubland in RE 12.1.3 on Environmental Authority Appendix 2 - Figure 4: LNG facility Regional Ecosystem (URS, 18-2-2011)	0.1 ha mangrove shrubland - clearing (removal)	0.1 ha mangrove	PEN101623910 Condition BF1(d)	03-Mar-11
6	Product Loading Facility	Immediately surrounding the footprint of the Product Loading Facility and the sea grass communitiy adjacent to the expansion loop within the seabed lease area. Drawing pending.	2.1948 ha Ryzophora stylosa - removal 1.6008 ha Halophora ovalis - removal	2.1948 ha Ryzophora stylosa - removal 1.6008 ha Halophora ovalis - disturbance	Development Application	Pending Approval
7	Area 15 Shore Protection Site Batters	Within shore protection construction footprint on GLNG drawing no. 3361- 50-SK202 sheet 2 of 4, 14/4/12 in Development Application Report (Aurecon, 228258-01, Rev 2, 10/5/12)	mangroves - removal saltmarsh (saltpan) - removal	0.2684 ha mangroves 0.1711 ha saltmarsh (saltpan)	2012CA0347	24 May 2012

## APPENDIX D: IN PRINCIPLE APPROVAL OF MONTE CHRISTO OFFSET **PROPOSAL**

- 1) Letter from Queensland Coordinator-General (5 November 2012)
- 2) Letter from Australian Government (12 July 2013)



Our ref: DEPC12/759

Office of the Coordinator-General

#### 5 NOV 2012

Mr Mark Macfarlane Chief Executive Officer GLNG Operations Pty Ltd Level 22, Santos Place 32 Turbot Street BRISBANE QLD 4000

Dear Mr Macfarlane

I am writing in regard to the joint LNG proponent 'Monte Christo' offset proposal lodged on 11 September 2012, on behalf of Australia Pacific LNG (APLNG), Gladstone LNG (GLNG) and Queensland Curtis LNG (QCLNG).

Following review by the relevant agencies, I met with representatives of all three proponents and these agencies on 30 October 2012. The purpose of this letter is to reiterate the positions stated at that meeting.

I was pleased to inform proponents that as a result of the review, the State is satisfied that the proposal can adequately acquit downstream offset requirements (LNG facilities, marine facilities on Curtis Island, gas transmission pipeline ROWs on Curtis Island and the gas transmission pipeline crossings of the Kangaroo Island wetlands and the Narrows) for all three projects. However, the State's support for the proposal is contingent on the items outlined in Attachment 1 being accepted and/or negotiated to a mutually satisfactory outcome.

From the States' perspective, while the proposal may not be wholly compliant with the State offset rationale, the proposal has been deemed to provide a reasonable outcome in terms of conservation, given the estimated downstream impacts and the challenge of finding suitable offsets of this magnitude.

As you are aware, the intent of the Monte Christo proposal is to meet downstream offset conditions contained within the Coordinator-General reports for all three LNG projects. The proposal also seeks to meet the offset requirements under the *Environment Protection and Biodiversity Conservation Act* 1999.

At the meeting of 30 October 2012, it was noted that the Commonwealth's response is still outstanding and unlikely to be available until mid-November. I encourage you to continue your dialogue with the Department of Sustainability, Environment, Water, Population and Communities and as discussed, it is my intent to also raise the proposal in my regular intergovernmental forum.

The issue of condition compliance was also raised at the meeting. It is acknowledged that offset negotiations have been complex and protracted. The significant progress that the Monte Christo proposal offers in satisfying offset conditions is encouraging, and I am pleased to reiterate my support for this initiative. It is my intent to continue compliance monitoring, to ensure offset conditions are met.

With regard to resolution of the outstanding matters, please contact Mr Ainsleigh Reffold, Project Manager, Resource Sector Facilitation Division, Department of State Development, Infrastructure and Planning on 3406 2195, who will be pleased to provide further assistance.

Yours sincerely

Barry Broe

Coordinator-General

Barry Bree

Enc

# Joint LNG Proponent Monte Christo Offset Proposal

#### Matters Requiring acceptance and/or further negotiation:

#### Proponents':

• Final impediment checks (third party interests) by the State which could inhibit the transferral of Lots 4 on CP860403 and the two freehold parcels 297 and 298 on DT4023 to Protected Area Estate (Conservation Park).

It is my understanding that the above interests have already been reviewed by the Department of Environment and Heritage Protection (DEHP) and the Department of National Resources and Mines (DNRM) and that there are no major impediments present. Additionally, it is understood that DNRM will offer no objection (with respect to mining and petroleum interests) to the transferral of these areas to Protected Area Estate (valid for three years from 11 October 2012). Both DEHP and DNRM have also provided in principle agreement to the transfer of these allotments. It should be noted that native title will still require further negotiation.

 Any balance of offsets following acquittal of downstream impacts may only be used against future residual impacts (i.e. following implementation of appropriate avoidance, minimisation measures) associated with downstream works approved under the scope of the existing GLNG environmental impact statement and Coordinator-General evaluation report.

Accordingly, the Department of Agriculture, Fisheries and Forestry (DAFF) has advised that the remaining tidal habitat offset balance (103.02 ha within Lot 4 CP860403 and Lot 298 DT4023, following on-ground validation of the extent of such values) will be considered in regard to future marine fish habitat development decisions, which fall under the above mentioned scope of works.

