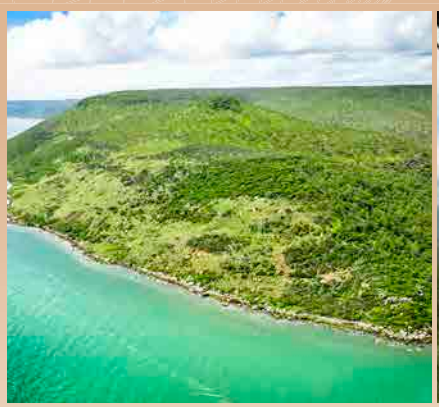
AUST-PAC CAPITAL PTY LTD

WONGAI

INITIAL ADVICE STATEMENT
NOVEMBER 2011



CQG Consulting

WONGAI PROJECT

Document History and Status

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Draft	1	27/05/2011	Aust-Pac Capital Balkanu Cape York Development Corporation CQG Editor (Nev Hore)
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Final	1	25/11/2011	CG Office (minor edits timeline, groundwater)

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Name of Project: Initial Advice Statement – Wongai Project

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1. Executive Summary

The Wongai Project (the Project) was initiated by an approach by the Kalpowar Traditional Owners to the Managing Director of Aust-Pac Capital Pty Limited (APC), seeking technical and financial assistance for the development of sustainable economic enterprises including an underground coking coal mine.

Through extensive discussions and negotiations, a Heads of Agreement was executed on 27 July 2011 between APC and

- Traditional Owners of Kalpowar;
- Kalpowar Aboriginal Land Trust;
- Neighbour Groups of Lakefield and Starke South and Starke North; and
- Kalpowar Land Act Reserve Limited.

The agreement provides the local Indigenous community with

- Free carried equity;
- Appointment of two Traditional Owners to the Board of APC;
- Additional portion of project profit directed to a Not For Profit Trust, dedicated to Cape York Indigenous education, environmental and housing needs; and
- A generous "head start" education and training fund to maximize job opportunities to local Indigenous persons.

This Initial Advice Statement (IAS) provides a preliminary overview to the existing environmental, cultural, economic and social values of the project area (EPC 2334) and identifies the potential impacts that may be associated with construction and operation of the Project based on desk top studies.

The proposed Project will involve the development of an underground coal mine with a target production of approximately 1.5 million tonnes per annum (Mtpa). construction of supporting infrastructure including offices, training centre, workshops, accommodation camp, on-site power generation, potable water treatment plant and sewerage treatment. New transport infrastructure will be developed and existing transport infrastructure upgraded. Coal will be transferred approximately 20 kilometres to the coast via an enclosed conveyor system to covered barges prior to loading onto ships for export.

This IAS has been prepared by CQG Consulting to enable

- The Coordinator-General (CG) to decide whether the Project is a "Significant Project" under the provisions of the *State Development and Public Works Organisation Act 1971 (Qld), SDPWO Act;*
- The Commonwealth Minister for the Environment to decide whether the Project is "Controlled Action" under the *Environment Protection and Biodiversity Conservation Act 1990 (Cth) (EPBC Act*) as part of the referral under that Act; and
- The preparation of a joint Terms of Reference for the EIS.

2. Introduction

2.1 Background

Utah Development Company (UDC), BHP Australia and Bathurst Coal and Power Limited (BPCL) conducted extensive geotechnical investigations across the resource (then known as EPC 463) in the 1970s, 1980s and the 1990s. Exploration conducted by UDC identified a potentially economic seam of low in-situ coking coal at a depth of approximately 250 metres.

An indicated resource of over 50 million tonnes was identified. The aim of the proposed 2011 exploration program is to increase the level of geological confidence to a JORC Indicated status providing investors with more confidence in the viability of the Project.

The JORC code is a process for reporting of resources and reserves which sets out the minimum standards required for the public reporting of a company's mineral deposits.

Current activity on Kalpowar Station is limited to recreational fishing by the local community members and seasonal visitors and to ongoing capture and slaughter of free roaming cattle. The continuation of such activity will not be impacted by the proposed Wongai Project.

2.2 Proponent

Aust-Pac Capital Pty Limited (ABN 94103653425) is acting as Trustee for the Wongai Project Trust. The Managing Director of APC is John Benson, who is known in Cape York for his initiatives in Indigenous housing and support for Djarragun College (leading Indigenous School).

APC is supported by APAC Resources Limited, an established investment company listed on the Hong Kong Stock Exchange (Stock Code 1104). Annual Consolidated Profit reported for the year 2010 exceeded HK$1.1 billion.

The Traditional Owners of Kalpowar and related parties have executed a Heads of Agreement as detailed above in Executive Summary and will be included in all aspects of the Management and Operation of the Project.

3. The Proposal

3.1 Location

The Project which has been nominated as a level 2 mining activity under the *Mineral Resources Act 1989* by the Department of Employment, Economic Development and Innovation (DEEDI) is to be developed on part of EPC 2334 (14 degree 24'41"S, 144 degree 14'47"E) which is located 150 kilometres north-west of Cooktown, 320 kilometres north of Cairns and is situated on the eastern side of Princess Charlotte Bay in Cape York (see Figure 3.1). The Project is contained within the boundaries of EPC 2334 and is primarily planned for freehold land (Lot 7 on SP156403) (see Figure 3.3) owned by the Kalpowar Aboriginal Lands Trust. The Project will not impact the National Park (Lot 2 on AP12349) situated to the east of the proposed mine area, nor the National Park (Lot 10 on NPW626) situated to the west of the Project site. The proposed project footprint will be set back from the National Park. The Nature Refuge (Lot 4 on SP156403) will not be impacted by mining activities; however, adjacent tenure may be used for access purpose. The Project is within the boundary of the Cooktown Shire Council local government area.

3.2 Project Description

The proposed Project is the development of an underground coking coal mine in the Laura Basin.

A concept plan is shown in Figure 3.2.

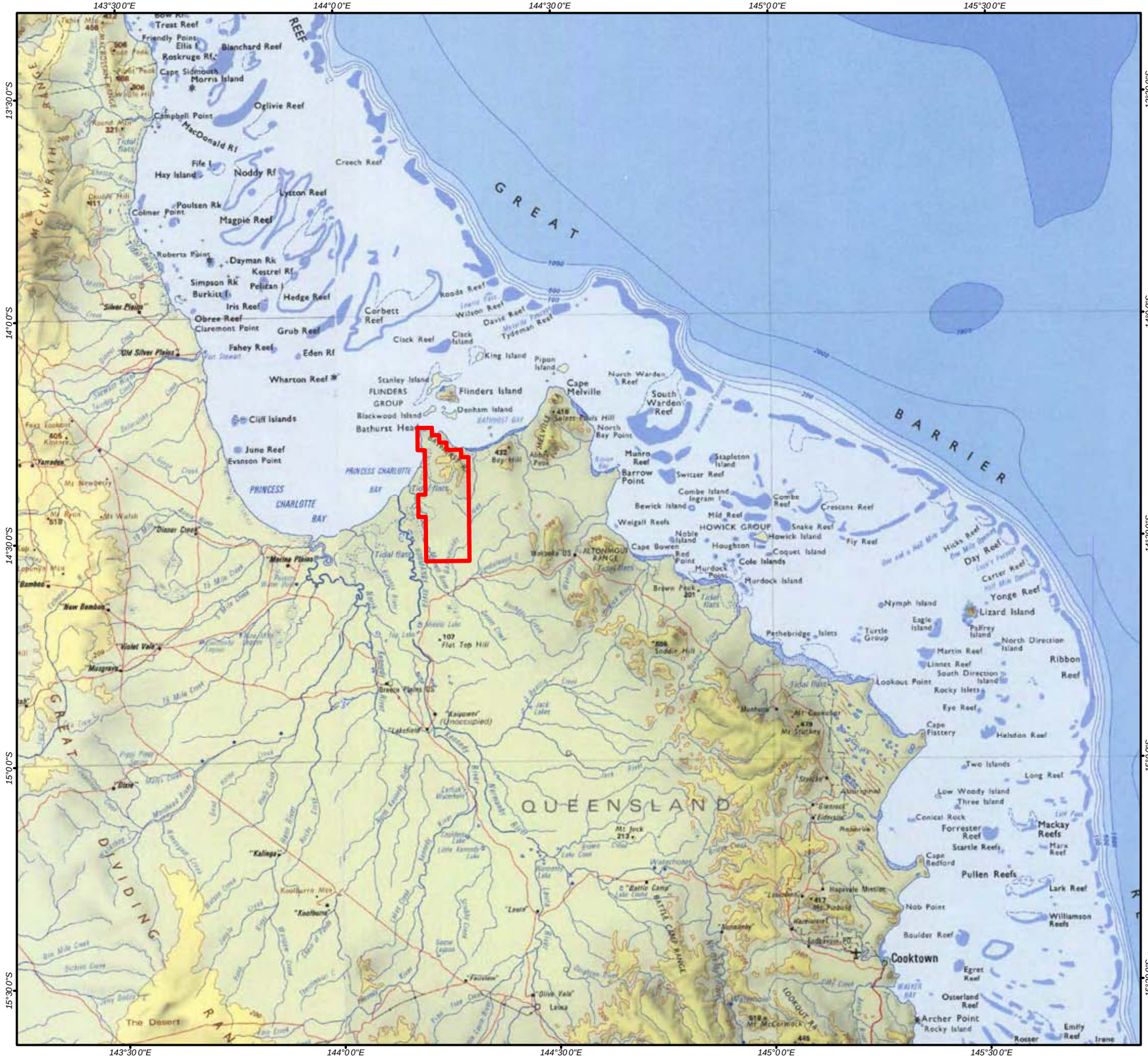
- Underground coal mining at an estimated production rate of 1.5 Mtpa using bord and pillar mining;
- Crushing and sizing coal via a Coal Handling and Preparation Plant (CHPP) (no washing of coal is intended);
- Stockpiling of processed coal approximately 50,000 tonnes adjacent to CHPP;
- Transfer of coal via closed conveyor (15 kilometres) to approximately 100,000 tonne stockpile around three kilometres on the landside from the coast;
- Transfer by elevated closed conveyor and jetty structure to 5,000 (DWT) tonne capacity barges (shallow draft to avoid the need to dredge, see Photograph 3.1 below); and
- Ten kilometre barge movement to existing shipping channel (see Figure 3.4) to transfer coal onto a transhipper by closed conveyor or direct unloading onto export vessels within the designated shipping channel.

The current mine plan includes:

- Mine design capacity 1.7Mtpa;
- Mine production target 1.5Mtpa;
- Estimated capital investment AU$500 million;
- Operations limited to 10 months per annum with maintenance activities during the wet season;
- A 150 man camp and supporting facilities; and
- Infill drilling program to complete the next study phase of 19 holes.

The barges and the sea-going vessels will be designed to Australian Standards and International Lloyd's classification.

The maintenance facilities and anchorages for barges will be located at the barge loading facility. Barging operations will depend on mine operations, barge loading requirements and climatic conditions. Navigational aids will be required along the route to enable round-the-clock operation. The feasibility team will consult with Maritime Safety Queensland (MSQ) to determine navigational requirements.



Legend

EPC 2334

N

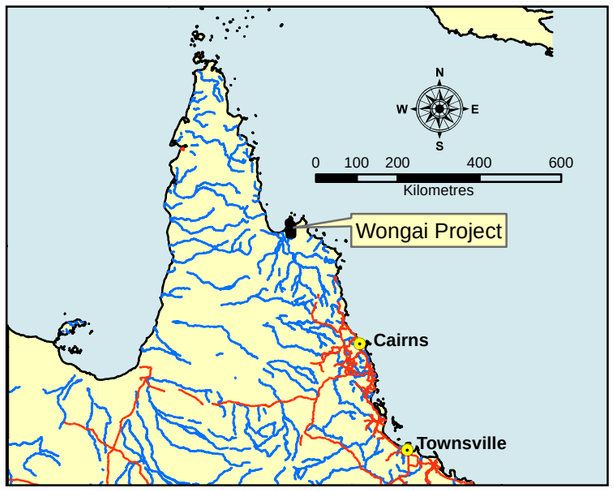
Scale 1:1,000,000 (A3)

0 10 20 40 60 80

Kilometres

Map Projection: GDA94

Figure: Project Location
Project: Wongai Project
Date: 15/08/2011 **Author:** CQ Consulting Group
Document Path: Figure_3-1_A3



WONGAI PROJECT

Figure 3.1
EPC 2334 Wongai Project Site

-CONCEPT ONLY-

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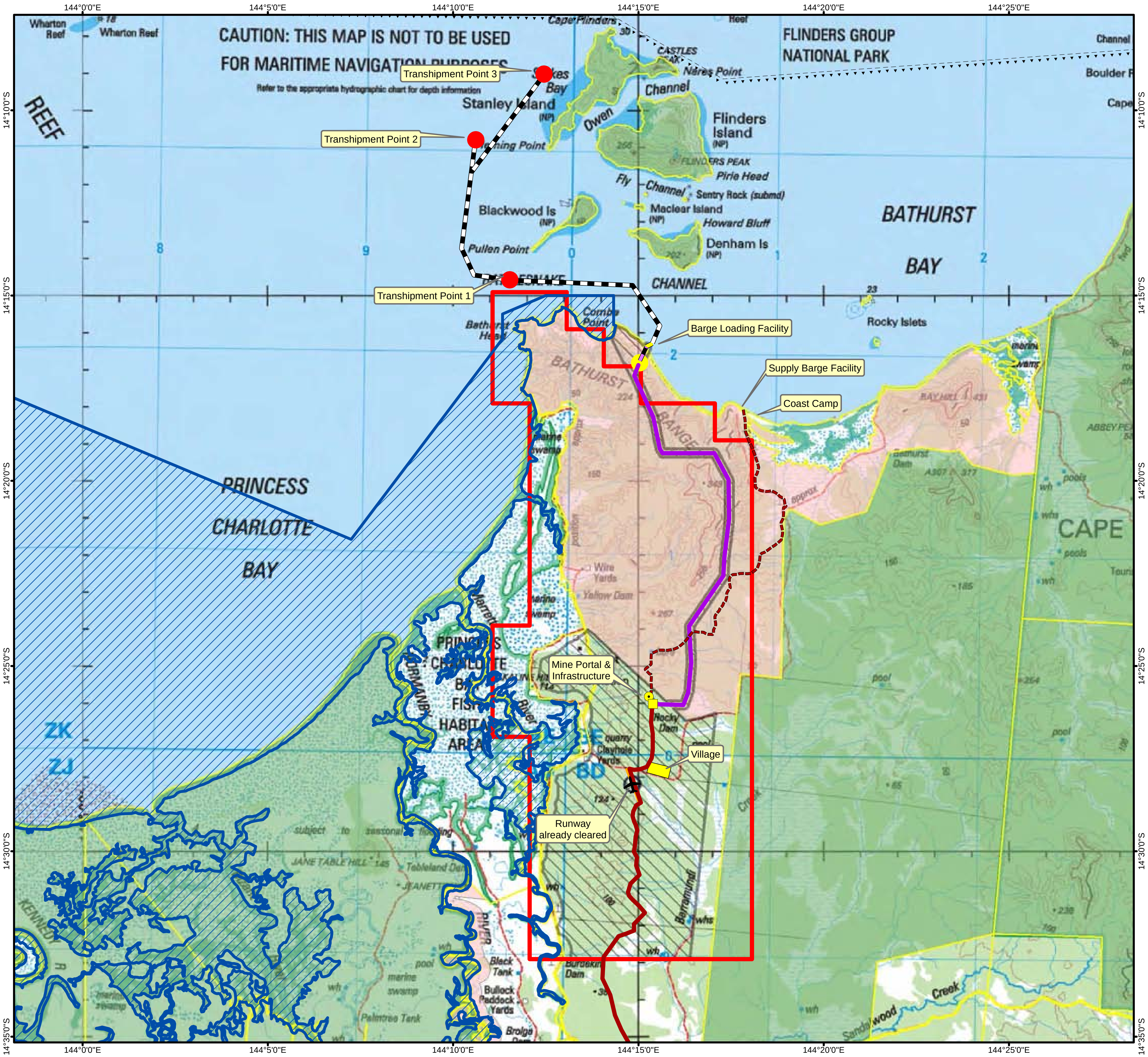

CAUTION: THIS MAP IS NOT TO BE USED FOR MARITIME NAVIGATION PURPOSES
Refer to the appropriate hydrographic chart for depth information
Transhipment Point 3
Transhipment Point 2
Transhipment Point 1
Barge Loading Facility
Supply Barge Facility
Coast Camp
Mine Portal & Infrastructure
Village
Runway already cleared
FLINDERS GROUP NATIONAL PARK
Stanley Island
Flinders Island
Blackwood Is
Denham Is
Maclear Island
BATHURST BAY
PRINCESS CHARLOTTE BAY
CAPE
REEF
Rocky Islets
144°0'0"E
144°5'0"E
144°10'0"E
144°15'0"E
144°20'0"E
144°25'0"E
14°10'0"S
14°15'0"S
14°20'0"S
14°25'0"S
14°30'0"S
14°35'0"S

Legend

- Transhipment Points
- Mine Infrastructure Area
- Mine Portal
- Existing Coastal Road
- All Weather Access
- Port Stockpile
- Sealed Air Strip
- Village
- Shipping Channel 'A'
- Fish Habitat Areas
- EPC 2334
- Study Area
- Cadastral Parcels
- Nature Refuges
- National Parks

Conveyor Options

- Preferred Option
- Preferred Option - Rope Conveyor
- Barge Routes
- Barge Loading Facility

N

Scale 1:200,000 (A3)

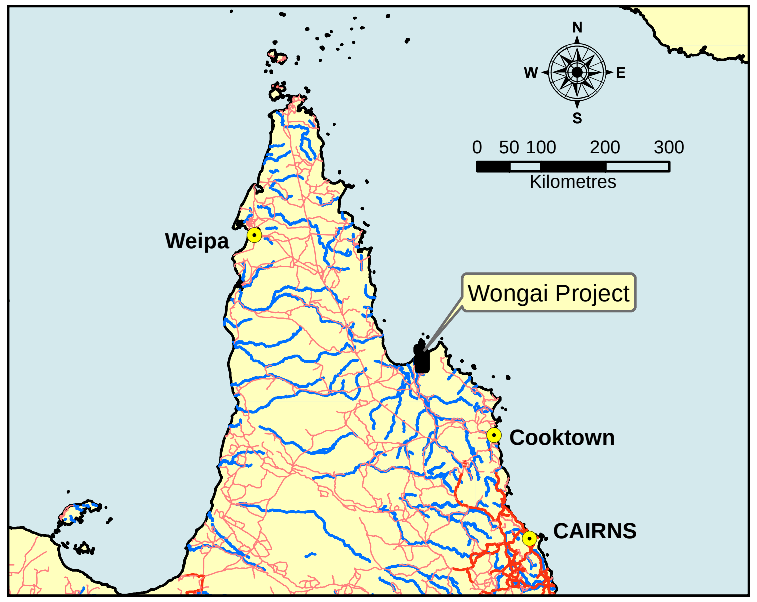
0 1 2 4 6 8 10

Kilometers

Map Projection: GDA94

Note: All activities associated with the proposal will be conducted outside the nominated setback buffer zones.