- Offsets for flora identified as endangered, vulnerable and near threatened under the Nature Conservation Act 1992 are to be addressed outside the scope of the proposal.
- Further discussion must be entered into with regard to DAFF's request for compensation for timber larvesting rights foregone by the proposed offset component of Lot 4 on CP860403.
- Finalisation of the agreement with the landholder regarding property acquisition.
- Finalisation of management actions which address the enhancement and management of terrestrial, aquatic and marine values (inclusive of marine fish habitat values) within the offset site, including relevant responsibilities.
- Securement of funding with the Department of National Parks, Recreation, Sport and Racing (DNPRSR).

#### State:

- The proposed new tourism lease is finalised to ensure that conditions around its size and purpose are
  as consistent as possible with the surrounding Projected Area Estate, following further negotiation
  between DNRPSR, DAFF and DNRM, the landholder and LNG proponents.
- Finalising the boundary of the required 200 hectare Reserve for Strategic Land Management under the Land Act 1994 to be retained for future commercial quarrying purposes, located within the northern part of Lot 4 on CP860403.
- Final sign off by the Queensland Government for the acquittal of offsets associated with downstream impacts.

### Department of Sustainability, Environment, Water, Population and Communities

Ref: 2013/01647

Ms Tracey Winters
Vice President Environment
QGC Pty Ltd
Queensland Curtis LNG Pty Ltd
Tracey.Winters@bg-group.com

Mr Kim Barber General Manager, Sustainability SANTOS Kim.Barber@santos.com

Steven Findlay
HSE Manager,
Australia Pacific LNG Pty Limited
Steven.Findlay@apIng.com.au

Dear Ms Winters, Mr Barber and Mr Findlay

#### Joint LNG Proponent Monte Christo Offset Proposal

Thank you for your joint letter of 26 April 2013 providing information in response to the department's comments on the earlier *Monte Christo Offset Proposal*. In addition, your companies' representatives met with the department in Canberra on 21 May 2013 and participated in a teleconference on 7 June 2013 to discuss the proposal.

Based on the information provided, the joint Monte Christo Offset Proposal appears sufficient to achieve the objectives of the following approval conditions regarding LNG plant offsets:

"to offset direct impacts, securing by the proponent of an offset property:

- that contains attributes or characteristics at least corresponding with those of the LNG facility site; and
- at a ratio of no less than 5:1 of the LNG facility site area, excluding the proposed reclamation area;"
- "a commitment by the proponent to use its best endeavours to secure National Park status for the offset property. At a minimum the proponent must ensure the retention and management for conservation purposes, under a secure permanent land tenure arrangement, of the offset property." and
- "... any property that is purchased or otherwise retained under a secure land tenure arrangement for the purposes of the Environmental Offsets Plan must be located within the Great Barrier Reef World Heritage Area, preferably on Curtis Island or nearby."

On this basis I encourage you to proceed to secure the properties and leases comprising the *Monte Christo Offset Proposal*.

I understand that the *Monte Christo Offset Proposal* is also envisaged to address offset requirements which have been identified in species management plans in relation to species which are impacted in the vicinity of the coast, particularly the Water Mouse.

There remains some uncertainty that the *Monte Christo Offset Proposal* will sufficiently address the offset requirements for Water Mouse, as the quality and extent of potential Water Mouse habitat on the Monte Christo property has not been adequately confirmed. I appreciate that your plans to undertake this work earlier this year were frustrated by unusually wet conditions. However, you will appreciate that I will not be able to confirm that the proposal satisfies the requirement to offset Water Mouse habitat until the relevant information is provided. I therefore request that you include in the revised joint *Monte Christo Offset Proposal* a commitment to provide, within 12 months of your purchase of the property, details of the extent and quality of Water Mouse habitat on the property based on the results of ground surveys.

The information your representatives have provided indicates that considerable potential Water Mouse habitat may occur in the intertidal zone adjacent to the Environmental Management Precinct, State Forest and existing Conservation Parks all of which are intended to benefit from your proposal. However, as these areas are without tenure, they are unable to satisfy the Environmental Offsets Plan condition that:

"At a minimum the proponent must ensure the retention and management for conservation purposes, under a secure permanent land tenure arrangement, of the offset property."

In relation to other obligations in respect of 'downstream' offsets, I would appreciate your advice of progress in respect of the strategy for contributions to field management and visitor awareness of the Great Barrier Reef World Heritage Area.

I recommend that you proceed to submit a formal proposal which incorporates the additional information you have provided, and which responds to my above requests.

Should you require further information on this matter, please contact

A/g Director, Approvals Monitoring - Coal Seam Gas Section, on or by email to:

Yours sincerely

Shane Gaddes

A/g Assistant Secretary

Compliance and Enforcement Branch

12 July 2013

### APPENDIX E: STATE RATIONALE FOR THE SELECTION OF DIRECT LAND **BASED OFFSETS**

Provided to GLNG by the Department of Environment and Heritage Protection in May 2012.