Figure: Wongai Project Concept Plan
Project: Wongai Project
Date: 15/08/2011 **Author:** CQ Consulting Group
Document Path: Figure_3-2_A3



WONGAI PROJECT

Figure 3.2
Wongai Project Concept Plan

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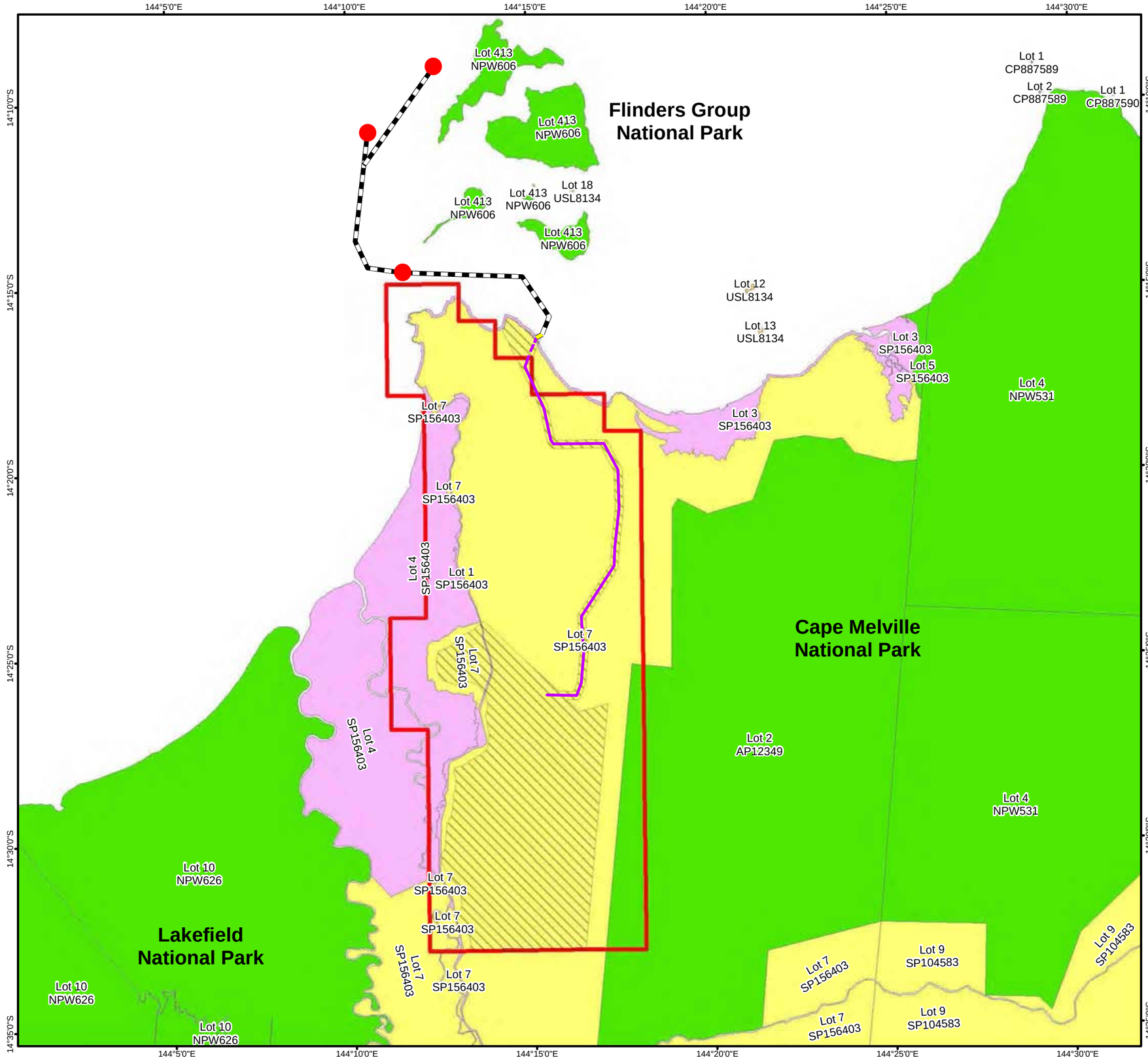

Legend

- Transhipment Points
- Barge Routes
- Barge Loading Facility

Overland Conveyor

- Preferred Option
- Preferred Option - Rope
- Study Area
- EPC 2334

Cadastral Parcels

- Freehold
- National Park
- Reserve
- State Land

N

Scale 1:200,000 (A3)

0 1 2 4 6 8 10

Kilometres

Map Projection: GDA94

Figure: Tenure
Project: Wongai Project
Date: 15/08/2011 **Author:** CQ Consulting Group
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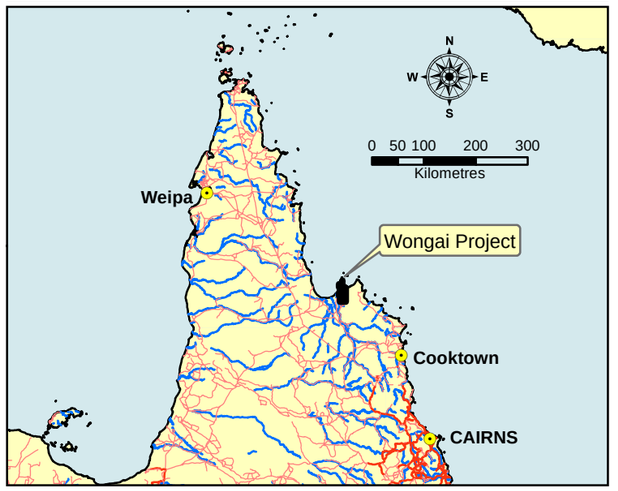

WONGAI PROJECT

Figure 3.3
Wongai Project Tenure

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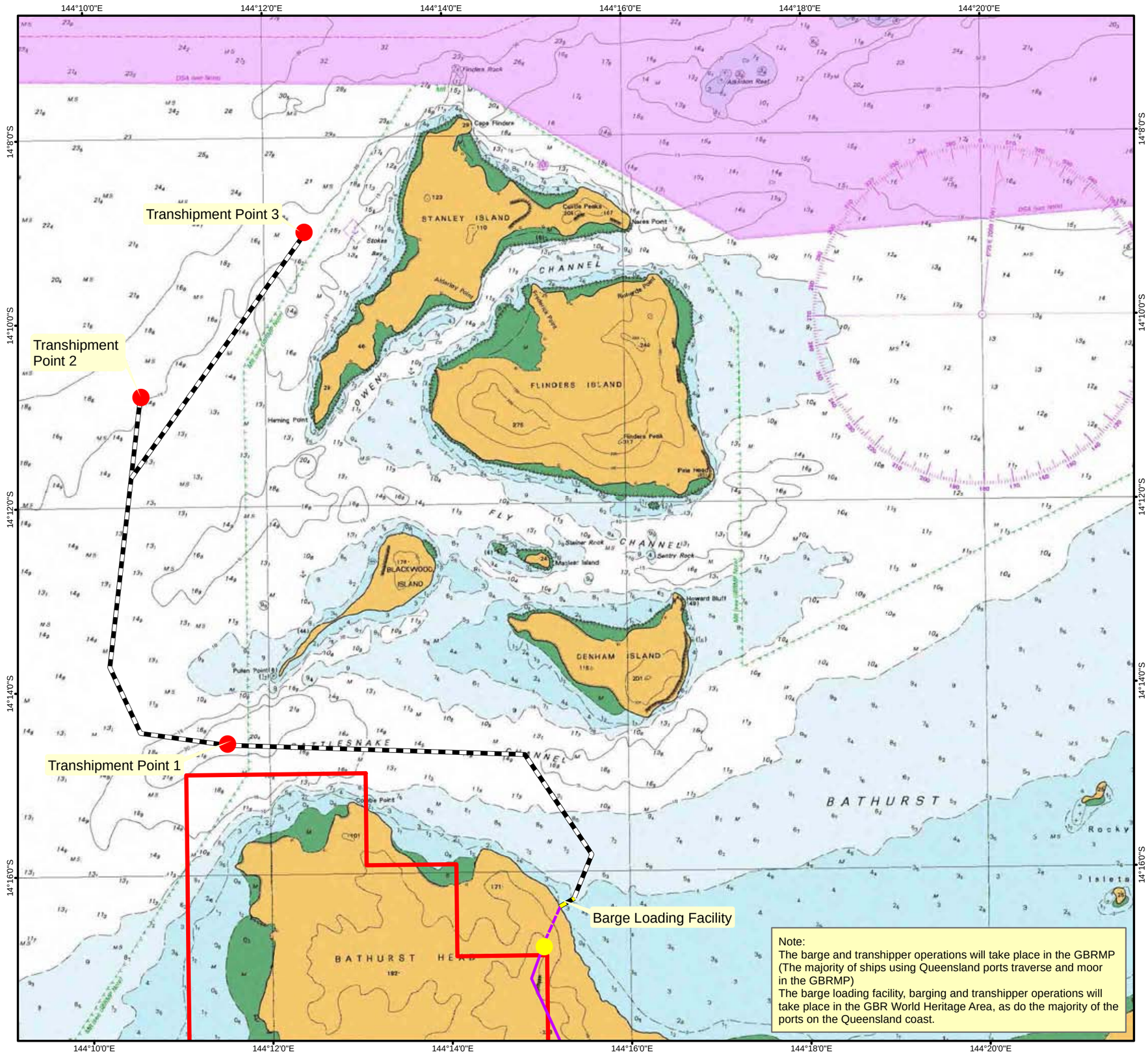


Legend

- Transhipment Points
- Port Stockpile
- Barge Routes
- Barge Loading Facility
- Barge Route

Overland Conveyor

- Preferred Option
- Preferred Option - Rope
- EPC 2334
- Designated Shipping Area

N

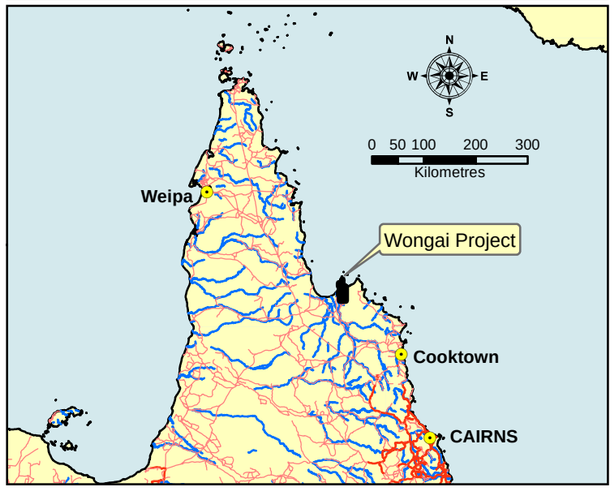
Scale 1:80,000 (A3)

0 750 1,500 3,000 4,500 6,000

Metres

Map Projection: GDA94

Figure: Shipping Detail
Project: Wongai Project
Date: 15/08/2011 **Author:** CQ Consulting Group
Document Path: Figure_3-4_A3



WONGAI PROJECT

Figure 3.4
Proposed Barging Routes

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3.3 Tenure

The Project is contained within the boundaries of EPC2334 and is primarily planned for freehold land (Lot 7 on SP156403) owned by the Kalpowar Aboriginal Land Trust which was set up "to benefit Aboriginal people particularly concerned with the land and their ancestors and descendants under the *Aboriginal Land Act 1991*" (refer to Figure 3.3). The Project will be set back at least one kilometre from and will not impact the National Park (Lot 2 on AP12349) situated to the east of the Project nor the National Park (Lot 10 on NPW626) situated to the west of the Project. The Nature Refuge (Lot 4 on SP156403) will not be impacted by mining; however, adjacent tenure (Lot 1 on SP156403 and Lot 3 on SP156403) may be used for access purposes.

Table 3.1 lists the land tenure, lot numbers, current purpose and holders for the various tenures within and adjacent to the Project Site.

Table 3.1: Land Tenure for likely Project Area

Title	Tenure	Current Purpose	Holder
Lot 4 on SP156403	Reserve	Indigenous Land Use Agreement	Kalpowar Land Act Reserves Trustees Limited
Lot 7 on SP156403	Freehold	Indigenous Land Use Agreement	Kalpowar Aboriginal Land Trust
Lot 1 on SP156403	Reserve	Indigenous Land Use Agreement	Kalpowar Land Act Reserves Trustees Limited and Environmental Protection Agency
Lot 3 on SP156403	Reserve	Indigenous Land Use Agreement	Kalpowar Land Act Reserves Trustees Limited
Lot 5 on SP156403	Freehold	Indigenous Land Use Agreement	Kalpowar Land Act Reserves Trustees Limited
Lot 2 on AP12349	National Park	National Park	Environmental Protection Agency (now DERM)
Lot 10 on NPW626	National Park	National Park	Environmental Protection Agency (now DERM)

Cadastral mapping shows the majority of the Study Area as being Freehold land (see Figure 3.3).

A title search was undertaken for Lot 1 on SP156403 and Lot 3 on SP154603, which revealed this land is Reserve tenure for the purpose of 'Aboriginal and Recreation' and 'Aboriginal, Beach Protection and Environmental Reserve' respectively (refer to Figure 3.3). The Project proposes to construct the barge loading facility on this parcel of land if the Project is granted approval. The gazetted trustees of the land are detailed in Table 3.1.

An access licence was established between the Land Trust and the Vietnam Veterans in 2007 allowing access to certain parts of Lot 7 on SP156403 for the purpose of providing a meeting place. There are specific requirements in the licence in regards to protection of environmental and cultural heritage values and the restriction to only access the land during the dry season. Details of this licence where relevant to the Project will be explained in the EIS.

An easement also exists over Lot 7 on SP156403 (Easement Number 710898291). The Nature Refuge is outlined as a dealing on the title (Dealing Number 709346573).

3.4 Infrastructure

For economic advantage and minimizing the environmental impact, the Project will take full advantage of the activity carried out by previous exploration companies. Old access roads and tracks will be used and upgraded where necessary, and the old UDC mine camp will also be utilized. The existing airstrip may also be upgraded as part of the Project.

Options for the location of the main coal stockpile will be investigated in detail during the EIS. Preliminary investigations have identified two potential sites for this stockpile in predominantly flat areas requiring minimal earthworks and clearing that are not visible from the coast or other vantage points on the property. The actual size of the coal stockpile footprint has not been determined however it is expected to be around two hectares which is relatively small compared to most mine sites due to the low volumes being stockpiled. Various options are being considered for stockpile management including the possibility of covering the stockpile to minimise the size of the stormwater ponds which would be necessary to capture run-off for dust suppression.

Approximately eighty percent of the required conveyor access route to the coast can follow previously cleared grid lines.

Road access to the site during the wet season is very difficult and as a consequence, operations will be limited to 10 months per annum.

3.5 Workforce

The construction and operation of the mine will result in significant employment and training opportunities especially for the local communities of Cape York. Up to 250 people will be employed during the construction and commissioning period and some 200 people will be employed during mine operations.

In excess of 45 local Indigenous people have been identified as currently working in the mining industry in other parts of Australia and have indicated strong interest in returning to their communities. A strong emphasis is placed on job specific training programs for the local communities of Hopevale, Laura and Cooktown.

3.6 Project Justification

Communities within this area of Cape York experience difficulty attracting investment capable of supporting sustainable job opportunities due to the remoteness from commercial market and lack of all weather access.

The economic fundamentals of the Project are strong with positive long term forecast for the demand of steel making quality coal. The capital investment is estimated to be AU$500 million, with “life of mine” a minimum of thirty years.

Other economic benefits resulting from the Project will include:

- Approximately 200 full time jobs for local people with a flow on positive creation of 600 jobs;
- Royalties and taxes collected by State and Federal Government;
- Increases export income;
- Encourages supporting Regional Development; and
- Provision of improved road, air and water access to the area.

3.7 Project Timing

Timing of the Project is dependent on a number of internal and external factors, including securing approvals.

Sufficient barge stocks are available, or there is sufficient lead time to build such stock if required. There are also many reliable international barging contractors who have fleets of suitable sized barges and equipment that may be used instead of building a dedicated fleet.

Following receipt of all approvals a 12 to 18 month period will be required to construct the mine infrastructure, as well as order and mobilise other associated equipment such as rolling stock, long wall equipment, barges and facilities.

Table 3.2 provides details of the currently anticipated timelines through to commissioning. These timelines are dependent on site access which is limited in the wet season.

Table 3.2: Proposed Timeline for Wongai Project

STAGE	CURRENT SCHEDULE
Submission of IAS and commencement of EIS process	Q3 2011
Commencement of Engineering Feasibility Study	Q3 2011
Referral to Australian Government (EBPC Act)	Q3 2011
State Significant Declaration Decision under SDPWO	Q4 2011
Exploration Permit for Coal Approved	Q4 2011
EIS and other investigations	Q3 2011 to Q3 2012
TOR Finalised	Q1 2012
EIS on public display	Q3 2012
Coordinator-General's Evaluation Report under SDPWO Act	Q4 2012
Australian Environment Minister's Decision under the EPBC Act	Q4 2012
Mining lease under MR Act	Q4 2012
Environmental Authority under the MR Act	Q4 2012
Local and State assessment	Q4 2012
Commence onsite construction	2013
Commissioning	2014

4. Existing Environment

4.1 Introduction

Development and operation of the proposed underground coal mine and transhipping operations could result in environmental, social or cultural impacts if appropriate mitigation measures are not implemented. The following overview of the existing environment and an initial assessment of potential impacts are based on information drawn from available published data and previous studies undertaken within the Project Site and surrounds.

4.2 Physical Environment

4.2.1 Geology and soils

The Project Site displays outcrops of Permian Altanmoui granite, formed about 250 million years ago. At the nearby Cape Melville the granite has weathered into distinctive boulders forming an unusual mountain range. On the Altanmoui Range the granite is overlaid by sandstone (Battlecamp formation) deposited about 120 million years ago when the region was below the sea. Sediments formed by weathering of the ranges have accumulated around the base of the ranges and vegetated inland dunes are found between the two ranges.

The massive, tumbled granite boulders of the Melville Range and the sandstone escarpments of the Altanmoui Range dominate the inland regions of the Cape Melville National Park.

The geology of the Project Site is complex with the western edge of the Project Site dominated by the Quaternary alluvium geological formations deposited during the Cainozoic period (1.78 million years ago to present day), which comprises of gravel, sand, silt and clay as well as, mangrove swamps, mudflats and saltpans.

The Gilbert River Formation and Dalrymple Sandstone are comprised mainly of quartz, subliabile sandstone and minor shale and were laid down from the early cretaceous to the middle Jurassic period (100-170 million years ago). These formations form the major elevated areas of the Project Site.

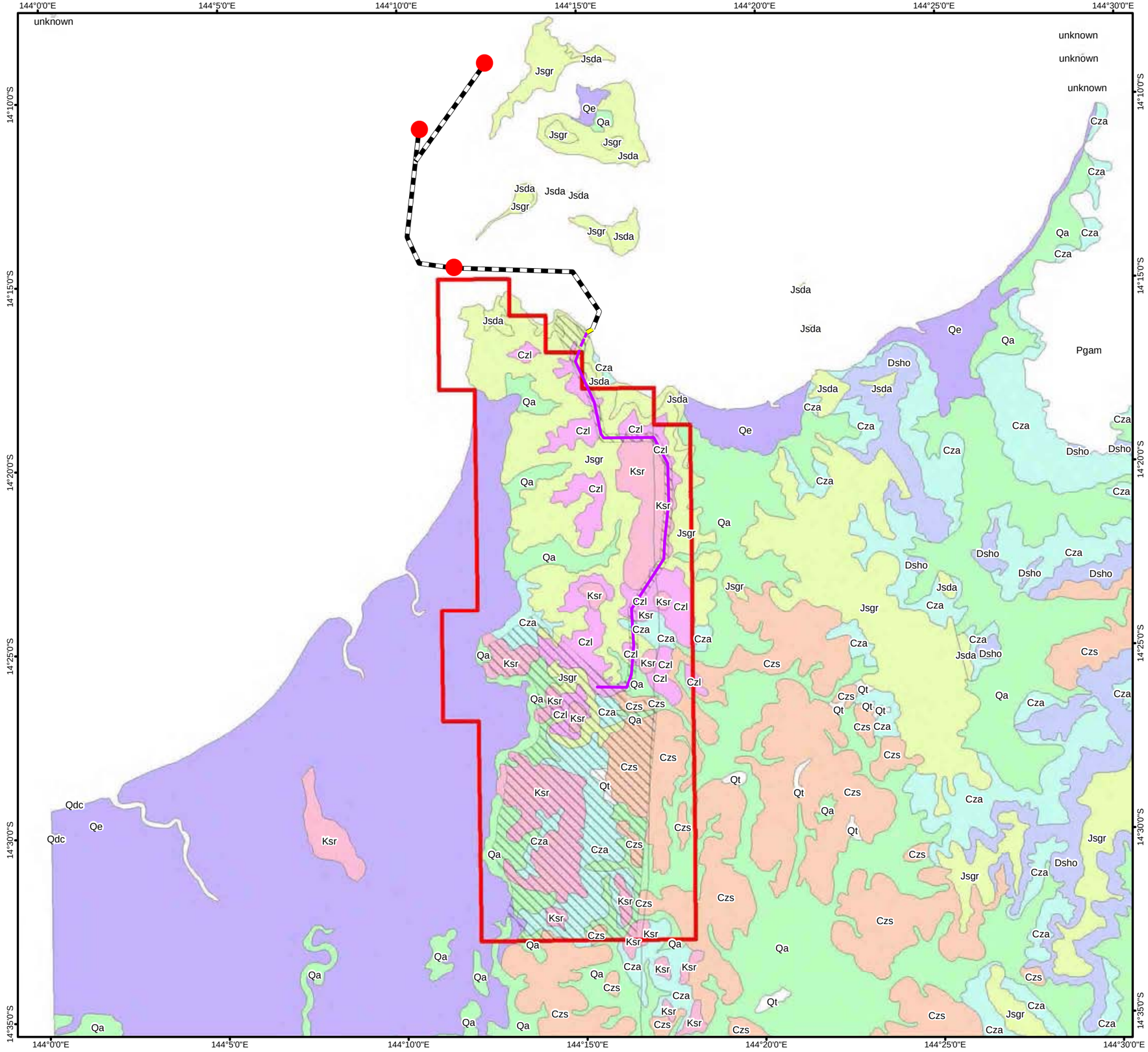
Geoscience Australia's (2010) surface geology of Australia identifies that the study area comprises the geological units as presented in Figure 4.1 and described in Table 4.1.

The majority of the Study Area is classified as having kandosol soils, defined as structure-less, well-drained soils with low fertility. The remainder of the Site is mainly a combination of tenosol; weakly developed soils with poor water retention, typically sandy, and hydrosol; seasonally or permanently wet soils prone to Acid Sulfate Soils.

With reference to the *'State Planning Policy 2/02 Guideline, Acid Sulfate Soils'*, Acid Sulfate Soils (ASS) occur predominantly in low-lying coastal areas generally below RL five metres Australian Height Datum (AHD), such as the alluvial and estuarine deposits within the Study Area.

Table 4.1: Geological Units of the Study Area

ID	STRAT NO	Formation /Group	Min Age	Max Age	Description
Qa	38485	alluvium 38485	Holocene	Holocene	Channel and flood plain alluvium; gravel, sand, silt, clay; may be locally calcreted.
Czs	38499	sand plain 38499	Cenozoic	Cenozoic	Sand or gravel plains; may include some residual alluvium; quartz sand sheets commonly with ferruginous pisoliths or pebbles; local clay, calcrete, laterite, silcrete, silt, colluvium.
Cza	38494	alluvium 38494	Quaternary	Cenozoic	Reworked or incised alluvium in older stream channels; alluvial terraces above younger alluvium; alluvial and colluvial outwash deposits not in defined channel systems; lateritised alluvium; sand, silt, gravel, clay, evaporates.
Js	7197	Gilbert River Formation	Early Cretaceous	Middle Jurassic	Clayey quartz sandstone, some sublabile and glauconitic sandstone. Minor ferruginised shale. Locally bioturbated.
Ks	16267	Rolling Downs Group	Albian	Aptian	Grey mudstone, siltstone and fine sandstone, minor glauconitic sandstone; locally hardened and partially calcreted grey clayey regolith interpreted as slaked unstable mudstone.
Czl	38498	ferruginous duricrust 38498	Cenozoic	Cenozoic	Ferruginous duricrust, laterite; pisolitic, nodular, vuggy; may include massive top isolitic ferruginous subsoil, mottled clays, magnesite, reworked products of ferruginous and siliceous duricrusts, calcrete, gossan; residual ferruginous saprolite.
Js	5157	Dalrymple Sandstone	Early Cretaceous	Middle Jurassic	Cross-bedded quartz and sublabile sandstone locally labile, conglomerate, minor shale; rare skolithos beds; non-marine, fluvial sedimentary sequence.
Qe	38489	estuarine and delta deposits 38489	Quaternary	Quaternary	Estuarine, tidal delta and lagoonal deposits; coastal mud flats, silt and evaporite deposits; may contain older vegetated black soils.
Qt	38492	lake deposits 38492	Quaternary	Quaternary	Lake and swamp deposits; mud, silt, evaporites, limestone; minor sand, peat.



Legend

- Transhipment Points
- Barge Routes
- Barge Loading Facility

Overland Conveyor

- Preferred Option
- Preferred Option - Rope
- Study Area
- EPC 2334
- Cza
- Czl
- Czs
- Ds
- Js
- Ks
- Qa
- Qe
- unk

N

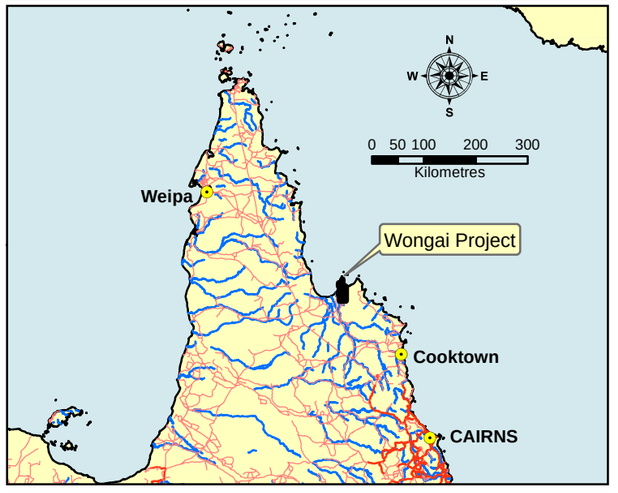
Scale 1:200,000 (A3)

0 1 2 4 6 8 10

Kilometres

Map Projection: GDA94

Figure: Geology
Project: Wongai Project
Date: 15/08/2011 **Author:** CQ Consulting Group
Document Path: Figure_4.1_A3



WONGAI PROJECT

Figure 4.1
Geology of Study Area

-CONCEPT ONLY-

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4.2.2 Topography

The Project lies on the eastern side of the Laura Basin, and is dominated by the Bathurst Range which runs through the northern part of the Project Site with four distinct ridge summits reaching 349, 267, 256 and 224 metres above sea level respectively.

The northern seaward edge of the Project Site comprises low rolling hills interrupted by tiny sandy beaches and steep rocky escarpments. Princess Charlotte Bay has broad tidal flats that extend upstream along the Marrett River with smaller sections of tidal flat adjoining Bathurst Bay. The tidal flats are interrupted by chenier plains that remain from previous shorelines and beach ridges.

Low lying areas of the Study Area particularly in the catchment of Barramundi Creek form extensive flood plains that are seasonally inundated.

4.2.3 Climate

As no Bureau of Meteorology (BoM) data is available for the Kalpowar/Bathurst area in relation to maximum mean temperatures, the alternative weather station of Cooktown Airport and Musgrave were used to report on temperatures and rainfall for the Project Site.

The average maximum air temperature recorded at these stations is 33.5 degrees Celsius with the summer and winter average maxima between 32 and 27 degrees, respectively.

The region has a tropical climate and experiences average annual rainfall of approximately 2600 millimetres. The majority of rainfall occurs during the summer months particularly in December.

Climate data for Cooktown, is presented in Table 4.2. Cooktown is located approximately 150 kilometres north-west of the Project Site. Climate data for Musgrave is presented in Table 4.3. Musgrave is located approximately 90 kilometres south-west of the Project Site.

Table 4.2: Cooktown Airport - Meteorological Records (2000-2011)

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Temperature														
Mean maximum temperature (°C)	31.7	31.8	30.4	29.1	27.8	26.9	26.2	27.0	28.8	30.4	31.5	32.2	29.5	2000 - 2011
Mean minimum temperature (°C)	24.3	24.4	23.8	23.0	20.8	20.1	17.7	18.5	21.0	22.6	23.8	24.5	22.0	2000 - 2011
Rainfall														
Mean rainfall (mm)	278.4	297.3	393.3	164.7	31.7	32.2	23.2	18.9	7.5	23.4	76.7	152.3	1456.9	2000 - 2011

All data sourced from the BoM, 2011

Table 4.3: Musgrave Meteorological Records (1907 - 2010)

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Temperature														
Mean maximum temperature (°C)	33.2	32.7	32.3	31.8	30.7	29.8	29.7	30.8	33.1	34.6	35.5	34.8	32.4	1907 - 2010
Mean minimum temperature (°C)	23.2	23.2	22.4	19.9	17.0	15.0	13.7	13.9	15.7	18.4	20.8	22.7	18.8	1907 - 2010
Rainfall														
Mean rainfall (mm)	270.7	294.3	238.6	73.8	15.2	9.6	4.0	3.0	3.5	13.6	59.4	179.8	1173.2	1887 - 2011

All data sourced from the BoM, 2011

The BoM has compiled wind rose data for Cooktown which identifies that the prevailing winds are predominately south-east with calm conditions experienced eleven per cent of the time (BoM, 2011). The Kalpowar Bathurst region lies within the cyclone risk zone and statistically will be subject to 0.4 cyclones per annum (BoM, 2011).

4.2.4 Hydrology

Streams

The Marrett River located on the western side of the Project Site is the stream that drains the western catchment area. The Marrett River, whose lower reaches are tidal, flows into the far eastern side of Princess Charlotte Bay. The Normanby River is also located to the west of the Marrett River and is the major drainage system for the entire Princess Charlotte Bay area. The upper catchment of Barramundi Creek, located in the south-eastern part of the Project, drains north-east into Cape Melville National Park. There are a number of smaller creeks and streams located around the Project Site that drain directly into either Princess Charlotte Bay or Bathurst Bay. Most streams and creeks are ephemeral and flow strongly between December and March and are usually dry by June.

Groundwater

A preliminary hydro-geological survey conducted by BHP in 1981 concluded that aquifers in the area were relatively thin with noted rates unlikely to significantly hinder a mining operation. Aquifer recharge areas are known to occur in the Bathurst Range however the extent and depth is unknown and will be further investigated during the EIS process. Previous mining exploration works have encountered significant groundwater flows within the Laura Basin, however further studies and a detailed hydrological assessment are required and will be undertaken during the EIS to determine connectivity with the surface waters and for mine safety planning.

Parts of the Project site are located above and around the Great Artesian Basin and its catchment area. Water resources for this reserve are managed under the *Water Resource (Great Artesian Basin) Plan 2006* (GAB Plan). The areas specific to the Project are included in Table 4.4. Under the Laura Management Unit there are allocations of water for State Significant and general projects and any water from aquifers managed by the GAB Plan must seek water from an unallocated water reserve. Alternatively the Proponent can apply for water licenses at any time through DERM under Section 2.10 of the *Water Act 2000* for aquifers areas elsewhere on the Project site containing surface and groundwater not connected to the GAB Plan.

Table 4.4: Management Areas for the Wongai Project under the *Water Resource (Great Artesian Basin) Plan 2006*

Management Areas	Management Units	Aquifers
Laura	Laura 2	Gilbert River Formation Dalrymple Sandstone

Dams

Currently two dams exist on the Project Site constructed for previous agricultural operations. The maintenance and capacity of these dams is currently unknown but will be investigated further during the EIS phase. These dams may be used to supplement water supply.

Marine

The Project Site is located adjacent to and within Princess Charlotte Bay Marine Area and Cape Melville to Bathurst Bay area.

The Princess Charlotte Bay Marine area catchment lies in one of the most arid areas of Cape York Peninsula, the great majority of it receiving rainfall of less than 1,000 millimetres per year. The resulting river flow is insufficient to influence estuarine or marine salinities in the dry season. The tidal limit is approximately 49 kilometres from the mouth of the Normanby River.

Both Princess Charlotte Bay and Bathurst Bay are located within the Coral Sea, which is characterised by a warm and stable climate, frequent rains and tropical cyclones.

The Coral Sea hosts the Great Barrier Reef Marine Park (GBRMP), an area that was declared a World Heritage area in 1981. The Great Barrier Reef World Heritage Area encompasses approximately 348,000 square kilometres of Queensland's coastline extending from the low water mark of the mainland to include all islands.

Natural values of the reefs are diverse and include corals, the marine turtle, cultural and heritage values. The reef flats and lagoons are feeding areas for green, hawksbill and loggerhead turtles.

Wetlands

There are currently no RAMSAR listed wetlands within or near the proposed Project Site, the closest listed RAMSAR wetland is at Bowling Green Bay (640 kilometres to the south-east). There are several wetlands of High Ecological Significance (HES) within, adjacent to or near the study area (refer Figure 4.2) - the Great Barrier Reef (GBR) Wetlands Protection Area, Cape Melville – Bathurst Bay – QLD061 and Princess Charlotte Bay Marine Area – QLD072. These wetlands are nationally important wetlands and are listed in A Directory of Important Wetlands in Australia (DIWA).

The GBR Wetlands Protection Area is located directly adjacent to the northern extent of the Project Site.

Cape Melville – Bathurst Bay extends over 5,456 hectares and is a swampy, level coastal sand plain. This wetland lies 20 kilometres to the east of the Project Site and has a high diversity of plant communities. This area supports a large proportion of regionally rare or uncommon plant communities and species. The trigger area associated with this wetland is located 1900 metres east of the Project Site.

Princess Charlotte Marine Area extends over 87,678 hectares and is a tidal flat. This wetland is one of the largest tidal wetland systems in Australia and exhibits the best and most extensive examples of saline flats on the Cape York Peninsula. The area is also an important fish habitat and is protected under Fisheries legislation. The trigger area associated with this wetland is located within the EPC footprint; however, the project activities will not extend into these sensitive areas.

Tides and coastal processes

In Bathurst Bay the coastal strip relevant to the Project is approximately 1.5 kilometres long and faces north, and is afforded some protection from strong waves by Flinders Group National Park. Waves in the area average about one metre in height and winds come from a predominantly south-easterly direction. The beach is a coarse sand beach that has a steep drop off into deep water approximately five metres deep. There is a strong sea channel known as Rattlesnake Channel sitting between Bathurst Head and Denham Island. This channel is up to 20 metres deep with an average depth of 13 metres.

On the eastern side of the Project Site the beaches to the north of the marine swamp have tidal flats ranging from 200 metres to over 1.5 kilometres. The water level then deepens from one to five metres, creating permanent shallow marine waters around the coastal perimeter of Princess Charlotte Bay that are outside of the

tidal zone. The waters then deepen further from six metres to nine metres creating a marine sub-tidal aquatic bed again around the coastal perimeter of Princess Charlotte Bay.

Storm tides in the area are not well documented but the highest storm tide reported in Queensland occurred at Bathurst Bay on Cape York Peninsula in March 1899 during Cyclone Mahina which resulted in significant loss of life of local aboriginal inhabitants and pearlers fishing the area. A sea level increase of 14 metres was reported, with the sea reportedly penetrating approximately five kilometres inland.