# STATE RATIONALE FOR THE SELECTION OF DIRECT LAND BASED OFFSETS

#### 1. Consistency with the QLD Government Environmental Offsets Policy

- **Principle 3:** Offsets must achieve an equivalent or better environmental outcome.
- **Principle 4:** Offsets must provide environmental values as similar as possible to those being lost.
- **Principle 5:** Offset provision should minimise the time-lag between the impact and delivery of the offset.
- **Principle 6:** Offsets must provide additional protection to environmental values at risk, or additional management actions to improve environmental values.
- **Principle 7:** Offsets must be legally secured for the duration of the offset requirement.

### 2. General Rationale in Regards to the Principles Noted Above

#### State values to be offset:

- Endangered/Of Concern regional ecosystems (Guidance using vegetation Management Offsets, 2009);
- Essential Habitat (Guidance using Policy for Vegetation Management Offsets, 2009);
- Wetlands (Guidance using Draft Policy for Biodiversity Offsets, 2009, DERM);
- Conservation significant fauna and flora habitat (Guidance using Draft Policy for Biodiversity Offsets, 2009, DERM);
- Protected plants (Guidance using Draft Policy for Biodiversity Offsets, 2009, DERM);
- Marine Plants and Fish Habitat (Compliance with Mitigation and Compensation for Works or Activities Causing Marine Fish Habitat Loss, 2002, DEEDI);

#### Offset Requirements

- Metrics to be derived from relevant specific issue policies;
- Offsets should in part focus on the securing of unprotected vegetation reflective of impacted values (note: preferably regrowth will reflect 'mature regrowth' which is likely to be identified as HVR/remnant within 10?? years, or will be self-maintaining at the end of the management period);
- Location of offsets is preferably within the same subregion, adjoining subregions or bioregion (in order of priority) as the impacted value;

#### Strategic Approach

• Rather than the acquisition of multiple individual parcels, a smaller number of larger parcels should be acquired which offer significant strategic values in terms of landscape connectivity, contiguity, resilience and/or other ecological criteria.

#### Outcomes reflect 'Like for Like' to the greatest extent possible

• Given that a more strategic approach is to be adopted, the acquisition of parcels which provide a **precise** 'like for like' outcome, is not required.

- However, the selection and final acceptance of parcels should still focus significantly upon those which acquit to the greatest extent the impacted values (in a like for like manner);
- Notwithstanding, and particularly in the event that a selection of parcels that contain the greater portion of impacted values cannot be acquired, parcels which do not contain like for like values but which house either values of a similar conservation status, or are of significant ecological value (and which meet the other rationale included in this document) may be considered.

#### Preferred protection mechanism

- Consideration of impediments/secondary interests over parcels and the subsequent impacts on securing the preferred conservation mechanism:
  - o National Park, Conservation Park, Forest Reserve,
  - o Nature Refuge,
  - Covenant or other means.

#### Miscellaneous

- Where possible, proposed parcels should acquit both state and federal requirements;
- Preferably, parcels which acquit both terrestrial and marine impacts are preferred, as they provide a greater level of security and protection at the interface of the marine/terrestrial environ;
- Parcels and associated values which are already afforded a **significant** level of protection under legislation, or through a legally binding mechanism should generally not be considered as suitable offsets. Furthermore, some legislated arrangements and tenure afford protection to values (i.e. as does state land under licence with appropriate management in place), and such areas are generally not considered appropriate as offset proposals.

#### **DERM CONTACT LIST**

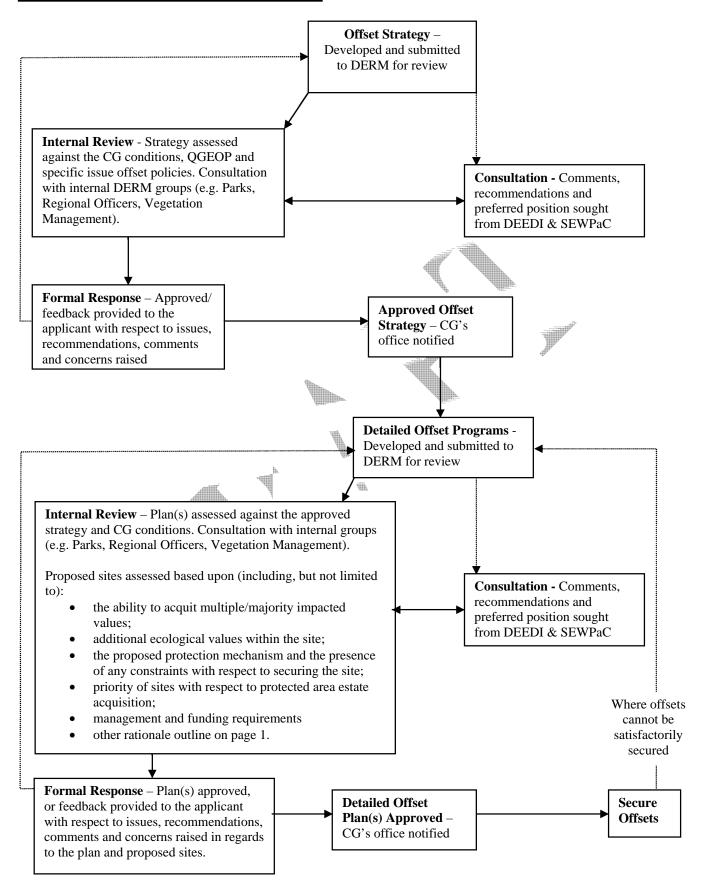
**Primary DERM Contacts:** Kate Wall (APLNG Project Manager), Rod Kent (Director Gas and Petroleum), Stephen Trent (Senior Env Officer));

Please note, all correspondence should be directed through the primary contacts noted above.