144°0'0"E 144°5'0"E 144°10'0"E 144°15'0"E 144°20'0"E 144°25'0"E 144°30'0"E

14°10'0"S 14°15'0"S 14°20'0"S 14°25'0"S 14°30'0"S 14°35'0"S

Great Barrier Reef Marine Park

Cape Melville - Bathurst Bay

Princess Charlotte Bay Marine Area

Marina Plains - Lakefield Aggregation

Legend

- Transhipment Points
- Barge Routes
- Barge Loading Facility

Overland Conveyor

- Preferred Option
- Preferred Option - Rope
- EPC 2334
- Study Area
- Directory of Important Wetlands
- Cadastral Parcels

N

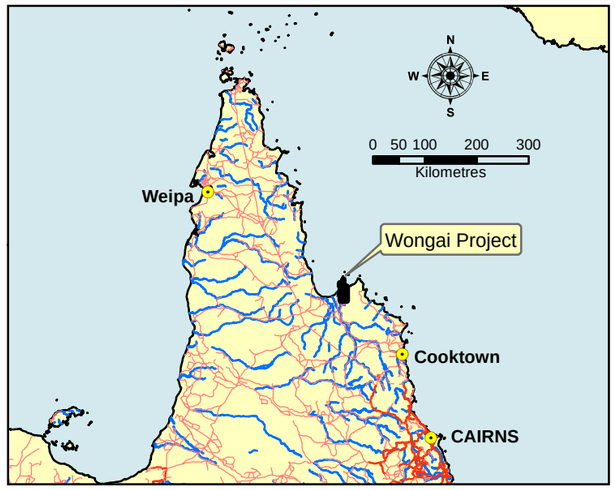
Scale 1:200,000 (A3)

0 1 2 4 6 8 10

Kilometres

Map Projection: GDA94

Figure: Wongai Project DIW
Project: Wongai Project
Date: 15/08/2011 **Author:** CQ Consulting Group
Document Path: Figure_4.2_A3



WONGAI PROJECT

Figure 4.2
Directory of Important Wetlands
Located Within or Adjacent to Project Site

-CONCEPT ONLY-

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4.2.5 Noise and air quality

Ambient noise levels within the study area are representative of a natural environment. Recreational activities including boating, camping and fishing within the broader study area will contribute minimally to ambient noise levels.

In Northern Queensland, air quality monitoring is carried out by the Department of Environmental and Resource Management (DERM), with several sites in the Townsville region and one site in Mt Isa monitored on a monthly basis for a range of industrial air pollutants including heavy metals and organic compounds (DERM, 2010). Examples of pollutants monitored include nitrogen oxides, sulphur dioxide, PM_{10} and $PM_{2.5}$.

No air quality monitoring is undertaken near the Project Site, and the closest DERM site is in Townsville located 600 kilometres south-east of the Project Site.

Air quality within the study area is anticipated to be typical of a natural environment un-impacted by industrial or residential activities.

4.3 Biological Environment

The natural biological values on the Site have been heavily disturbed due to the regular uncontrolled burning on the property (typically twice a year), regular use of the tracks and camping grounds, uncontrolled shooting and illegal dumping, particularly on the coastal fringes.

Under the *EPBC Act*, approval from the Minister for the Department of Sustainability, Environment, Water, Populations and Communities (SEWPaC) must be sought if the Project would have, or is likely to have, a significant impact on a Matter of National Environmental Significance (MNES).

A search of SEWPaC's website has indicated the presence or potential presence of a number of MNES within the vicinity of the proposed Project Site, as described below.

4.3.1 Flora and fauna

Within the proposed Wongai Project area the *EPBC Act Protected Matters Report* identifies one threatened ecological community, 31 threatened species and 39 migratory species listed as MNES.

The EPBC Protected Matters search tool was used to undertake a database search of the proposed development area including a five kilometre buffer zone to identify MNES, refer to Table 4.5 which outlines the result for the threatened ecological communities and threatened species that were identified in the desktop search. Table 4.6 outlines the search results for the migratory species.

(Note that the *Ardea alba* and the *Ardea ibis* are listed twice under both migratory marine birds and migratory wetland species. Also note that *Caretta caretta, Chelonia mydas, Dermochelys coriacea, Eretmochelys imbricate, Lepidochelys olivacea* and *Natator depressus* have also been identified as both threatened species and migratory species).

The DERM Wildlife Online database was used to search the proposed development area for species of conservation concern listed under the *Nature Conservation Act 1992*. A total of 380 species were identified as potentially existing within the Project Site. Of these, one is listed as vulnerable and eight are listed as near threatened (refer to Table 4.7), and a further four species are identified as being naturalised to the area. Regional ecosystem (RE) mapping (DERM, 2011) identifies 37 vegetation types as existing in the study area, ten of these are listed as being 'Of Concern'. These vegetation types are listed in Table 4.8 and presented in Figure 4.3. The DERM issued map of REs and full RE descriptions will be included in the EIS.

The area to the west of the Project Site is a declared Fish Habitat Area (FHA) under the *Fisheries Act 1994* (Qld) and is protected from physical disturbance associated with coastal development (refer to Figure 4.4). The FHA is part of Australia's Nationally Representative System of Marine Protected Areas, and fits within the International Union for the Conservation of Nature and Natural Resources (IUCN) Protected Area Management Category VI - 'Managed Resource Protected Area'. These areas are very important to fisheries and aim to protect inshore and estuarine habitats.

Table 4.5: EPBC Results for Threatened Ecological Communities and Threatened Species

Scientific Name	Common Name	Status	Type of Presence
Ecological Community			
Littoral Rainforest and Coastal Vine Thickets of Eastern Australian		Critically Endangered	Community likely to occur within area
Birds			
Erythrotriorchis radiatus	Red Goshawk	Vulnerable	Species or species habitat likely to occur within area
Erthrura gouldiae	Gouldian Finch	Endangered	Species or species habitat likely to occur within area
Turnix olivii	Buff-breasted Button-quail	Endangered	Species or species habitat may occur within area
Mammals			
Balaenoptera musculus	Blue Whale	Endangered	Species or species habitat may occur within area
Conilurus penicillatus	Brush-tailed Tree-rat, Brush-tailed Rabbit-rat	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus	Northern Quoll	Endangered	Species or species habitat may occur within area
Hipposideros semoni	Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-Bat	Endangered	Species or species habitat may occur within area
Megaptera novaeangliae	Humpback Whale	Vulnerable	Species or species habitat may occur within area
Pteropus conspicillatus	Spectacled Flying-fox	Vulnerable	Species or species habitat may occur within area
Rhinolophus philippinensis	Greater Large-eared Horseshoe Bat	Endangered	Species or species habitat known to occur within area
Saccolaimus saccolaimus nudicluniatus	Bare-rumped Sheathtail Bat	Critically Endangered	Species or species habitat may occur within area
Xeromys myoides	Water Mouse, False Water Rat	Vulnerable	Species or species habitat may occur within area
Plants			
Arenga australasica	Australian Arenga Palm	Vulnerable	Species or species habitat likely to occur within area
Dendrobium superbiens	Curly Pinks	Vulnerable	Species or species habitat likely to occur within area
Durbaculum nindii	An Orchid	Endangered	Species or species habitat likely to occur within area

Scientific Name	Common Name	Status	Type of Presence
Plants			
Ectrosia blakei		Vulnerable	Species or species habitat likely to occur within area
Hodgkinsonia frutescens	Atherton Turkey Bush	Vulnerable	Species or species habitat likely to occur within area
Huperzia dalhousieana	Blue Tassel-fern	Endangered	Species or species habitat likely to occur within area
Huperzia phlegmarioides	Layered Tassel-fern	Vulnerable	Species or species habitat likely to occur within area
Taeniophyllum muelleri	Minute Orchid, Ribbon-root Orchid	Vulnerable	Species or species habitat may occur within area
Reptiles			
Caretta caretta	Loggerhead Turtle	Endangered	Species or species habitat known to occur within area
Chelonia mydas	Green Turtle	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth	Endangered	Species or species habitat likely to occur within area
Egernia rugosa	Yakka Skink	Vulnerable	Species or species habitat likely to occur within area
Eretmochelys imbricata	Hawksbill Turtle	Vulnerable	Species or species habitat likely to occur within area
Lepidochelys olivacea	Olive Ridley Turtle, Pacific Ridley Turtle	Endangered	Species or species habitat likely to occur within area
Natator depressus	Flatback Turtle	Vulnerable	Species or species habitat likely to occur within area
Sharks			
Glyphis glyphis	Speartooth Shark	Critically Endangered	
Pristis clavata	Dwarf Sawfish. Queensland Sawfish	Vulnerable	Species or species habitat may occur within area
Pristis zijsron	Green Sawfish, Dindagubba Narrowsnout Sawfish	Vulnerable	Species or species habitat may occur within area
Rhincodon typus	Whale Shark	Vulnerable	Species or species habitat may occur within area

Table 4.6: EPBC Results for Migratory Species for the Study Area

Scientific Name	Common Name	Status	Type of Presence
Migratory Marine Birds			
Apus pacificus	Fork-tailed Swift		Species or species habitat may occur within area
Ardea alba	Great Egret, White Egret		Species or species habitat may occur within area
Ardea ibis	Cattle Egret		Species or species habitat may occur within area
Sterna albifrons	Little Tern		Species or species habitat may occur within area
Migratory Marine Species			
Balaenoptera edeni	Bryde's Whale		Species or species habitat may occur within area
Balaenoptera musculus	Blue Whale	Endangered	Species or species habitat may occur within area
Caretta caretta	Loggerhead Turtle	Endangered	Species or species habitat known to occur within area
Chelonia mydas	Green Turtle	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Crocodylus porosus	Salt-water Crocodile, Estuarine Crocodile		
Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth	Endangered	Species or species habitat likely to occur within area
Dugong dugon	Dugong		Species or species habitat likely to occur within area
Eretmochelys imbricata	Hawksbill Turtle	Vulnerable	Species or species habitat likely to occur within area
Lepidochelys olivacea	Olive Ridley Turtle, Pacific Ridley Turtle	Endangered	Species or species habitat likely to occur within area
Megaptera novaeangliae	Humpback Whale	Vulnerable	Species or species habitat may occur within area
Natator depressus	Flatback Turtle	Vulnerable	Species or species habitat likely to occur within area
Orcaella brevirostris	Irrawaddy Dolphin		Species or species habitat may occur within area
Orcinus orca	Killer Whale, Orca		Species or species habitat may occur within area
Rhincodon typus	Whale Shark	Vulnerable	Species or species habitat may occur within area
Sousa chinensis	Indo-Pacific Humpback		Species or species habitat may

	Dolphin		occur within area
Scientific Name	Common Name	Status	Type of Presence
Migratory Terrestrial Species			
Coracina tenuirostris melvillensis	Melville Cicadabird		Species or species habitat may occur within area
Erthrura gouldiae	Gouldian Finch	Endangered	Species or species habitat may occur within area
Haliaeetus leuCGaster	White-bellied Sea-Eagle		Species or species habitat likely to occur within area
Hirundapus caudacutus	White-throated Needletail		Species or species habitat may occur within area
Hirundo rustica	Barn Swallow		Species or species habitat may occur within area
Merops ornatus	Rainbow Bee-eater		Species or species habitat may occur within area
Monarcha melanopsis	Black-faced Monarch		Species or species habitat may occur within area
Monarcha trivirgatus	Spectacled Monarch		Breeding likely to occur within area
Myiagra cyanoleuca	Satin Flycatcher		Species or species habitat likely to occur within area
Rhipidura rufifrons	Rufous Fantail		Breeding may occur within area
Migratory Wetland Species			
Ardea alba	Great Egret, White Egret		Species or species habitat may occur within area
Ardea ibis	Cattle Egret		Species or species habitat may occur within area
Arenaria interpres	Ruddy Turnstone		Species or species habitat likely to occur within area
Charadrius mongolus	Lesser Sand Plover, Mongolian Plover		Species or species habitat likely to occur within area
Gallinago hardwickii	Latham's Snipe, Japanese Snipe		Species or species habitat may occur within area
Grus Antigone	Sarus Crane		Species or species habitat likely to occur within area
Heteroscelus brevipes	Grey-tailed Tattler		Species or species habitat likely to occur within area
Nettapus coromandeslianus albipennis	Australian Cotton Pygmy-goose		Species or species habitat may occur within area
Numenius phaeopus	Whimbrel		Species or species habitat likely to occur within area

Pluvialis fulva	Pacific Golden Plover		Species or species habitat likely to occur within area

Table 4.7: Summarised Wildlife Online Results for the Study Area

Scientific Name	Common Name	*Nature Conservation Act 1992* Classification #	Number of Sighting Recorded
Tadorna radjah	Radjah shelduck	NT	1
Ephippiorhynchus asiaticus	Black-necked stork	NT	2
Melithreptus gularis	Black-chinned honeyeater	NT	1
Numenius madagascariensis	Eastern curlew	NT	5
Rhaphidospora cavernarum		V	1
Graptophyllum excelsum		NT	1
Caesalpinia hymenocarpa		NT	3
Acacia albizioides	Climbing wattle	NT	2
Gossia lucida		NT	2

 # Indicates the Queensland conservation status of each taxon under the Nature Conservation Act 1992. The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected (NP).

Feral animals, particularly pigs on the property have caused significant impacts to the natural ecological values. The property provides a safe haven for feral pigs resulting in a proliferation of this species. Cane toads are also present in significant numbers across the Site.

Table 4.8: Regional Ecosystems in the Study Area

RE Code	Description	VMA Status
3.1.1a	Estuarine wetlands (e.g. mangroves). *Rhizophora stylosa* (Red mangrove) often completely dominates, forming a very even, closed canopy (5-30m tall). Occurs as the outer mangroves, on unconsolidated muds.	Least Concern
3.1.2a	Estuarine wetlands (e.g. mangroves). *Avicennia marina* (grey mangrove) dominates the mid-dense canopy (5-15m tall). *Ceriops tegal* (yellow mangrove) is co-dominant tree in some situations. Associated with landward side of mangrove zone.	Least Concern
3.1.4	Multi-stemmed *Excoecaria agallocha* trees usually dominate the mid-dense to dense canopy (8-15m tall). The ground is usually covered with bare mud and a sparse covering of leaf litter. Associated with upper tidal reaches of rivers.	Of Concern
3.1.6	Most of the ground surface is bare. Halosarcia spp. (samphires) predominate in some areas forming a very sparse-herbland (0.1-0.5m tall. Low rises in the saltpans and the saltpan margins tend to support slightly denser populations of Halosarcia spp. Associated with salt plains and saline falts.	Least Concern
3.10.15a	*Euclayptus chlorophylla* (shiny-leaved box) trees dominate the very sparse to sparse canopy (6-10m tall). Occurs on sandstone hill slopes.	Least Concern
3.10.16a	*Melaleuca stenostachya* (fibre-barked teatree) trees dominate the sparse canopy (7-10m tall). Occurs on sandstone ranges.	Least Concern
3.10.21a	*Corymbia nesophila* (Melville Island bloodwood) dominates the sparse canopy. Occurs on sandstone plateaus.	Least Concern
3.10.5a	The uneven canopy (8-25m tall) is composed of a variety of species most of which are deciduous in the dry season. Occurs on sandstone hills	Of Concern
3.10.6a	*Corymbia stockeri* subsp. *stockeri* (gum-topped bloodwood) dominates the sparse canopy (6-22m tall). Frequently large areas of ground surface are covered by sandstone rocks. Occurs on sandstone plateaus and hills.	Least Concern
3.10.9a	*Eucalyptus tetrodonta* (Darwin stringybark) and *Corymbia stockeri* subsp. *stockeri* (gum-topped bloodwood) co dominate the sparse canopy (12-17m tall). Occurs on sandstone plateaus.	Least Concern
3.2.13	*Syzgium suborbiculare* (lady apple), *Terminalia muelleri* (Mueller's damson), *Cupaniopsis anacardioides* (beach tamarind) and Acacia spp. (wattle) dominate the dense uneven canopy (6-15m tall). Restricted to beach ridges.	Of Concern
3.2.25	A variety of forbs and graminoids occur, but only form a very sparse ground layer (20-50cm tall). *Grevillea parallela* (silver oak) is the most frequent tree and shrub. Associated with foredunes and low beach ridges along the coast.	Of Concern
3.2.5a	Woodland to open forest of *Acacia crassicarpa* (spoon tree). Associated with low beach ridges.	Least Concern
3.3.10a	Riverine wetlands or fringing riverine wetlands. *Melaleuca fluviatilis* (silver-crowned paperbark) *Melaleuca argentea* (silver-crowned paper bark) dominate the mid-dense canopy along with other species. Fringes major streams and creeks	Least Concern
3.3.15	*Eucalyptus brassiana* dominates the sparse canopy layer (16-16m tall). Occurs on alluvial plains.	Of Concern
3.3.17	Woodland to open forest of *Corymbia clarksoniana* (Clarkson's bloodwood) +/- *Erythrophleum chlorostachys* (Cooktown ironwood) or *C. intermedia* (pink bloodwood). Occurs on alluvial plains.	Least Concern
3.3.20a	Floodplain (other than floodplain wetlands). *Corymbia clarksoniana* (Clarkson's bloodwood) dominates the sparse canopy (8-25m tall). Occurs on a variety of alluvial plains derived from a range of geological substrates.	Least Concern
3.3.27c	*Eucalyptus tetrodonta* (Darwin stringybark) and either *Corymbia nesophila* (Melville Island bloodwood) or *C. stockeri* ssp. *Peninsularis* (gum-topped bloodwood) usually co dominate to form the canopy. Occurs on alluvial plains.	Least Concern

RE Code	Description	VMA Status
3.3.33	*Thryptomene oligandra* (thryptomene) dominates the sparse to mid-dense canopy (5-14m tall). Occurs on sides of longitudinal drainage depressions.	Least Concern
3.3.34	The palm *Corypha utan* predominates forming a distinct but very discontinuous canopy (12-16m tall). Occurs on alluvial plains and some old beach ridges.	Of Concern
3.3.35	*Eucalyptus acroleuca* (Lakefield coolabah) dominates the very sparse canopy (7-21m tall). Occurs on floodplains.	Least Concern
3.3.48a	Floodplain (other than floodplain wetlands). *Melaleuca saligna* (weeping teatree) dominates the very sparse canopy (5-7m tall). An algal crust covers much of the soil surface. Occurs in longitudinal drainage depressions.	Least Concern
3.3.49b	Low open woodland. *Melaleuca viridiflora* (broad-leaved teatree) dominates a very sparse canopy (4-14m tall) with scattered emergent *Corymbia clarksoniana* (Clarkson's bloodwood) (8-18m tall) often present. Occurs on low-lying plains.	Least Concern
3.3.5a	Evergreen notophyll forest. Riverine wetlands or fringing riverine wetland. This regional ecosystem varies in structure and floristic composition depending on the position relative to the stream channel, the substrate and the permanence of water flow. Occurs on alluvia on major watercourses.	Least Concern
3.3.51	*Melaleuca acacioides* (black teatree) tall shrubs, frequently with *Hakea pedunculata*, dominate the very sparse to sparse canopy (2.5-6m tall). Occurs on marine plains on the landward side of mangroves.	Of Concern
3.3.56	Eriachne spp. (wanderrie grass), Aristida spp. (three-awned speargrass), Eragrostis spp. (lovegrass) and Fimbristylis spp. Dominate the cover of the short, mid-dense to dense ground layer. Woody species occur sporadically. Occurs on alluvial plains.	Least Concern
3.3.58	Oryza spp. (wild rice), most frequently *O. Rufipogon*, generally dominates the tall, dense ground layer. Occurs on seasonally inundated depressions on marine plains.	Least Concern
3.3.60a	Closed tussock grassland on floodplain (other than floodplain wetlands). *Themeda arguens* dominates the dense ground layer (1-1.6m tall). Occurs on alluvial plains.	Least Concern
3.5.10	*Eucalyptus tetrodonta* (Darwin stringybark) and *Corymbia nespophila* (Melville Island bloodwood) dominate the very sparse to mid-dense canopy (10-28m tall). Occurs on gently undulating rises and low hills on kandosol soils.	Least Concern
3.5.11	*Eucalyptus tetrodonta* (Darwin stringybark) and either *Corymbia nesophila* (Melville Island bloodwood) or. *C. stockeri* subsp. *peninsularis* (gum-topped bloodwood) usually co dominate to form the canopy (13-28m tall). Occurs on lower slopes or plains and rises.	Least Concern
3.5.14b	Low open woodland to low woodland. *Melaleuca viridiflora* (broad-leaved teatree) dominates a very sparse canopy. Occurs on plains.	Least Concern
3.5.17b	Low to low open woodland. *Melaleuca stenostachya* (fibre-barked teatree) dominates the sparse canopy (7-9m tall) with *M. viridiflora* (broad-leaved teatree) co dominate. Occurs on flat plains.	Of Concern
3.5.21	*Corymbia clarksoniana* (Clarkson's bloodwood) dominates the mid-dense canopy. Occurs on coastal plains.	Of Concern
3.5.22a	Woodland to open forest. *Corymbia clarksoniana* (Clarkson's bloodwood) dominates the sparse canopy. Occurs on undulating rises and plains.	Least Concern
3.5.24b	Woodland to open woodland. *Eucalyptus chlorophylla* (shiny-leaved box) dominates the sparse canopy. Occurs on undulating plains and colluvial fans.	Least Concern
3.5.8a	Woodland. *Eucalyptus tetrodonta* (Darwin stringybark) dominates the sparse canopy (12-22m tall). Occurs on undulating rises and erosional plains.	Least Concern
3.7.2	*Acacia shirleyi* (lancewood) dominates a sparse to mid-dense canopy (18-24m tall). Occurs on rocky knolls of lateritised quartzose sandstone.	Of Concern

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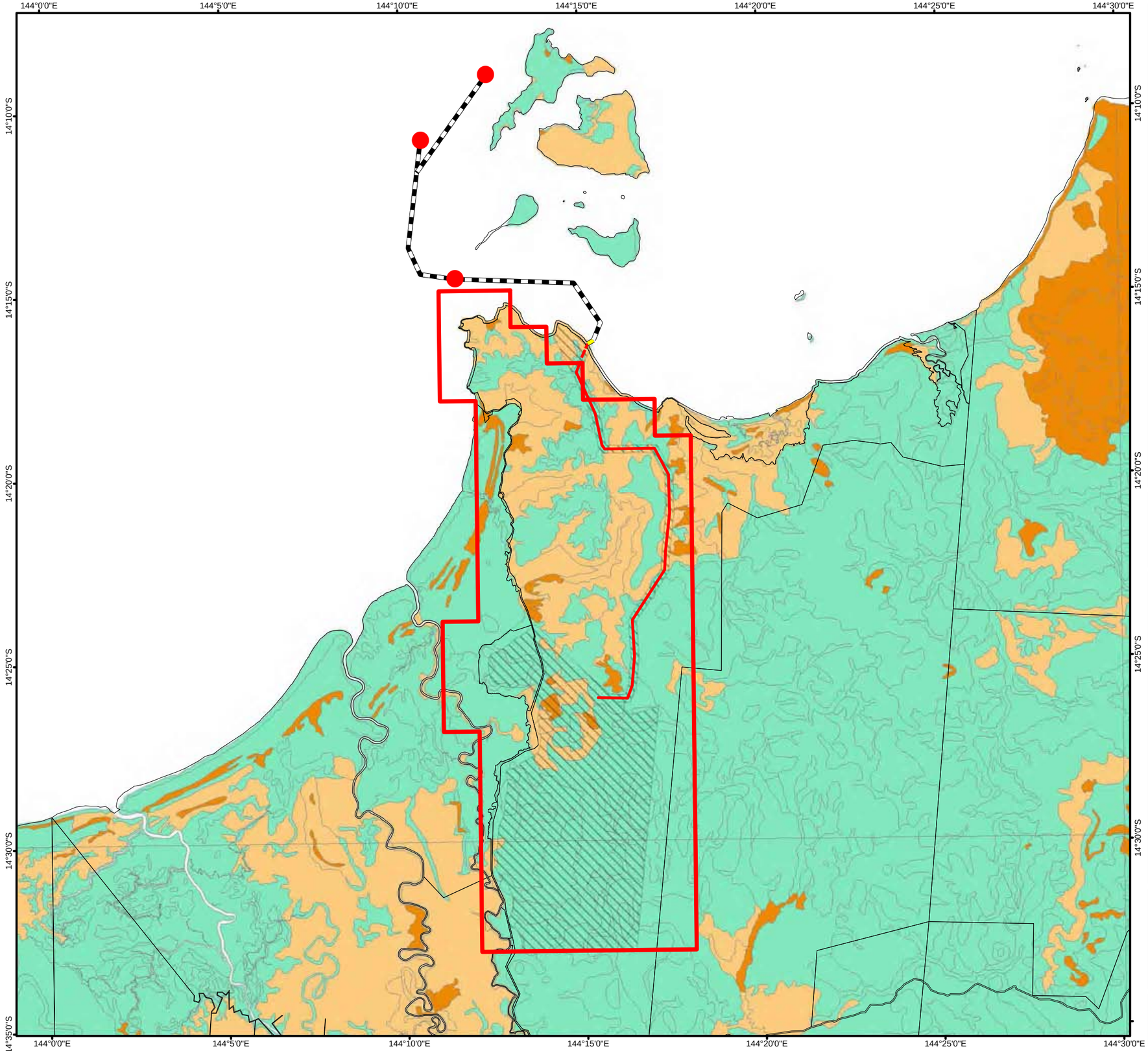


Legend

- Transhipment Points
- Barge Routes
- Barge Loading Facility

Overland Conveyor

- Preferred Option
- Preferred Option - Rope
- EPC 2334
- Cadastral Parcels
- Study Area
- Non-remnant / regrowth
- Endangered - Sub-dominant
- Endangered - Dominant
- Of Concern - Sub-dominant
- Of Concern - Dominant
- Not Of Concern

N

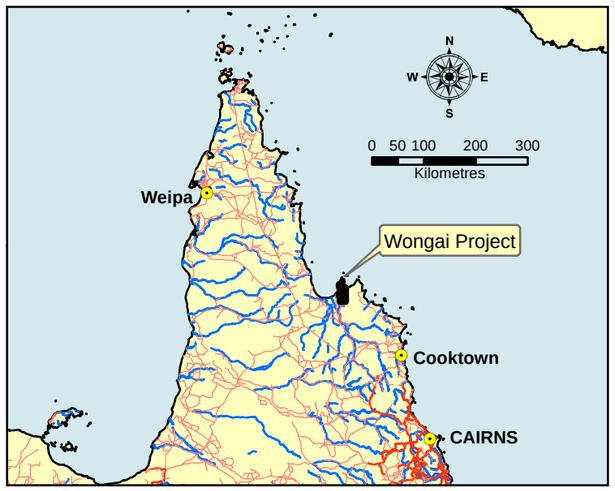
Scale 1:200,000 (A3)

0 1 2 4 6 8 10

Kilometres

Map Projection: GDA94

Figure: Wongai Project Regional Ecosystems
Project: Wongai Project
Date: 15/08/2011 **Author:** CQ Consulting Group
Document Path: Figure_4.3_A3



WONGAI PROJECT

Figure 4.3
Regional Ecosystems in the Study Area

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14°10'0"S 14°15'0"S 14°20'0"S 14°25'0"S 14°30'0"S 14°35'0"S

Princess Charlotte Bay

Legend

- Transhipment Points
- Barge Routes
- Barge Loading Facility

Overland Conveyor

- Preferred Option
- Preferred Option - Rope
- EPC 2334
- Fish Habitat Areas
- Study Area
- Cadastral Parcels

N

Scale 1:200,000 (A3)

0 1 2 4 6 8 10

Kilometres

Map Projection: GDA94

Figure: Wongai Project Fish Habitat
Project: Wongai Project
Date: 15/08/2011 **Author:** CQ Consulting Group
Document Path: Figure_4.4_A3

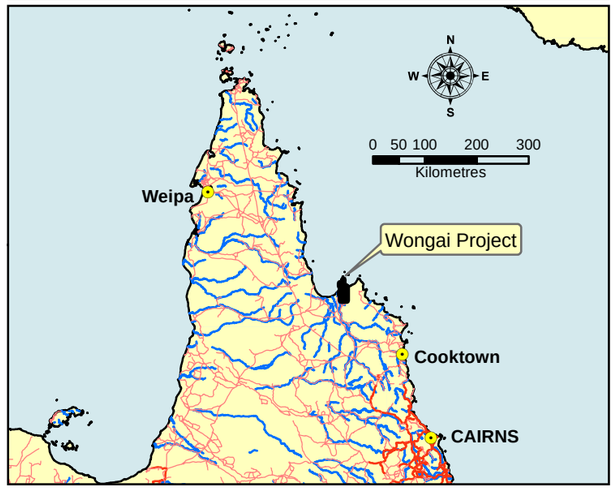

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Figure 4.4
Queensland Fish Habitat Area

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4.4 Protected Areas

The Project is covered by or adjacent to a complex system of conservation estates. These estates are registered across international, national and state agencies. Items of the protected areas estate that are situated in the general vicinity of the Project are listed in Table 4.9.

Table 4.9: Conservation Estate within the Vicinity of the Project Site

Estate Item	Approximate Location
National Parks/State Forests/State Reserves	
Lakefield National Park	Situated to the south-west approximately four kilometres from the subject site.
Melville National Parks	Adjoins subject site to the east.
Cape Melville Reserve	Adjoins subject site to the east.
Great Barrier Reef Coast Reserve	Adjoins subject site to the north.
Lakefield Reserve	Situated to the south-west approximately four kilometres from the subject site.
Flinders Group Reserve	Approximately four kilometres to the North.
Kalpowar Reserve	Situated on the subject site.
Princess Charlotte Bay Reserve	Adjoins the subject site to the north-west.
Matters of National Environmental Significance	
Great Barrier Reef World Heritage Area	The subject site's north boundary adjoins the coastline, which is classified within the Great Barrier Reef World Heritage Area. This area is a World Heritage Property and a National Heritage Property.
Register of National Estates	
Birthday Plans Holding	Unknown.
Great Barrier Reef Region	Adjoins subject site to the north.
Lakefield National Park	Situated to the south-west approximately four kilometres from the subject site.
Melville National Parks	Adjoins subject site to the east.
Bathurst Bay Area	Adjoins the subject site to the north.
Bathurst Heads	Adjoins the subject site to the north.
Blackwood Island	Approximately 3.5 kilometres to the north.
Denham Island	Approximately 3.5 kilometres to the north.
Flinders Island	Approximately four kilometres to the north.
Stanley Island	Approximately eight kilometres to the north.
Directory of Important Wetlands	
Great Barrier Reef Marine Park	Adjoins subject site to the north.
Princess Charlotte Bay Marine Area	Adjoins the subject site to the north-west.
Cape Melville - Bathurst Bay	Adjoins subject site to the east.
Marina Plains - Lakefield Aggregation	Encompasses Cape York Peninsula, Einasleigh Uplands, Gulf Plains and the Wet Tropics.

4.4.1 Australian Heritage Commission

A feasibility report for EPC 463 by a Steve Baldwin of Bathurst Coal and Power noted the following:

"The proposed port site at Bathurst Heads and an alternate site at Coombe Point are both part of an Australian Heritage Commission (AHC) area. In 1980 UDC and AHC entered into an agreement which excised for an area at Bathurst Heads for a proposed port site and a 600 metre wide access corridor for the overland conveyor for the mine site. This agreement remains binding on the AHC and holder of the tenement."

Details regarding this agreement will be detailed in the EIS.

4.4.2 World Heritage

The terrestrial portion of the Project is located adjacent to the Great Barrier Reef World Heritage Area (GBRWHA) and includes the conveyor, roads, workers camp, stockpile, mine and other general infrastructure. The GBRWHA encompasses approximately 348,000 kilometres of Queensland's coastline extending from the low water mark of the mainland to include all islands, Queensland's internal waters and areas in the Great Barrier Reef Marine Park (GBRMP) not protected under the *Sea and Submerged Lands Act 1973*.

The off-shore component of the Project including the jetty/terminal, barging and transhipment operations are located within the GBRMP and will trigger the requirement for a permit from the GRBMPA (refer to Figure 4.5).

4.4.3 National Heritage

The GBRMP is also listed on the National Heritage Register and is located adjacent to the terrestrial part of the Project Site. Zoning for the marine park includes; areas to the north-west of the proposed marine Project Site that are zoned Habitat Protection and an area to the north-east zoned Conservation Park. The nearest Marine National Park Zone is located on the eastern side of Princess Charlotte Bay approximately 20 kilometres west from the northern point of the terrestrial Project Site.

4.4.4 Register of National Estate

Several estates located in close proximity to the Project Site are also listed on the Register of National Estate (RNE) (refer to Table 4.9). The RNE, which is managed under the *Australian Heritage Commission Act 1975,* was frozen on 19 February 2007, meaning no new places can be added or existing places removed. The RNE will continue to act as a statutory register until February 2012. During this period the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) is required to consider the RNE when making decisions under the *EPBC Act*.

4.4.5 Nature Reserve

Within the region there are six State Reserves including the Kalpowar Nature Refuge which makes up a portion of the proposed Project Site. Other reserves include Cape Melville National Park, Lakefield National Park, Flinders Group National Park, Princess Charlotte Bay and Great Barrier Reef Coast Marine Park (GBRCMP).

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14°10'0"S 14°15'0"S 14°20'0"S 14°25'0"S 14°30'0"S 14°35'0"S

Permit will be sought for barging in yellow zone

Legend

- Transhipment Points
- Barge Routes
- Barge Loading Facility

Overland Conveyor

- Preferred Option
- Preferred Option - Rope
- EPC 2334
- Study Area
- Cadastral Parcels
- Designated Shipping Area
- General Use
- Habitat Protection
- Conservation Park
- Buffer
- Scientific Research
- Scientific Research (closed to public access)
- Marine National Park
- Preservation
- Commonwealth Island

N

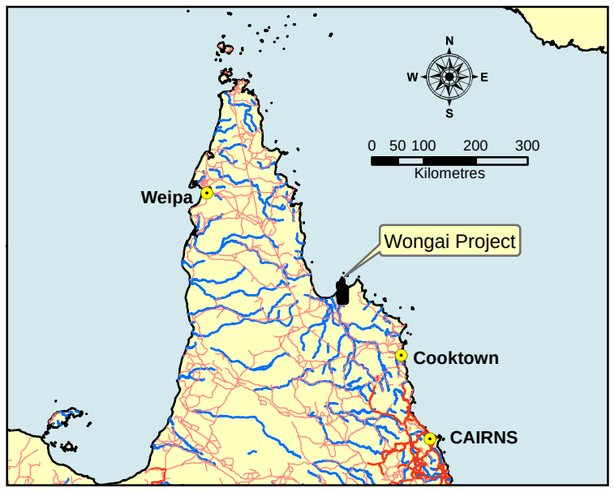
Scale 1:200,000 (A3)

0 1 2 4 6 8 10

Kilometres

Map Projection: GDA94

Figure: Wongai Project GBRMP Zoning
Project: Wongai Project
Date: 15/08/2011 **Author:** CQ Consulting Group
Document Path: Figure_4.5_A3



WONGAI PROJECT

Figure 4.5
Great Barrier Reaf Marine Park Zoning

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4.5 Socio Economic Environment

4.5.1 Demographics

Demographic and first-hand knowledge of the people near a project area can provide an indication as to how surrounding communities may be impacted by a proposed project in the short and long-term.

The Project's closest neighbouring community centres are Laura, Hopevale and Cooktown which are 135 kilometres, 140 kilometres and 164 kilometres respectively from the Project Site.

Data from the 2006 Census estimated the resident population of the Cook Shire to be 3,688 people (*Department of Infrastructure and Planning (2006*). Whilst this information is of some relevance it does not include Indigenous communities in the data collection. Projections by the then Department of Infrastructure and Planning indicated that by 2011 the population of Cook Shire is expected to be between 4,270 and 4,460. The median age of the Cook Shire's population was 40 years in 2006, and this is projected to decrease to 31 years in 2026 (*Department of Infrastructure and Planning 2007).*

The total labour force for the Cook Shire for 2006-2007 was estimated at approximately 1,500 persons, with unemployment at 6.5 per cent (*Department of Infrastructure and Planning 2007*).

In 2008 the Hope Vale Shire Council had an estimated population of 832, with 93 percent of the population Indigenous (*Office of Economic and Statistical Research 2011*). The largest age group in the Cape York region is 25 to 44 year olds which is in line with the largest group in Queensland overall.

Research shows that health indicators are significantly worse for Indigenous People and that life expectancy for this part of the Australian population is low.

A potential impediment to development in the region is the lack of a skilled labour supply. An assessment by *Whitford and Ruhanen* noted that there are challenges due to the shortage of financial management and business skills due to the fact that the majority of the Indigenous People in the region did not complete schooling to Year 11 or 12. A report by *Marsden Jacob Associates* found 35.2 percent of the Cape York population finished Year 11 or 12 equivalent compared to 49.5 percent of the Queensland population. In recent years, there has been an increase in the number of Indigenous students completing Year 12 and tertiary education through the Cape York Institute's Higher Expectations Program, which is increasing the skilled Indigenous labour force who will be able to benefit from employment opportunities in the region.

Unemployment in the Cape York region is significantly higher (11.1 percent) than the rate for Queensland (four percent). The Australian Bureau of Statistics (ABS) reported in 2008 that the most disadvantaged areas of Australia are the remote regions in Queensland, which includes the Cape York region. This assessment considered income, education levels, employment and houses with motor vehicles.

Cattle grazing and mustering of stock from the adjacent national parks are the main sources of business income for the local communities near the Project Site whereas the largest type of employment is unskilled labourers followed by community and personal service workers.