Parks: Jason Jacobi, Wade Oestreich.

**Biodiversity Offsets:** Peter Jamieson

#### **State Offset Approval Process (Guide Only):**



#### APPENDIX F: AUSTRALIA PACIFIC LNG IMPACTS

Extract from Appendix C of the Australia Pacific LNG Offset Strategy Version 8:

- Table 3
- Table 4

# **Appendix C** Summary of State Significant Values Expected to be Disturbed

			S FIELD					PIPELINE					PLANT	
VALUE	RE (ha)	State	Status <sup>2</sup>	Commonw Clearing (ha)		RE (ha)	State HVR (ha)	Status <sup>2</sup>	Commonw Clearing (ha)		State Clearing (ha)		Clearing (ha)	
W VM ACT COMMUNITIES	T.L. (TIC)	(IIa)	Clatus	Journing (ria)	Juliuo	. 2 (na)	πττίτα	Ciuido	Giodring (rid)	Cidido	Gloding (rid)	Ciuido	Totaling (na)	Julius
stuarine wetland)						11.71		LC						
stuarine wetland - Mangroves)						3.54		LC						
, , , , , , , , , , , , , , , , , , ,	53.07	4.52	LC			52.65	0.73	LC						
	61.89		LC			11.00		LC	1		<b>†</b>			
1 3	0.00		LC			31.28		LC						
	0.00		LC			0.22		LC	+					
<del>4</del> 7	206.36		LC			11.11		LC	_					+
9			LC			12.44	2.27	LC						
	161.97						2.37							-
10	0.00		OC			0.52		OC						
15	0.00		LC			29.27	19.64	LC						
5a			LC				0.02	LC	1					
8	0.00		E				0.31	E		E				
3	0.00		LC			3.78	2.39	LC						
4	0.00		LC			6.38	1.53	LC						
4a			LC				0.29	LC						
4c			LC				1.65	LC						
1	0.00		LC			39.35	33.33	LC						
.17			Е				4.58	Е						
2.2	0.00		LC			5.36	9.24	LC	Ī		I			
2.21			Е			0.01	0.02	Е	0.02	Е				
2b	Ī		LC				0.49	LC	1		1			1
2.3	i		E			3.06	2.64	LC	1		1			1
2.6	1		LC			14.70		LC	1	t	1	t		1
 I	0.40		E	0.40	Е	5.26		E	5.26	Е	<b>1</b>	<del>                                     </del>		1
ı 14	66.26	2.08	LC	0.40		5.20		LC	3.20	<del></del>	<del>                                     </del>	<del>                                     </del>		+
6		2.08				ე.∠3		LU	+	<del>                                     </del>	<del>                                     </del>	<del>                                     </del>		+
	0.17		LC			1 =-			+	-	<del>                                     </del>	-		+
7	18.08		OC			1.70		OC	+	-	<del>                                     </del>	<u> </u>		+
18	7.57		LC			3.38		LC	+	<b>—</b>	-			+
19			LC							<u> </u>		<del></del>		
2	76.58	4.60	OC			8.95		OC		E <sup>4</sup>				
5	172.03	2.86	LC			25.55	2.69	LC						
6		0.24	LC			19.29	11.21	LC						
7	1.17		LC			1.09		LC						
	1.24	0.64	OC			0.10		OC						
9	0.92		LC											
	9.19	7.24	OC			6.58	11.85	OC						
I	1		LC			0.00	0.02	LC						1
0	1		E	0.00	Е		0.02							
2	2.22	1.09	Ē	0.00		1.10		E	+		1			+
2	15.33	0.76	E	16.09	E	1.10	0.21	E	1.44	E		_		+
	0.21	0.70	Ē	0.21		1.50		Ē		_				
		40.50		0.21		119.29		LC	1.50		-			
	2085.12	42.59	LC			119.29	2.83							_
a	396.19	8.26	LC				1.04	LC						
0	171.41	0.25	LC			47.29		LC						
1			LC			30.91		LC						
	246.60	0.60	LC			45.06		LC						
3	337.13		LC											
(Threshold regional ecosystem)	171.47	0.87	LC			23.26		LC						
)	1		LC			0.04		LC	1		I			
	1.67		LC			0.60	0.16	LC	1		1			
	255.10	2.68	LC			48.95	0.59	LC	1		1			1
	762.09	38.46	LC			159.31	14.09	LC	1		1			1
	187.08	1.84	LC			13.20	0.51	LC	<del>                                     </del>	<del>                                     </del>	<del>                                     </del>			+
b	107.00	0.01	LC			15.20	3.31		+	<del>                                     </del>	<del>                                     </del>	<del>                                     </del>		+
	38.73	1.27	LC	<b>—</b>		34.54		LC	+	<del>                                     </del>	<del>                                     </del>	<del>                                     </del>		+
	702.45	5.23	LC			52.12	1.00	LC	+	-	1	-		+
	702.45	5.23	LU			32.12			1	_	<del>                                     </del>	<del>                                     </del>	-	+
	<del>                                     </del>	4					1.05	E	1.05		<b>—</b>	-		+
0	7.45	1.74	OC			1.01	0.30	OC	<del> </del>	<del>  _</del>	<b>.</b>	<del>                                     </del>		1
			OC		E	0.38		OC	0.38	Е	<b></b>			<u> </u>
a	3.41		OC	3.41	E		1.45	OC	1	<u> </u>				1
b	0.95		OC	0.95	E									
	59.47	3.19	Е	62.66	E	3.74	3.04	Е	6.78					
						0.07		Е	0.07	Е				
	1.26		OC			6.11	10.46	OC	1		I			
	<u> </u>		LC			1.88	6.51	LC	1	1	1			
(Salt pan)	+		LC			7.00	3.51		<b>†</b>		27.31	LC		+
(Mangrove shrubland)	+		LC			0.35		LC	+		2.6			+
14	+		OC			0.06		OC	+	<del>                                     </del>	42.25	OC		+
6	+								+	<del>                                     </del>				1
	+		LC			9.28		LC	+	<del></del>	89.86	LC		+
			oc			0.56		OC	1	<del></del>	27.66	OC		1
			LC			1.30		LC			1.38	LC		
asses						2.8					13.09			
ubstrate	1					5.9			1		15.42			
	+					0.0			+	<del>                                     </del>	.0. 72			+
	6000.00	424.00				005.05	450.00		+	-	242 5-	-		+
	6282.23	131.02				925.35	152.03		<del> </del>		219.57		-	
tened Ecological Community				83.72					16.50				0.00	)
igered	77.63	5.03				12.91	12.91				0.00			
ncern	118.14	14.22	_			25.97	26.42		1		69.91			
Concern	6086.46	111.77				877.77	116.40		1		1			1
ntial habitat	119.06					40.92			+	<del>                                     </del>	29.03	<del>                                     </del>	1	+-
asses	113.00					2.80			+		13.09			+