The local Indigenous communities have low employment rates, little opportunity for business development, are serviced by poor infrastructure, education and health facilities. Access to these communities is poor in wet weather leading to emergency and health risks and impediments to employment.

Cape York Indigenous Region organisations are working with the community and the government to manage the regional in a multiple land use framework that conserves the natural values of the Cape York region whilst allowing for regional development. The aim of these organisations is to ensure the people in the region have a diverse, integrated economy to provide more opportunities for employment, education, improved health and sustainable livelihoods.

4.5.2 Recreational activities

Traditional Owners have accessed this land for thousands of years for the purpose of hunting, fishing and social gatherings. Fishing is a popular activity around Coombe Point; however, access is limited during the wet season.

The Project Site is surrounded by state and national reserves including Princess Charlotte Bay, Lakefield National Park, Melville National Park and the Great Barrier Reef Marine Park. These reserves are open to the public for recreational activities including fishing, bushwalking, camping, bird watching and yachting. Visitor numbers to both Lakefield and Melville National Parks are very low; however, tourist visitations to Cape York are increasing.

A licence agreement set up between the 'Kalpowar Aboriginal Land Trust' and an incorporated body representing the Vietnam Veterans in 2007 allows access to the Veterans for the permitted use during the dry season each year. The intent of the licence is to provide a place for the Veterans to gather and meet.

Tourism in the Cape York area is growing annually, however, the Wongai Project will have limited impacts on existing infrastructure as the Project plans include transport and community facilities. The proponent will work with Cook Shire Council, government departments and community groups to identify potential impacts on existing infrastructure and services to develop solutions to minimise these impacts. The ships transporting the coal to market will be using the designated shipping channel and impacts will be discussed with MSQ including requirements for navigation.

4.6 Cultural Heritage

4.6.1 Indigenous and Non-Indigenous Heritage

There are currently four sites listed on the Australian Heritage Database (not including the GBRMP) that are noted as being located within the Cook Shire Council. Two are located in Weipa (253 kilometres north-west of the Project Site) and two are located in Cairns (335 kilometres south-east of the Project Site). There are also three sites listed on the Queensland Heritage Database (non-indigenous) located within the region of the Project proposal (refer to Figure 4.6).

The Register of National Estate (RNE) identified six areas within or adjacent to the Project Site that are of Indigenous significance (refer to Table 4.9). Of particular note is Bathurst Heads which is within the Project Site and is acknowledged as a site of very high significance to Traditional Owners. Figure 4.7 also shows the areas on the Project Site that are of importance to the Traditional Owners and will be the subject of a Cultural Heritage Management Plan (CHMP). The Queensland Heritage Register states that the types of sites and artefacts found here include shell middens, story places cave paintings, burial sites and other cultural sites. There is also non-indigenous historical significance including shipwrecks and a recruiting station for lugger crews.

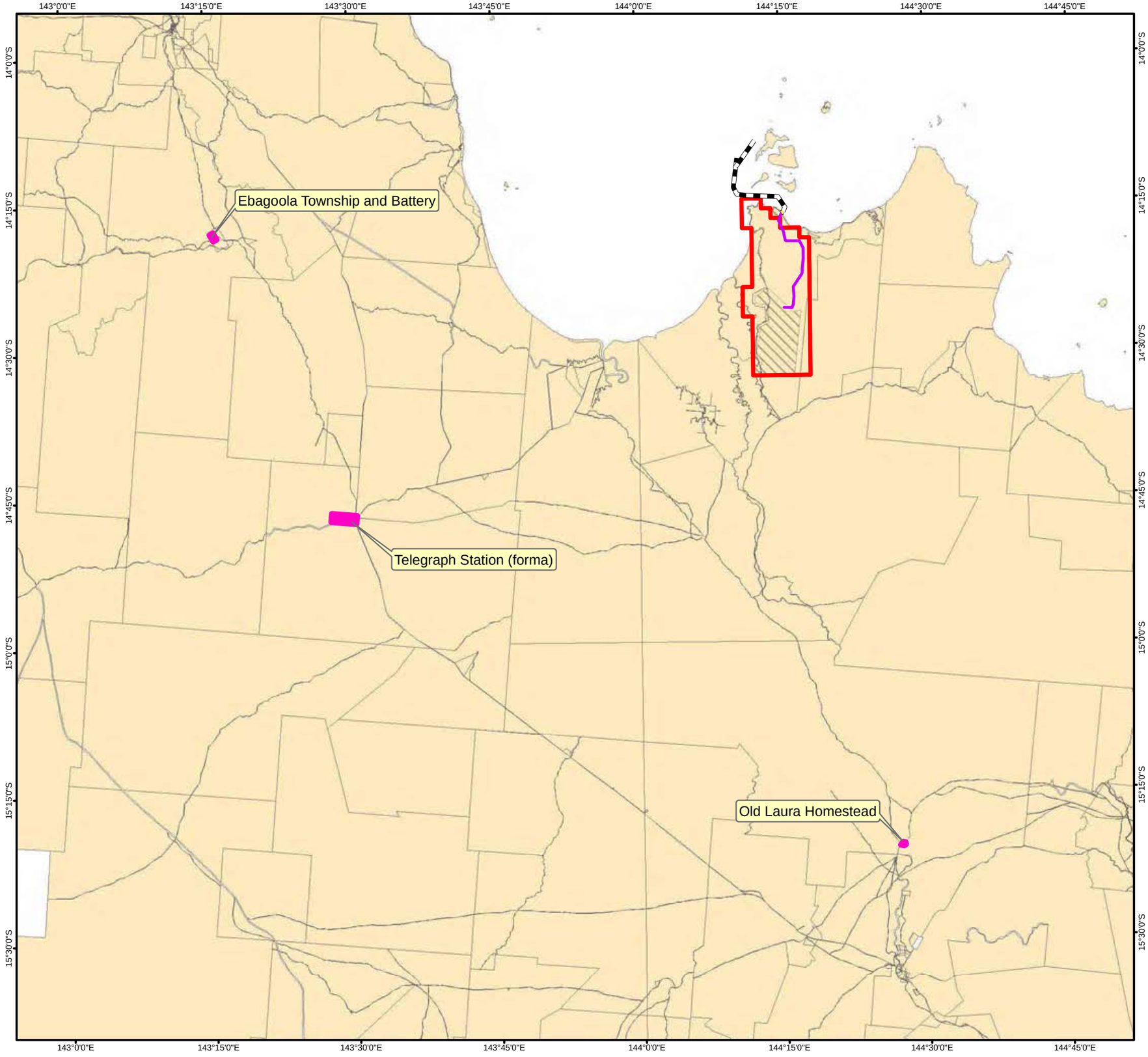
4.6.2 Native Title

A Native Title claim exists over an area of approximately 409,400 hectares. The claim was filed in the Federal Court on 24 October 1997 and is now registered as a claim (National Native Title Tribunal Claim number QC97/48). The registered Native Title Claimant is Cape York Land Council Aboriginal Corporation.

The *Native Title Act 1993* provides for ILUAs between native title holders or claimants and other interested parties about how land and waters in the area covered by the agreement will be used and managed in the future.

Furthermore, the land applied for is subject to an ILUA between the State of Queensland and the late Mr Albert Lakefield, Earnie McGreen, Eric Harrigan, Hans Pearson and Helen Rootsey for and on behalf of the Kalpowar People. The existing ILUA is an Area Agreement and was registered on 25 September 2006 (National Native Title Tribunal number QI2005/028). The agreement area is Lots 1, 3, 4, 5 and 7 on SP156403, an area of road to be opened as shown on SP156403, Lot 6 on SP171857 and Lots 2 and 8 on AP12349.

The existing ILUA has been made between the Kalpowar People and the State of Queensland and provides a framework about how land and waters in the area covered by the agreement will be used and managed in the future. The ILUA references areas of National Park and Nature Refuge and nominates particular land uses as well as management arrangements and conditions that are legally enforceable.



Legend

- Barge Routes
- Barge Loading Facility

Overland Conveyor

- Preferred Option
- Preferred Option - Rope
- Queensland Heritage Places
- EPC 2334
- Study Area
- Cadastral Parcels

N

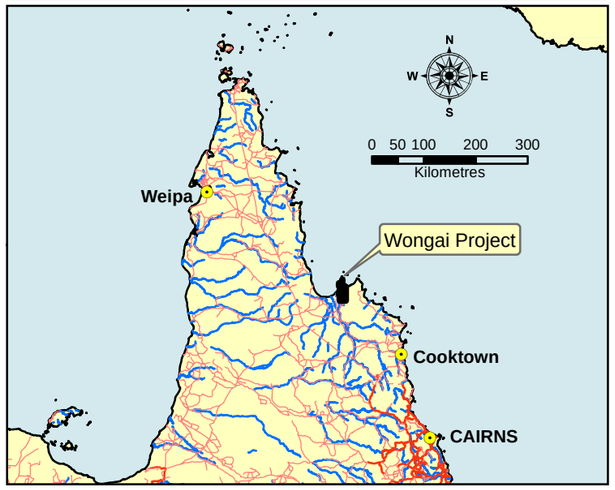
Scale 1:750,000 (A3)

0 5 10 20 30 40 50

Kilometres

Map Projection: GDA94

Figure: Wongai Project Qld Heritage
Project: Wongai Project
Date: 15/08/2011 **Author:** CQ Consulting Group
Document Path: Figure_4.6_A3



WONGAI PROJECT

Figure 4.6
Queensland Heritage Places

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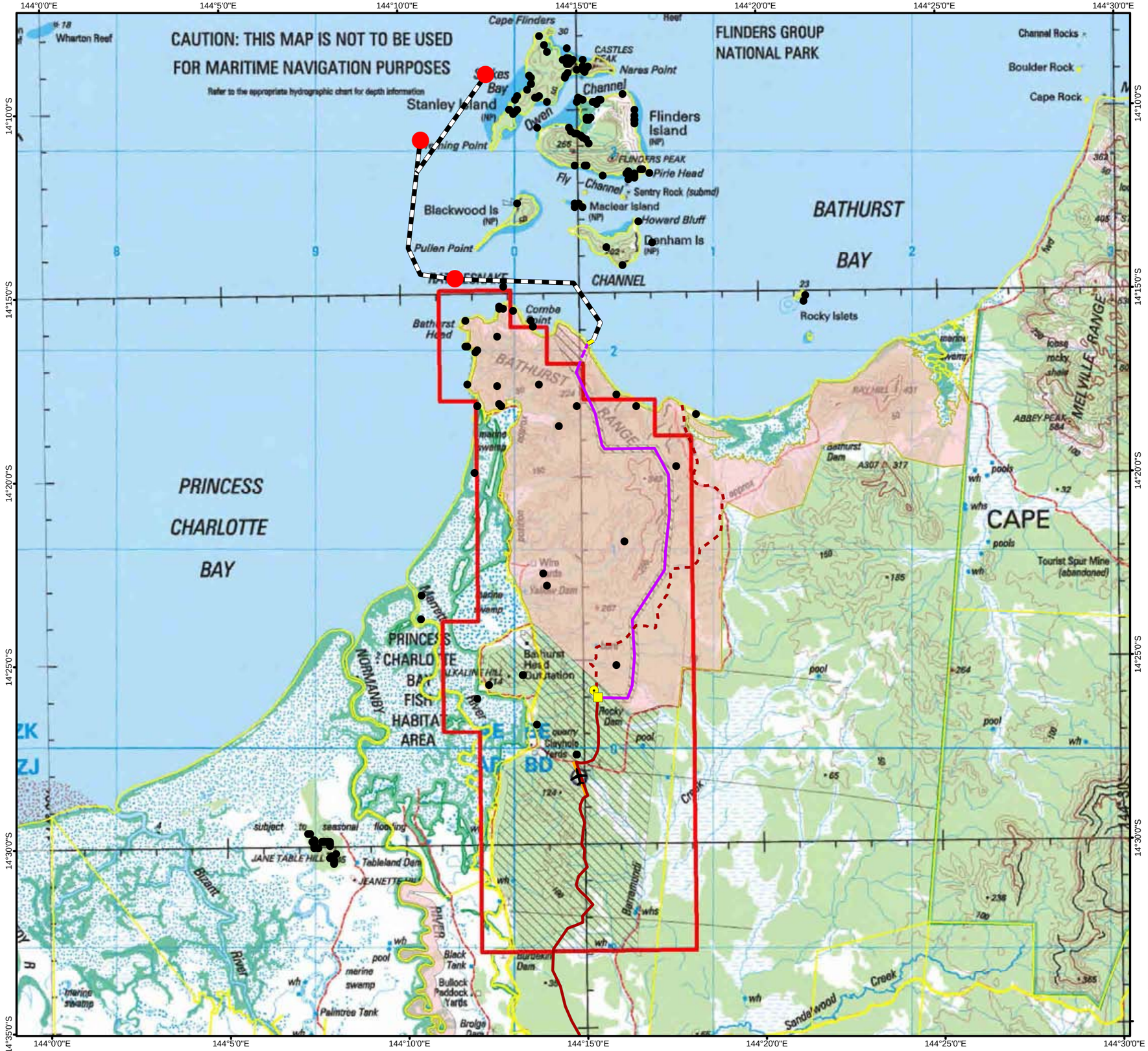


Legend

- Aboriginal Sites
- Transhipment Points
- *Mine Infrastructure Area
- Mine Portal
- All Weather Access
- Existing Coastal Road
- Barge Routes
- Barge Loading Facility
- Sealed Air Strip

Overland Conveyor

- Preferred Option
- Preferred Option - Rope
- Study Area
- EPC 2334
- Nature Refuges
- Cadastral Parcels
- Village

N

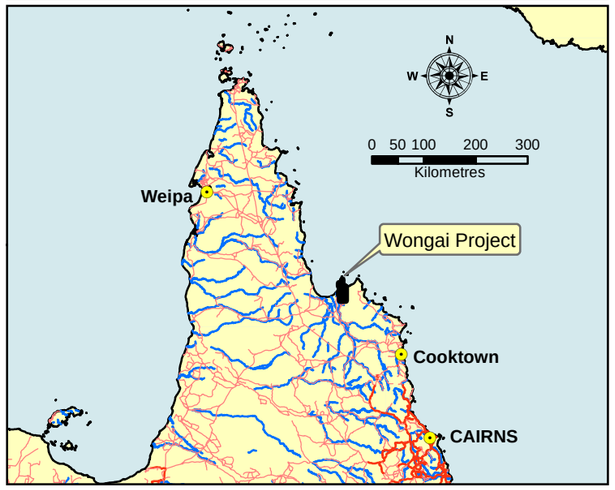
Scale 1:200,000 (A3)

0 1 2 4 6 8 10

Kilometres

Map Projection: GDA94

Figure: Wongai Project GBRMP Zoning
Project: Wongai Project
Date: 12/08/2011 **Author:** CQ Consulting Group
Document Path: Figure_4.6_A3



WONGAI PROJECT

Figure 4.7
Wongai Project Nature Refuge and Aboriginal Sites

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5. Potential Impacts and Management

5.1 Introduction

Potential impacts that could result from the Project will be thoroughly investigated in the EIS. The EIS will consider the potential impacts from the proposed mine and barging activities as well as associated infrastructure such as transport corridors, roadways, accommodation facilities, airstrip and port facilities including construction and operation of these services.

Impacts on terrestrial and aquatic flora and fauna, water quality, visual landform, indigenous and non-indigenous cultural heritage values, land capability, social and economic values, noise and vibration, waste management, hazards, risks and air quality will assessed and mitigated particularly in relation to MNES .

Environmental impacts from underground mining are different to open cut mining. Certain activities such as grazing can often take place in conjunction with underground mining. Careful assessment and planning are critical though to avoid land subsidence and groundwater intrusion.

An Environmental Management Plan (EMP) will be prepared as part of the EIS. This document will demonstrate that the proponent has considered potential impacts and risks and identified appropriate mitigation measures.

Development and operation of the proposed Project could result in environmental, social or cultural impacts if appropriate mitigation measures are not implemented. Beneficial impacts such as employment opportunities, training and significant economic returns to the Traditional Owners will also result from the Project. The following overview of the existing environment and initial assessment of potential impacts is based on information drawn from available published data and previous studies undertaken within the Project Site and surrounds. No field studies or models have been completed to date for this project.

The EIS may identify other potential impacts through detailed investigations carried out during its preparation.

5.2 Physical Environment

5.2.1 Geology and soils

Construction activities for the Project will cause disturbance to soils and result in erosion and sediment run-off if not appropriately managed.

The risk of increasing sediment and other pollutant transportation to sensitive environmental areas, such as the GBRMP and nationally important wetlands will be minimised by the implementation of appropriate control measures during both construction, operation and after decommissioning. It is anticipated that potential impacts will be managed through the implementation of a Construction and Operational EMP.

The Proponent will perform the appropriate assessment to determine the type, extent and characteristics of the soils within the Project Site. In general terms, soil management would involve the following:

- Identification of suitable topsoil resources via topsoil profiling and characterisation assessment, prior to stripping and stockpiling as per standard industry and internal procedures;
- Erosion protection of disturbed areas which would be achieved by sediment control traps, drainage lines and progressive rehabilitation; and
- Sedimentation control through the surface water management system.

By following industry standard management techniques, the Proponent aims to recover and store sufficient volumes of topsoil to successfully rehabilitate lands disturbed by mining activities.

With reference to the *'State Planning Policy 2/02 Guideline, Acid Sulfate Soils'*, it is considered that the probability of ASS occurrence in the development of the Project is likely. An Acid Sulfate Soils Management Plan will be developed for the Project prior to exploration drilling on the Project Site. The plan will outline appropriate measures to ensure that all disturbance, treatment, verification testing, movement, re-use and management of ASS originating from site works is conducted in accordance with *State Planning Policy (SPP) 2/02 – Planning and Managing Development Involving Acid Sulfate Soils* and the associated Guideline and *QASSIT Guidelines (1998).*

Data regarding detailed geological investigations will be required prior to earthworks and construction activities commencing onsite. Topographic and sub-surface surveys will also be conducted during the engineering studies. During the EIS phase, investigations will also be undertaken to determine the presence and extent of ASS.

5.2.2 Subsidence

Studies will be undertaken to assess the potential impact of subsidence on the topography, flora and fauna, as well as impacts from underground operations which may result in alteration of the surface and groundwater hydrological regimes. The subsidence modeling will be incorporated into the groundwater and flood impact assessment studies and final land form rehabilitation planning. These studies will all be completed as part of the feasibility studies.

5.2.3 Climate

The area is subject to high levels of summer rainfall and cyclones which will impact on operational activities and infrastructure which at certain times will impact significantly on the operations of the Project. Construction and operational activities will be limited to 10 months per annum with the closure dictated by seasonal change. Under normal circumstances the site will be closed to maintenance activities only from Christmas to the end of February each year.