# Australia Pacific LNG Environmental Offset Strategy Strategy

Habitat 28/10/2011, Gas fi			AS FIELD			_		PIPELINE			l	LNG F	LANT			
VALUE		State	43 FIELD	Commonwea	1461		State	PIPELINE	Commonwe	aliba 1	State		Commony	o altha		
*ALUE			Status <sup>2</sup>	Clearing (ha) St		RE (ha)	HVR (ha)	Status <sup>2</sup>	Clearing (ha)							
EPBC & NC Act Species - Gas Fields	TILE (IIII)	TVTC(IIa)	Otatas	Cicaring (ria)	atus	rtL (riu)	πνττ(πα)	Citatas	Global Ing (Ind)	Otatas	Occurring (ria)	Otatas	Cicaring (ria)	Otatas		
	Clearing (ha)				Cle	earing (ha) <sup>5</sup>	Status <sup>6</sup>	Clearing (ha)	Status <sup>7</sup>		Clearing (ha) <sup>5</sup>	Status <sup>6</sup>	Clearing (ha)	Status <sup>7</sup>	Total NC Act	Total EPBC Ac
Brigalow Scaly-foot	774.22	V	774.22	V		96.84	V	96.84	V		3 (14)		3 (1.07)		871.06	871.0
Dunmall's Snake	262.49	V	262.49	V		18.28	V	18.28	V						280.77	280.7
Yakka Skink	73.44	V	73.44	V		8.91	V	8.91	V						82.35	82.3
Common Death Adder	261,50448	NT				55.79	NT								317.30	
Glossy Black-Cockatoo	23.810901	V				14.33	V								38.14	
Golden-tailed Gecko	801.6962	NT				95.65	NT								897.35	
Grey Snake	46.557464	Е				6.19	Е				i				52.75	
Rough Frog	45.291697	NT				5.58	NT								50.88	
Woma	346.6769	NT				31.70	NT								378.38	
Water Mouse						15.60	V	15.60	V		1.18	V	1.18	V	16.78	16.7
Cycas megacarpa						23.50	Е	23.50	E						23.50	23.5
Acacia pedleyi						6.50	V								6.50	
Acacia calantha						14.50	NT								14.50	
With the exception of Brigalow regrowth	, all Commonwealth lis	ted End	dangered	Ecological Co	mmuniti	es also ha	ve Endar	gered or Of	Concern State	us unc	ler State legi	slation.	The Comm	onwealt	h listed Vulnera	able fauna
<sup>2</sup> E=Endangered Regional Ecosystem, O	C=Of Concern Regiona	al Ecosy	stem and	d LC=Least Co	ncern R	Regional Ed	cosystem	under the V	M Act.							
E=Endangered Ecological Community u	nder the EPBC Act															
Only where this RE supports Weeping N					_											

**APPENDIX G: QCLNG IMPACTS** 

NARROWS
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LNG Facility

<i>NARROWS</i> Table 4 - Western Section ma	arine plant distribution and disturbance				MARINE FACILITIES					
Project Area	Marine Plant Type	Area (m²)	Hectares (Ha)		Project Area	Marine Plant Type	Area (m²)	Hectares (Ha)		
Total distribution area within	Saltpan	88,229	8.83		Early Beach Landing	mangrove			0.03 mangrove	mangrove
Western Section	Closed Mixed	13,070	1.31						0.03	saltpan
vestern Section	Water and Terrestrial	2,048	0.20		ISA/Con Dock	salt couch			0.08 saltpan	seagrass
	Closed Rhizophora	40,423	4.04			mangrove seagrass habitat			2.1 mangrove 4.86 seagrass	total marine plants benthic
	Saltpan	50.425	5.04	saltpan		muddy bottom			3.85 benthic	
ctual clearing extent within	Closed Mixed	7,507	0.75	mangroves		,			10.88	
orks footprint area	Water and Terrestrial	0	0.00	-	MOF	mangrove			1.88 mangrove	
	Closed Rhizophora	24,981	2.50	mangroves		muddy bottom		4	40.04 benthic	
								4	43.95	
Fotal marine plants disturbance			8.29		Tidal Area Infrastructure	salt couch			9.32 saltpan	
Table 5 - Central Section mar	rine plant distribution and disturbance					mangrove			0.64 mangrove	
Project Area	Marine Plant Type	Area (m²)	Hectares (Ha)						9.96	
otal marine plant distribution	Saltpan	114,009	14.40		LNG Jetty	mangrove			0.18 mangrove	
ea within Central Section	Closed Ceriops	11,121	1.11						0.18	
ea within Central Section	Z. Capricorni	54,382	5.44		Temp RO/STP	salt couch			0.16 saltpan	
						mangrove			0.29 mangrove	
	Saltpan	103,572	10.36	saltpan		seagrass habitat			1.43 seagrass	
ctual clearing extent within	Closed Rhizophora	516	0.05	mangroves						
orks footprint area	Closed Ceriops	5,981	0.60	mangroves		muddy bottom		1	10.43 benthic	
orks lootpillit area	Z. Capricorni, H. Ovalis, H. Decipiens, H. Spinulosa	54,397	5.44	seagrass						
	Z. Capricorni	24,443	2.44	seagrass						
Total marina planta diaturbana										
	e e									
·			18.89		Total	Muddy bottom  Permanent Marine plants			54.32 18.76 (subtracted 2.21 f	rom ISA)
able 6 - Eastern Section ma	rine plant distribution and disturbance	Aroa (m²\			Total	Permanent Marine plants		1	18.76 (subtracted 2 21 f	rom ISA)
able 6 - Eastern Section man	rine plant distribution and disturbance  Marine Plant Type	Area (m²)	Hectares (Ha)		Total			1		rom ISA)
able 6 - Eastern Section man Project Area otal marine plant distribution	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa	22,587	Hectares (Ha)			Permanent Marine plants		1	18.76 (subtracted 2 21 f	rom ISA)
Fable 6 - Eastern Section man Project Area  Fotal marine plant distribution	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora	22,587 5,347	Hectares (Ha) 2.26 0.53		Total  Grand Total	Permanent Marine plants		1	18.76 (subtracted 2 21 f	rom ISA)
Table 6 - Eastern Section man Project Area  Total marine plant distribution	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa	22,587	Hectares (Ha)		Grand Total	Permanent Marine plants Temp Marine plants	18.76	1	18.76 (subtracted 2 21 f	rom ISA)
Table 6 - Eastern Section man Project Area  Total marine plant distribution area within Eastern Section	Marine Plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa  Closed Rhizophora  Saltpan	22,587 5,347	Hectares (Ha) 2.26 0.53 0.09			Permanent Marine plants Temp Marine plants  Marine plants	18.76 54.32	1	18.76 (subtracted 2 21 f	rom ISA)
Table 6 - Eastern Section man Project Area  Total marine plant distribution area within Eastern Section  Actual clearing extent within	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa	22,587 5,347 900	Hectares (Ha) 2.26 0.53 0.09	mangroves	Grand Total	Permanent Marine plants Temp Marine plants	18.76 54.32	1	18.76 (subtracted 2 21 f	rom ISA)
Table 6 - Eastern Section man Project Area  Total marine plant distribution area within Eastern Section  Actual clearing extent within	Marine Plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa  Closed Rhizophora  Saltpan	22,587 5,347	Hectares (Ha) 2.26 0.53 0.09	mangroves	Grand Total	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants	54.32 15.99	1	18.76 (subtracted 2 21 f	rom ISA)
Project Area  Total marine plant distribution area within Eastern Section  Actual clearing extent within works footprint area	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Saltpan	22,587 5,347 900	Hectares (Ha) 2.26 0.53 0.09	mangroves	Grand Total Permanent	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms	54.32	1	18.76 (subtracted 2 21 f	rom ISA)