This issue will be discussed in greater detail during the EIS phase with input from MSQ, DERM and GBRMPA. Advice will be sought on the operational guidelines relating to ship and water safety during cyclonic activity, and mitigation measures for water quality and marine debris impacts.

5.2.4 Hydrology

Construction and operational activities for the Project could cause changes to surface, underground and marine water quality and to natural hydrological flows if not appropriately managed.

Potential impacts could include:

- Sediment from disturbed soils entering waterways;
- Uncontrolled release of water impacted by mining operations;
- Contamination of clean water runoff and drainage from mining operations;
- Changes to surface water flows from subsidence;
- Hydrocarbon and other small scale spillages from storage areas and vehicles;
- Release of sewage and other untreated waste water from construction camps, the mine site operation and accommodation facilities; and
- Groundwater impacts may result as a side effect of mining or through specific use of groundwater as a resource.

Mitigation measures in relation to protection of water quality could include (these are to be investigated further in the EIS and described in the EMP):

- Mining operations will shut down for a couple of months each year to avoid the cyclone season;
- Detailed hydrological assessment will be conducted to determine the potential connectivity between the groundwater and surrounding wetlands. Mine planning design will consider the findings of these studies and design appropriately for maximum protection;
- Covering of the stockpile or wax spray cover to reduce contaminated run-off;
- Chemicals storage or re-fuelling activities not allowed to occur within 100 metres of a waterway;
- Stormwater to be diverted away from construction and operation areas in accordance with an Erosion and Sediment Control Plan;
- Stormwater within construction and operation area to be assumed contaminated and treated as wastewater for use as dust control on unsealed roads, uncovered stockpiles or treated for re-vegetation activities;
- Stockpile pads will be constructed with an impervious base layer to prevent contamination of groundwater from stormwater runoff;
- Fuel tanks within the barges and transhippers to be appropriately designed to meet MSQ and Australian Standards and protocols to be implemented to avoid any pollutants entering waters;

- Minimal stockpiling of construction material will occur close to waterways. If small stockpiles are established, silt fences will be constructed around the stockpiles and will be regularly inspected and maintained;
- All fixed plant will be equipped with drip trays where there is the potential for leaks / spills to waterways. Drip trays will be checked after rainfall events, and any oily water collected and disposed appropriately;
- Spill kits containing suitable equipment will be placed in accessible areas;
- Appropriate screening, dust control, surface and groundwater protection measures will be implemented during the construction phase for all stages of the Project development;
- Only biodegradable hydraulic fluids will be used in machinery working over the water;
- Special care will be taken to ensure all equipment and materials are secure or not placed in a position where they may be lost to the marine environment when working over water;
- Any waste material or construction product that falls into the marine environment will be retrieved immediately and subsequently disposed of in an appropriate manner;
- Fresh concrete will be kept out of the watercourse. If practical, prefabricated structures and precast components would be transported to the site and assembled on site;
- Waste concrete and concrete washouts or similar development materials shall be contained within bunded areas and placed away from drainage lines or stormwater drains;
- Construction within waterways is to be scheduled, as far as practicable, during the dry season. Where heavy rains or floods are predicted, work in the waterway is to cease and the area is to be made as stable as practical;
- Works in and around waterways will be undertaken as quickly as possible in order to minimise potential impacts on water quality, aquatic flora and fauna and riparian vegetation;
- Temporary drainage works are to be installed (channels, bunds, temporary sediment basins etc) where required for sediment and erosion control, and around storage areas for construction and operation materials; and
- Clean water diversion drains to be installed to divert clean stormwater flow from undisturbed areas away from sediment traps.

5.2.5 Infrastructure requirements

Development of this Project has the potential to impact on existing infrastructure such as local roads and accommodation requirements.

During the construction and operational phase there will be an increase in traffic on local roads. Cook Shire Council and Queensland Transport will be approached to discuss the upgrade of public roads. The Project may also require new bridge infrastructure across both the Normanby River and Kalpowar Crossing. Road and bridge design requirements will be finalised during the EIS process.

During the operation phase there will be a requirement within the Project Site for camp accommodation for up to 150 full-time staff, a power generator, two fuel storage sites, water storage and treatment, sewage treatment, waste collection facilities, training and communication infrastructure.

The final source of water for the Project is still being considered however the intent is to use a combination of surface waters and groundwaters if the hydrological studies show the use won't impact on aquifer quality or availability. To support this process and reduce overall environmental impact, all fixed infrastructure will be fitted with water tanks for the capture of water for reuse. The existing onsite dams may also be maintained as water storages to support the needs of the Project. Any water used during construction and operation will be captured, treated and reused as per best practice management identified in the EMP for the Project.

5.2.6 Waste management

The management of solid wastes generated by the Project will be addressed in the EMP, which will be developed during the EIS process. A variety of options will be considered in consultation with Cook Shire Council and DERM. The overlying principals of any waste management system will follow DERM's 'hierarchy of waste'. The development and operation of waste water treatment facilities will also be required and will be investigated during the EIS process.

5.2.7 Rehabilitation and decommissioning

Rehabilitation and decommissioning activities will be part of the overall rehabilitation strategy for the Project. Strategies used to ensure closure criteria would be met include:

- Revegetation programs and monitoring;
- Progressive rehabilitation where possible;
- Removal of unwanted infrastructure as negotiated with local stakeholders;
- Review of contaminated land registers; and
- Annual review of disturbance footprint and liability.

5.3 Biological Environment

5.3.1 World Heritage

The Project is unlikely to cause any impacts on the heritage values of the GBRMP. Management of coal dust at the barge terminal and during loading on ships will need to meet strict criteria to ensure no impacts to water quality or aquatic ecology. Visual/scenic amenity and the impact of the proposed Project on the GBRWHA site will be assessed and evaluated. A world heritage specialist will be engaged as part of the EIS team to assess the potential impacts and to recommend any appropriate mitigation measures if required.

The *Water Quality Guidelines for the Great Barrier Reef Marine Park (2009),* the *Queensland Water Quality Guidelines 2006* and the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000* will provide information on the trigger levels that will guide the EMP for the Project.

5.3.2 National Heritage

The construction activities of the barge loading facility will potentially have some impact upon the visual amenity of the Great Barrier Reef Coast Marine Park (GBRCMP) and the GBRMP.

Further investigation to be conducted under the EIS will include determining impacts from construction activities and operational activities (associated with vessel movements and anchorages).

Several permits for operations will be required for activities in GBRMP and GBRCMP waters including transferring the coal from the barges to the ocean-going vessels, installation and use of mooring at the barge loading facility and other structures, and possibly dredging. Other permits may be required and this will be investigated in the EIS process.

The Proponent is aware of its environmental obligations. The following standard measures, which will result in significantly reduced environmental risks, will be implemented for the Project:

- Operate under the recommendations of the Review of ship safety and pollution prevention measures in the Great Barrier Reef;
- Adhere to GBRMPA's Structures Policy, Dredging and spoil disposal policy;
- Assess all project environmental risks under the GBRMPA's EAM Risk management framework;
- Model off-shore facilities on those operating elsewhere in the world such as those operated in Europe to stringent European Economic Community (EEC) standards in environmental protection and occupational health and safety;
- Only commence loading onto the ocean-going ship when the masters of the barges and the ship are satisfied that all preparations are completed and the prevailing weather conditions are acceptable; and
- Ensure that all sea-going vessels comply with current ballast and quarantine regulations.

Requirements and management strategies will be developed and documented in the EIS.

5.3.3 Register of National Estate

The Project design, construction and operation will need to ensure the registered National estates near the Project Site are not impacted. Mitigation measures will be implemented to ensure the intrinsic environmental and cultural values that each have will be maintained.

5.3.4 Nature Refuge

Kalpowar Nature Refuge which is located on the Project Site is not a national park and therefore does not preclude mining activities. The proponent has committed not to mine in this area which was identified in the 2006 ILUA for the protection of Aboriginal sites, however the proposal would include a conveyor, a stockpile and an access road on this land. The fact the land had been cleared for grazing and previous mine investigations means approximately eighty percent of the route should be able to follow old gridlines and clearing and fragmentation of vegetation should be minimal. The Proponent and the Traditional Owners are well aware of the need to minimise disturbance within the Nature Refuge. A "Ropecon" type conveyor is being considered for the final section of the conveyor route as an option due to its suitability for steep terrains and minimal footprint.

5.3.5 Flora and fauna

Potential impacts to the faunal and floral species protected within the Project Site will be investigated during the EIS process by marine scientists and ecologists. Investigations will include but not be limited to:

- The occurrence of listed species and species habitats within the proposed Project Site;
- Impacts of proposed vessel movements on marine mega fauna;
- The potential for impact from water quality changes to marine and estuarine flora and fauna;
- The impacts of vegetation clearing causing potential habitat loss and landscape fragmentation including:
  - impacts on flora populations through alterations in dispersal patterns;
  - impacts of fragmentation and associated edge effects that may provide opportunities for the introduction and colonisation of declared pest species during construction and operational phases;
  - impacts on fauna through potential disruption of wildlife corridors and ecological processes; and
  - impacts on fauna species that may be affected through direct loss or injury;
- Impacts of suspended sediment on aquatic flora and fauna;
- The occurrence of flora and fauna pest species and how the Project development could assist with tighter controls on the management of these species; and
- Infrastructure design to allow connectivity between water systems to ensure safe fish passage.

Mitigation measures and planning adjustments will be undertaken to ensure the least amount of impact on species and their habitats. Areas of vegetation clearing necessary for mining operations will be minimised where possible, and undertaken in accordance with best practice to minimise potential impacts. Rehabilitation of native ecosystems at mine sites is generally required to mitigate landscape impacts and biodiversity loss. Rehabilitation programs will be developed and implemented to restore native vegetation as necessary. Site selection will aim to minimise disturbances caused by vegetation clearing particularly in vegetation communities noted as "Of Concern".

Flora and fauna management plans will be implemented as sub-sections to the overall EMP focusing particularly on those species listed as Endangered, Vulnerable or Rare under the *EPBC Act* and those listed as Near-threatened or Vulnerable under the *NC Act*. Findings from all investigations will determine the EMP commitments required, however, weed and seed hygiene management measures will be mandatory. The Project impacts will be discussed in detail in the EIS documentation, and management strategies outlined in the EMP.

Shipping operations have the potential to transport Introduced Marine Species (IMS). Baseline surveys for IMS will be undertaken as part of the EIS process. Strategies will be incorporated into the Project Environmental Management System (EMS) to reduce the risk of IMS introduction, including inspection of construction and operational equipment prior to it departing for the Project Site.

The Australian Quarantine and Inspection Service (AQIS) have responsibility for the quarantine clearance of vessels arriving in Australia and waste (including ballast water) removed from these vessels. The management of waste is subject to specific sections of the *Quarantine Act 1908* and *Quarantine Regulations 2000*.

There are mapped Fish Habitat Areas in the vicinity of the Project Site which could potentially be subject to subsidence or downstream impacts arising from changes in hydrology or accidental release of contaminants such as sediment and coal dust. Mine planning will include a detailed model for potential subsidence. Bord and pillar type mining will be used to minimise subsidence risk and groundwater intrusion risk.

5.4 Socio-Economic Impacts

5.4.1 Landholders

The Kalpowar People have a long connection to the land on the Project Site. The Project does not intend to extinguish Native Title. Traditional Owners will be involved in all elements of the Project, including investigation, construction and operational phases. Consultation and involvement of the Traditional Owners is critical to the success of the Project.

A Heads of Agreement has been executed between APC and the Traditional Owners providing the local Indigenous Community with

- Free carried equity;
- Appointment of two Traditional Owners to the Board of APC;
- Additional portion of project profit directed to a Not For Profit Trust, dedicated to Cape York Indigenous education, environmental and housing needs; and
- A generous "head start" education and training fund to maximize job opportunities to local Indigenous persons.

5.4.2 Community

A Social Impact Assessment (SIA) will be conducted to assess the potential impacts on the community and businesses. As the impacts are identified, solutions will be canvassed with stakeholders through the consultation program. The EIS will describe the proposed workforce requirements including the types of roles, skill requirements, housing and transport requirements. A training program is currently being developed by the Proponent for the Traditional Owners in readiness for the Project.

Direct expenditure and the expenditure of its employees and contractors during construction and operational phases will provide increased income to local manufacturing, service, hospitality and other industries.

The types of impacts that will be investigated in the SIA include:

- Environmental impacts on nearby residents;
- Population and demographic impacts;
- Impacts of the Project on local and regional infrastructure needs;
- Impacts of the Project on health services and education;
- Impacts of the Project on Shire Council planning framework;
- Impacts of the Project on Regional Plans;
- Cultural heritage impacts;
- Economic impacts;
- Infrastructure and service delivery impacts;
- Land use impacts;
- Disturbance to rural amenity;
- Flood access; and
- Disturbances to recreational and commercial fishing.

Employment estimates are currently 250 jobs during construction, 200 jobs during operation and 600 jobs for the broader community. Construction is expected to take approximately 12 to 18 months and is largely dependent on weather conditions. The workforce numbers will be firmed up during the Feasibility Study. Any contracting firms will be required to employ a large percentage of the willing and able locals.

A self-sufficient camp will be established onsite where people can live during their work time.

Mining equipment and site infrastructure will be sourced from competent suppliers. Where possible, procurement will favour organisations with a strong commitment to Indigenous involvement.

5.4.3 Commercial activities

The Project will have minimal impact on grazing activities on the Project Site.

A tourism feasibility study conducted in 2008 identified the potential for financial return to Tradition Owners from tourism activities on Kalpowar Station. The Project design would not negate the potential for these possible activities e.g. camping, fishing, helicopter flights, mustering, etc.

An interim socioeconomic impact analysis of a proposed Dreaming Track through Cape York Peninsula was conducted by Marsden Jacob Associates in 2010 on behalf of the Balkanu Cape York Development Corporation. This concept should not be impacted by the Project.

A real benefit of the Project will be the opportunity for the Traditional Owners to derive income from direct employment and services to the Project. Jobs generated by the Project will contribute to welfare reform.

The EIS will include an assessment of the economic benefits from the Project on the local community, the State and the Nation.

5.4.4 Recreational activities

Consideration needs to be given to the potential impacts of this Project on the recreational and commercial users of the Project Site. This will form part of the broader SIA. Certain areas on the mine site will be restricted for safety reasons otherwise the property will still be accessible as it is today for fishing and other activities.

The EIS team will consult with local fishing groups, Vietnam Veterans who access land near the Project Site and community groups to discuss the proposed Project and determine design and operational considerations to ensure impacts to these groups are minimised.

Tourism in the Cape York area is growing annually; however, the Project will have limited impacts on existing infrastructure as the Project plans include transport and community facilities. The proponent will work with Cook Shire Council, government departments and community groups to identify potential impacts on existing infrastructure and services to develop solutions to minimise these impacts. The ships transporting the coal to market will be using the designated shipping channel and impacts will be discussed with MSQ including requirements for navigation.

5.4.5 Indigenous/Non-Indigenous Heritage and Native Title

Aboriginal cultural heritage values of the Project Site are very high and will be investigated thoroughly in the EIS through database searches, site surveys by the Traditional Owners and an archaeologist prior to and during all earth disturbing and land clearing activities.

The World Heritage and National Heritage values of the GBRMP will be investigated and Project impact assessments will be undertaken in the EIS by a World Heritage specialist. A Cultural Heritage Management Plan will be prepared during the EIS to establish the process to ensure the protection of items of cultural heritage significance. A survey and management plan for any items of European heritage significance will also be undertaken during the EIS process.

5.5 Hazard, Risk and Health and Safety Issues

At various phases of the Project, formal risk assessments will be conducted to identify hazards and risks associated with the Project and ensure appropriate control methods are implemented to effectively manage those risks. All risk assessment processes will follow the methodology outlined in AS/NZS 4360. Risk Assessment. AS/NZS 4360 has already been applied to qualitatively rank the risks and opportunities associated with the Project and its mining activities at an initial and high level. The following table presents the results of the risk analysis, with the definitions for High, Medium and Low risk (H, M, L) as detailed in AS/NZS 4360.

Based on the information currently available, a summary of the risks for the Project are provided in Table 5.1 below.