Table 6 - Eastern Section main Project Area  Total marine plant distribution area within Eastern Section  Actual clearing extent within works footprint area	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Saltpan	22,587 5,347 900	Hectares (Ha) 2.26 0.53 0.09	RE	Grand Total Permanent	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants Muddy bottoms  Actual	54.32 15.99 12.00	1	18.76 (subtracted 2 21 f	Source
able 6 - Eastern Section mai Project Area  rotal marine plant distribution rea within Eastern Section  actual clearing extent within rorks footprint area	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Saltpan	22,587 5,347 900	Hectares (Ha) 2.26 0.53 0.09 0.00 0.37	RE 12.1 2 (LC) saltpan	Grand Total Permanent Temporary	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants Muddy bottoms  Actual  9  7.35	54.32 15.99 12.00 Approved limit for PPL 155 Ad		18.76 (subtracted 2 21 f 2.21	Source 7.35 EA and disturbance
able 6 - Eastern Section main Project Area otal marine plant distribution rea within Eastern Section ctual clearing extent within corks footprint area otal marine plants disturbance	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Closed Rhizophora Saltpan	22,587 5,347 900	Hectares (Ha) 2.26 0.53 0.09 0.00 0.37	RE 12.1 2 (LC) saltpan 12.1 3 (LC) mangroves	Grand Total Permanent Temporary	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants Muddy bottoms  Actual  9  7.35 3 2	54.32 15.99 12.00 Approved limit for PPL 155 0 0.45		Totals 0 0.45	Source 7.35 EA and disturbance 3.65 EA and disturbance
able 6 - Eastern Section mai Project Area  cotal marine plant distribution rea within Eastern Section  cottal clearing extent within corks footprint area  cotal marine plants disturbance	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Closed Rhizophora Saltpan	22,587 5,347 900	Hectares (Ha) 2.26 0.53 0.09 0.00 0.37 - 0.37	RE 12.1 2 (LC) saltpan 12.1 3 (LC) mangroves 12 3 3 (E)	Grand Total Permanent Temporary	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants Muddy bottoms  Actual  7.35 5 3.2 42.76	54.32 15.99 12.00 Approved limit for PPL 155 0 0.45 3.77	ctual	Totals 0 0.45 3.77	Source 7.35 EA and disturbance 3.65 EA and disturbance 46.53 EA and disturbance
able 6 - Eastern Section main Project Area otal marine plant distribution rea within Eastern Section ctual clearing extent within orks footprint area otal marine plants disturbance	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Closed Rhizophora Saltpan	22,587 5,347 900	Hectares (Ha) 2.26 0.53 0.09 0.00 0.37	RE 12.1 2 (LC) saltpan 12.1 3 (LC) mangroves 12 3 3 (E) 12 3.11 (OC)	Grand Total Permanent Temporary	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants Muddy bottoms  Actual  7.35 3 2 45 42.76 2 1.65	54.32 15.99 12.00 Approved limit for PPL 155 0 0.45 3.77 6.715	ctual	Totals 0 0.45 3.77 6.72	Source 7.35 EA and disturbance 3.65 EA and disturbance 46.53 EA and disturbance 8.37 EA and disturbance
Table 6 - Eastern Section mai Project Area  Total marine plant distribution Trea within Eastern Section  Actual clearing extent within Total marine plants disturbance  Total - marine plant disturbance  Muddy Bottom	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Closed Rhizophora Saltpan	22,587 5,347 900	Hectares (Ha) 2.26 0.53 0.09 0.00 0.37 - 0.37	RE 12.1 2 (LC) saltpan 12.1 3 (LC) mangroves 12 3 3 (E) 12 3.11 (OC) 12.11.6 (LC)	Grand Total Permanent Temporary	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants Muddy bottoms  Actual  9 7.35 3 2 42.76 2 1.65 83 73.62	54.32 15.99 12.00 Approved limit for PPL 155 0 0.45 3.77 6.715 21 2	ctual	Totals  0 0.45 3.77 6.72 21 2	Source 7.35 EA and disturbance 3.65 EA and disturbance 46.53 EA and disturbance 8.37 EA and disturbance 94.82 EA and disturbance
able 6 - Eastern Section mai Project Area  Total marine plant distribution rea within Eastern Section  Cutual clearing extent within Procks footprint area  Total marine plants disturbance Total - marine plant disturbance  Total - marine plant disturbance  Total - marine plant disturbance	rine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Closed Rhizophora Saltpan	22,587 5,347 900	Hectares (Ha) 2.26 0.53 0.09 0.00 0.37 - 0.37	RE 12.1 2 (LC) saltpan 12.1 3 (LC) mangroves 12 3 3 (E) 12 3.11 (OC) 12.11.6 (LC) 12.11.6/12.11.14 (LC/OC) (3:1 (75% 25%))	Grand Total Permanent Temporary	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants Muddy bottoms  Actual  9 7.35 3 2 45 42.76 2 1.65 83 73.62 45 44.76	54.32 15.99 12.00 Approved limit for PPL 155 0 0.45 3.77 6.715	ctual	Totals  0 0.45 3.77 6.72 21 2	Source 7.35 EA and disturbance 3.65 EA and disturbance 46.53 EA and disturbance 8.37 EA and disturbance 94.82 EA and disturbance 14.56 EA and disturbance
Table 6 - Eastern Section main Project Area  Total marine plant distribution area within Eastern Section  Actual clearing extent within works footprint area  Total marine plants disturbance footal - marine plant disturbance found by Bottom  AGC Share (50%)	Arine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  e e for Narrows (Ha)	22,587 5,347 900	Hectares (Ha) 2.26 0.53 0.09 0.00 0.37 - 0.37 27.55 24.00	RE 12.1 2 (LC) saltpan 12.1 3 (LC) mangroves 12 3 3 (E) 12 3.11 (OC) 12.11.6 (LC) 12.11.6/12.11.14 (LC/OC) (3:1 (75% 25%)) 12.11.14 (OC)	Grand Total Permanent Temporary Approved limit for PFL 11	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants Muddy bottoms  Actual  9 7.35 5 3 2 45 42.76 2 1.65 83 73.62 45 44.76 2 1.5	54.32 15.99 12.00 Approved limit for PPL 155 0 0.45 3.77 6.715 21 2	ctual	Totals  0 0.45 3.77 6.72 21 2	Source 7.35 EA and disturbance 3.65 EA and disturbance 46.53 EA and disturbance 8.37 EA and disturbance 94.82 EA and disturbance
Table 6 - Eastern Section main Project Area  Total marine plant distribution area within Eastern Section  Actual clearing extent within works footprint area  Total marine plants disturbance footal - marine plant disturbance footal - marine footal - m	Arine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  e e for Narrows (Ha)	22,587 5,347 900	Hectares (Ha)  2.26  0.53  0.09  0.00  0.37  -  0.37  27.55  24.00	RE 12.1 2 (LC) saltpan 12.1 3 (LC) mangroves 12 3 3 (E) 12 3.11 (OC) 12.11.6 (LC) 12.11.6 (LC) 12.11.14 (OC) Species	Grand Total Permanent Temporary	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants Muddy bottoms  Actual  7.35 5 3.2 45 42.76 2 1.65 83 73.62 44.76 2 5 Source	54.32 15.99 12.00 Approved limit for PPL 155 0 0.45 3.77 6.715 21 2	ctual	Totals  0 0.45 3.77 6.72 21 2	Source 7.35 EA and disturbance 3.65 EA and disturbance 46.53 EA and disturbance 8.37 EA and disturbance 94.82 EA and disturbance 14.56 EA and disturbance
Table 6 - Eastern Section main Project Area  Total marine plant distribution area within Eastern Section  Actual clearing extent within works footprint area  Total marine plants disturbance footal - marine plant disturbance footal - marine footal - m	In plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  e for Narrows (Ha)	22,587 5,347 900	Hectares (Ha) 2.26 0.53 0.09 0.00 0.37 - 0.37 27.55 24.00	RE 12.1 2 (LC) saltpan 12.1 3 (LC) mangroves 12 3 3 (E) 12 3.11 (OC) 12.11.6 (LC) 12.11.6 (LC) 12.11.14 (OC) Species Koala <i>Phascolarctos cinereus</i>	Grand Total Permanent Temporary Approved limit for PFL 11	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants Muddy bottoms  Actual  7.35  3 2  45  42.76 2 1.65 83 73.62 44.76 2 1.5 Source 44 Unidel ecological	54.32 15.99 12.00 Approved limit for PPL 155 0 0.45 3.77 6.715 21 2	ctual	Totals  0 0.45 3.77 6.72 21 2	Source 7.35 EA and disturbance 3.65 EA and disturbance 46.53 EA and disturbance 8.37 EA and disturbance 94.82 EA and disturbance 14.56 EA and disturbance
Table 6 - Eastern Section man Project Area  Total marine plant distribution area within Eastern Section  Actual clearing extent within	Arine plant distribution and disturbance  Marine Plant Type  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  Z. Capricorni, H. Ovalis, H. Decipiens and H. Spinulosa Closed Rhizophora Saltpan  e e for Narrows (Ha)	22,587 5,347 900	Hectares (Ha)  2.26  0.53  0.09  0.00  0.37  -  0.37  27.55  24.00	RE 12.1 2 (LC) saltpan 12.1 3 (LC) mangroves 12 3 3 (E) 12 3.11 (OC) 12.11.6 (LC) 12.11.6 (LC) 12.11.14 (OC) Species	Grand Total Permanent Temporary Approved limit for PFL 11	Permanent Marine plants Temp Marine plants  Marine plants Muddy bottoms  Marine plants Muddy bottoms  Actual  7.35 5 3.2 45 42.76 2 1.65 83 73.62 44.76 2 5 Source	54.32 15.99 12.00 Approved limit for PPL 155 0 0.45 3.77 6.715 21 2	ctual	Totals  0 0.45 3.77 6.72 21 2	Source 7.35 EA and disturbance 3.65 EA and disturbance 46.53 EA and disturbance 8.37 EA and disturbance 94.82 EA and disturbance 14.56 EA and disturbance

Shorebirds

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# APPENDIX H: GLNG GTP MARINE IMPACTS BY LOCATION

LOCATION (KP from Alignment Sheets)	DESCRIPTION	AREA DISTURBED (Zone A – Below HAT m²)	AREA DISTURBED (Zone B – Above HAT m²)
KP 406.8	Humpy Creek (northern minor tributary of creek)	317	54
KP 407.5	Mudflat / Saltpan Area	71	566
KP 407.8	Humpy Creek (southern creek line)	62	91
KP 408.17	Drainage Feature	840	133
KP 408.4	Oxbow adjacent Targinnie Creek	94	37
KP 408.5	Targinnie Creek	574	274
KP415.1	Curtis Island – Drainage feature to Graham Ck	30	173
TOTAL AREA (Curtis Is	land and Mainland)	2,554	1,328



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