Table 5.5-1: Risk Summary (note a risk can also be a positive benefit)

Aspect	Issues	Risk Level
Native Title, Aboriginal and Cultural Heritage	Cultural heritage investigations (both Indigenous and European) will be undertaken in conjunction with relevant stakeholders to identify any areas of cultural significance. Appropriate management and mitigation plans will be negotiated with relevant stakeholders to prevent or minimise impacts to any significant areas. A Cultural Heritage Management Plan (CHMP) will be developed with the Traditional Owners. Low risk due to Traditional Owners involvement.	L
Geology	Exploratory drilling undertaken within the Project Site under the previous EPC shows significant coal resources with seam thickness and depths suited for underground mining. Further drilling and exploration under the current EPC will be conducted to further refine the resource knowledge and provide specific details for mine planning, the resource and geology for the Project is promising.	L
Soils	The soils within the Project Site do not pose a constraint to mining operations. However appropriate sediment and erosion control will be required during the exploration phase for any water extracted from bores, and for any construction and operation works. Appropriate soil and land use assessments will be undertaken during the EIS process.	L
Water Supply	Raw water is required for the mining operation processing facility and supporting infrastructure. The final source of water for the Project is still being considered however the intent is to use a combination of surface and groundwater resources as long as the hydrological studies show it won't impact on aquifer quality or availability. To support this process and reduce overall environmental impact all fixed infrastructure will be fitted with water tanks for the capture of water for reuse. The existing onsite dams will also be maintained as a water storage facilities to support the needs of the Project.	L
Topography	The Project topography is dominated by the Bathurst Range and surrounded on the coastline by rocky escarpments and marine wetlands. Conveyors may need to be designed to traverse steep inclines.	M
Subsidence	The extent of subsidence will depend on many geological and mining factors which will be assessed as part of the EIS process. The assessment of subsidence will identify any impacts on the topography, surface waters, vegetation, soils, land use, infrastructure and aquifers. While the extent and impact of subsidence is currently unknown, known management processes for mitigation of subsidence impacts are well established and will be implemented as required. Details of impacts and mitigation measures will be including in the EIS.	M
Ecology	The Project contains mapped areas of Littoral Rainforest and Coastal Vine Thickets of Eastern Australian and marine species which have conservation status under State and Commonwealth legislation. Endangered Regional Ecosystems may pose a constraint to the mine layout and associated infrastructure. Where impacts on the ERE are unavoidable, compensatory habitat may be required. There are also an umber of	M

Aspect	Issues	Risk Level
	protected individual species that may utilise the Study Area. These typically occur in association with vegetation communities. These will be assessed during the EIS process and appropriate mitigation measures will be provided as necessary. A Commonwealth referral under the *EPBC Act* will be undertaken prior to commencement of the formal EIS process.	
Social and Community Consultation	The Project is very remote and is situated in a Shire with less than 4000 residents. However the proximity of national parks may pose a constraint to development in terms of conflicting values such as conservation and visual amenity. Where possible the mine plan and infrastructure will be designed to minimise any social impacts and achieve acceptable levels at any occupied dwellings. The Project will result in significant economic benefits for the community.	M
Environment Management	There are a range of potential environmental and social impacts that require detailed assessments to be undertaken and to have appropriate management and mitigation plans in place to minimise potential impacts. These include noise, air quality, visual amenity, waste management, hazard management, greenhouse gases, traffic and transport, accommodation, health and safety, natural hazards and fire, rehabilitation and decommissioning. Without down-playing the significance of each of these issues individually, they all have a similarly detailed assessment approach, and all have tested and established management standards available to be implemented. Their risk to the Project is similar in that they may require significant controls or even alterations to mine planning to be implemented. These issues will all be covered separately and in detail in the EIS.	M
Mine Operations	Operations associated with mining activities present a number of direct and indirect risks to the environment. These risks are best managed by well-considered engineering design for both mining and surface operations. Areas where mining operational risk can be managed by improved design include waste management, use and transportation of oils, fuels, explosives and other dangerous materials, as well as other risks included in this table associated with mine operations, e.g. subsidence.	M
Land Use	Current land use of the Project area is as a Nature Refuge existing under an ILUA; however, under relevant State government policies, *"A nature refuge does not alter any existing rights or future rights related to mineral or petroleum exploration and extraction. However, a nature refuge may require additional condition on exploration and where proposed nature refuge is considered to be of outstanding conservation significance, the conservation significance must be addressed on a case-by-case basis in relation to any proposed exploitation of the resource."* The mining operations would occur on Aboriginal Freehold Land which was set aside for the economic benefit of the Traditional Owners.	H
Water Management	There are three HES wetlands in or adjacent to the Project Site as well as the Marrett River, Barramundi Creek and many other water systems. Management of both surface water systems and operational process water at the Site to ensure it meets regulatory requirements for water quality, flood management and engineering design standards will have a strong regulatory focus and has potential to significantly alter or delay the Project. Potential impacts to groundwater aquifers will also need to be modeled and monitored in detail to ensure any impacts environmental flow is within acceptable limits. Both surface water and groundwater studies will be detailed in the EIS.	H
Site Access	The remote location of the Site presents a risk to the Project until such time all weather access is constructed.	H

6. Statutory Planning

6.1 Relevant Legislation and Approval Requirements

In Queensland, key environmental impact assessments for development are undertaken under one of three Acts, being:

- *SPDWO Act* – process undertaken where a Project is declared to be a 'significant project' for which an EIS is required by the Queensland CG.

This Act draws together a range of powers and functions used by the State Government to facilitate large Projects in Queensland. The CG can declare a Project to be a 'significant project', after having regard to one or more of those factors identified in Section 27 of the *SDPWO Act*, as follows:

a) The relevant planning schemes or policy frameworks, including those of a relevant local government or of the State or the Commonwealth;
b) The Project's potential effect on relevant infrastructure;
c) The employment opportunities that will be provided by the Project;
d) The potential environmental effects of the Project;
e) The complexity of Local, State and Australian government requirements for the Project;
f) The level of investment necessary for the proponent to carry out the Project; and
g) The strategic significance of the Project to the locality, region or the State.

The CG will consider the potential environmental effects the Proposal may have and if a project is declared to be a 'significant project' an EIS will be required according to the processes defined in the Act. The Act sets out the requirements for environmental assessment and public review of the EIS.

- *Environmental Protection Act 1994* (Qld) - This is only pursuant to activities identified as environmentally relevant activities (ERA) under the *Environmental Protection Regulation 2008.* Construction and operation of the mine along with the associated supporting infrastructure and services will require development approval for various ERAs.
- *Sustainable Planning Act 2009* (Qld) – development approvals such as permits for building construction may be required under this act. These cannot be issued until the CG process runs its course.

Various assessments, permits and approvals under State and Commonwealth legislation may be required during the construction and operation of the Project. A summary of the legislation relevant to the Project is set out in Table 6.2 and Table 6.3.

From a desktop review it is anticipated the Project would trigger both a State "significant project" (refer Table 6.1) and a Commonwealth "controlled action" assessment process.

Table 6.1: Items for Determination in Consideration of a Significant Project

Item for Consideration	Reason
IAS	Information in this IAS in relation to the nature of, the reason for and the potential impacts of the Wongai Project.
Planning Schemes or Policy Framework	The planning scheme area of the Cook Shire Council is the area under which the project is zoned. The current zoning identifies the project area as rural which would require a Material Change of Use as described in Section 6.1.3.
Potential Effect on Relevant Infrastructure	The Project is likely to require an upgrade of both main and subsidiary road networks. Water Supply – likely to be sourced from on-site dams and rainwater tanks however it is probable that underground water from a suitable source may also be required. Sewage Treatment – the Project with be self-sufficient with its own waste water treatment plant.
Employment Opportunities	The Project has the potential to provide direct employment for up to 250 people during construction, with a further 200 people during operation/maintenance. Approximately 600 positions will be created in the region as a result of flow on economic opportunities. This will be a significant increase in employment within the region, with the provision of supporting onsite infrastructure for Traditional Owners to return to country and gain employment.
Potential Environmental Effects	The potential environmental impacts may include vegetation clearing, water usage, water quality, waste disposal, coastal marine processes, air quality and dredging. The proposed mitigation and engineering measures will avoid or minimise these impacts. A detailed environmental assessment will be carried out during the preparation of the EIS.
Complexity of local, State and Australian Government Requirements	It is anticipated that the Project will trigger a referral and assessment at all levels of government and require a "whole of government response". An overview of the key legislative and approvals processes that are likely to be triggered by the Project are described in Table 6.2 and Table 6.3.
Investment Requirements	The Project's total expenditure will be approximately $500 million.

The Project will be referred to the Commonwealth Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act 1999* to make a decision as to whether the action is a "controlled action" requiring approval under the EPBC Act and the appropriate process of assessment.

As the Project has been referred to SEWPaC, this process will determine the controlling provisions under the EPBC Act.

These provisions may include the following:

- Sections 12 and 15A (World Heritage properties);
- Sections 18 and 18A (Listed Threatened Species and Communities); and
- Sections 20 and 20A (Listed Migratory Species).

The environmental impact assessment process in Part 4, Division 3 of the SDPWO Act is an accredited assessment process. This process may occur as a bilateral agreement between the Commonwealth and Queensland or as a parallel EIS process. In the event that the Commonwealth Minister for the Environment determines that the Project is a "controlled action" subject to assessment under the EPBC Act the Proponent believes the most effective assessment process would be under a bilateral agreement. A summary of the assessment process under Part 4 of the SDPWO Act is set out below in Figure 6.1.

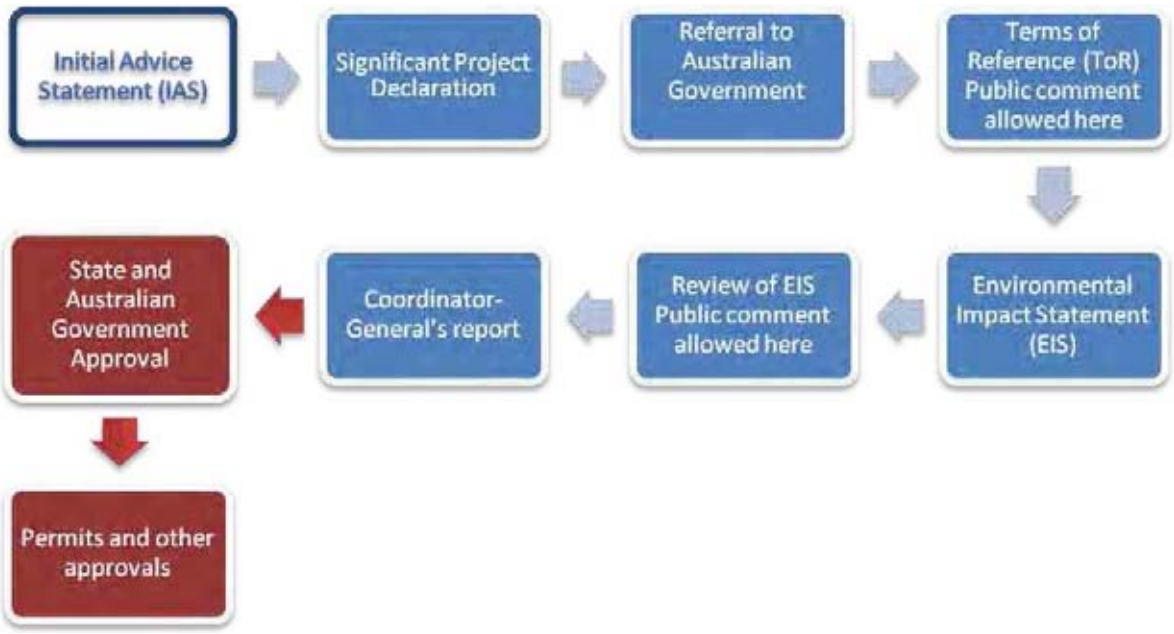

Figure 6.1: Accredited State EIS Process

The environmental impact assessment process is likely to involve up to eight stages including:

- Initial Advice Statement – process for declaration of a significant Project (this document);
- Significant project declaration;
- Referral to Australian government (for determination if a 'controlled action' is required);
- Preparation of terms of reference by government (public comment is provided at this stage);
- Preparation of an EIS;
- Review and assessment of EIS (public comment is provided at this stage);
- Preparation of a supplementary EIS report (if required); and
- Preparation of the Coordinator-General's EIS evaluation report.

After an EIS has been completed and the CG's report and the Australian Government's report have been finalised, they will then be distributed the relevant Government agencies and local authorities which are responsible for approvals and overseeing project development. This involves:

- Australian Government permits (GBRMP permits);
- State Development approvals and permits; and
- Local authority (Council) approvals.

6.1.1 Australian Government legislation

Table 6.2: Commonwealth Legislation applicable to the Project

Commonwealth Legislation	Administering Authority	Approval Trigger	Approval Type	Relevance to Project
Energy Efficiency Opportunities Act 2006	Department of Resources, Energy and Tourism (DRET)	Assess energy reduction opportunities and minimise energy use.	Annual report required once Project approved.	Requirements of the Act need to be considered during the Project planning stage.
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Department of Sustainability, Environment, Water, Population and Communities (SEWPaC)	Action which has, or is likely to have, a significant impact on a Matter of National Environmental Significance (MNES).	Referral to SEWPaC for determination of 'controlled action' status.	Potential impacts on MNES must be dealt with in an Environmental Impact Statement (EIS). Vulnerable and endangered species on the Site will trigger the need to refer under this act. The proposed barging and transhipment activities will be undertaken in the proximity of the GBRMP and World Heritage Area, which are recognised as MNES under Part 3 of the *EPBC Act*. It is unlikely that the Project will have significant impact on these values.
Great Barrier Reef Marine Park Act 1975	Great Barrier Reef Marine Park Authority (GBRMPA)	A framework for planning and management, including through zoning plans, plans of management and a system of permissions. The *GBRMP Zoning Plan 2003* ensures the protection of habitat types by defining activities that can occur at each location.	Permit.	Marine infrastructure (terminal), dredging (if required), shipping and transportation of goods at sea. The referral under the *EPBC Act* will trigger the permitting application process under this act including barging activities within the conservation zone off the coast.
Native Title Act 1993 NT Act	The Attorney-General's Department and Minister for Families, Housing, Community Services and Indigenous Affairs	The Project may traverse land upon which Native Title has not been extinguished.	Compliance with the *NT Act*, including the need for relevant notifications or agreements under the Act will be addressed in the EIS.	Part of the Land comprising the Project area is subject to the following Native Title Claim: QC97/48 by the Cape York Land Council Aboriginal Corporation and covered by ILUA QI 2005/028.

6.1.2 State legislation

Table 6.3: State Legislation applicable to the Project

State Legislation	Administering Authority	Approval Trigger	Approval Type	Relevance to Project
Aboriginal Cultural Heritage Act 2003	DERM	Activity that has the potential to harm Aboriginal cultural heritage	Cultural Heritage Management Plan (CHMP).	Proponent has to comply with the cultural heritage 'duty of care' and take all reasonable and practicable measures to protect cultural heritage.
Aboriginal Land Act 1991	DERM	Land that is or has the potential to be transferred, claimed or leased by Aboriginal people under this Act.	Negotiated agreement with Aboriginal Title holders.	Land on which part of the Project is situated is reserve tenure held by the Kalpowar Aboriginal Land Trust.
Environmental Protection Act 1994	Department of Environment and Resource Management (DERM)	Project is likely to involve a range of Environmentally Relevant Activities (ERA's) depending on final construction and operational requirements.	Permits.	EIS prepared under the *State Development and Public Works Organisation Act 1971* to identify ERAs associated with construction and operational phases of the Project.
Environmental Protection (Air) Policy 2008	DERM	Regulates current and future air quality to safeguard health and well-being.	Permit.	Air quality on the Site must comply with guideline limits specified in the EPP (Air).
Environmental Protection (Water) Policy 2009	DERM	Environmental Values (EVs) and Water Quality Objectives (WQOs) have been established for many waterways in Queensland under Schedule 1.	Permit.	Relevant guidelines will include the Queensland Water Quality Guidelines (QWQG) (DERM 2009); the Australian and New Zealand Water Quality Guidelines for Fresh and Marine Waters (the National guidelines) (ANZECC & ARMCANZ 2000); and documents published by a recognised entity (such as GBRMPA) are relevant.
Mineral Resources Act 1989	DME	The prospecting, exploration and mining of minerals and associated land use conflicts.	Exploration Permit, Mining Development Lease, Mining Lease.	Geotechnical Surveys and mining operations will require permits, environmental authority and lease approvals from DEEDI.

State Legislation	Administering Authority	Approval Trigger	Approval Type	Relevance to Project
Nature Conservation Act 1992	DERM	Clearing or interference with declared and protected areas or wildlife habitats.	Permit required for disturbance or interference with listed species.	A nature refuge exists on the northern portion of the Project Site. Underground mine unlikely to impact on environmental values of Site. Flora and fauna surveys will determine if any species under the act are present on the Project Site.
Queensland Coastal Protection and Management Act 1995	DERM	The principal objectives of the Act are the protection, conservation, rehabilitation and management of the state's coastal resources and biodiversity by the provision, of a coordinated and integrated management and administrative framework for the ecologically sustainable development of the coastal zone.	Permits.	Development in a coastal area. Tidal works permit (sought under the Operational Works permit process).
Queensland Fisheries Act 1994	DEEDI	Part 6 of the *Fisheries Act 1994* provides for the declaration of fish habitat areas and the protection of marine plants against unlawful removal, destruction or damage.	Permit.	Fish Habitat Areas (FHA), marine plants and listed species. Permit will be required if works impact on any mangroves and for works in tidal areas.
Queensland Heritage Act 1992	DERM	Regulation, in conjunction with other legislation, for development affecting cultural heritage significant place and providing for heritage agreements to encourage appropriate management of Queensland heritage places.	Heritage Agreement.	The EIS will include comprehensive surveys and the development of mitigation measures to avoid impacts on these values.
Sustainable Planning Act 2009	Department of Local Government and Planning (DLGP)	Triggers for development requiring assessment and approval under the relevant planning scheme will be reviewed in detail in the EIS.	Material Change of Use and Development Permit.	Approvals for associated buildings and infrastructure will require assessment against the Planning Scheme for the Cook Shire Council in accordance with the Integrated Development Assessment System (IDAS).

State Legislation	Administering Authority	Approval Trigger	Approval Type	Relevance to Project
Vegetation Management Act 1999	DERM	Native vegetation clearing	Development Permit.	Clearing of vegetation protected by the *Vegetation Management Act 1999* may be required. The triggers for the provision of vegetation offsets will be explored as part of the EIS.
Water Act 2000	DERM	Taking or interfering with water in a watercourse, lake or aquifer.	Permit and/or licence.	Certain works will require riverine permits e.g.: bridge over Kalpowar Crossing. Water may be sourced from underground water sources or onsite dams. Allocation licences will be applied for if groundwater extraction planned.

6.1.3 Local Government approvals

The Project is within the Cook Shire Council local government area. The proposed coal mine will represent a Material Change of Use (MCU) of the land as per section 10 of the *SPA*. The specific requirements relating to assessment and approval under the relevant planning scheme will be reviewed in detail in the EIS.

The EIS process under the *SDPWO Act* modifies the Integrated Development Assessment Process (IDAS) under *SPA*, so that the EIS process replaces the Information, Referral and Notification Stages of the IDAS process under *SPA*. At the completion of the EIS, development application/s under *SPA* will be made to the relevant assessment manager, and the CG's report will be taken to be a Concurrence Agency response under *SPA*.

Additional approvals, including Operational Works and Environmental Relevant Activity (ERA) activities may also be required, depending upon the final development proposal and ancillary infrastructure and uses associated with the mine, including roads, services infrastructure, workers' camps, filling and excavation and so on.

6.1.4 Other legislation

Other legislation which could be triggered by this Project includes but is not limited to:

- *ANZECC Best Practice Guidelines for Waste Reception Facilities at Ports, Marinas and Boat Harbours;*
- *Environmental Protection Policy (Air) 2008;*
- *Environmental Protection Policy (Noise) 2008;*
- *Environmental Protection Policy (Waste Management) 2000;*
- *Land Act 1994;*
- *Land Protection (Pest and Stock Route Management) Act 2002;*
- *Marine Parks Act, 2004;*
- *Nature Conservation (Wildlife) Regulation 2006;*
- *Quarantine Act 1908;*
- *Quarantine Regulations 2000;*
- *Soil Conservation Act 1986;*
- *State Coastal Management Plan, 2002*[1]*;*
- *State Planning Policy 1/92 – Development and Conservation of Agricultural Land;*
- *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils*;
- *Temporary State Planning Policy 1/10 Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments*;
- *Transport Infrastructure Act 1994; and*
- *Transport Operations (Marine Pollution) Act 1995.*

6.1.5 Proposed EIS studies

The investigations to be conducted during the EIS will be specified in the Terms of Reference which will be developed by the State and Australian governments with input from the public. Likely areas of assessment include:

- Air quality modelling and assessment;
- Noise assessment;
- Bathymetric surveys;
- Greenhouse gas assessment;
- World heritage values assessment;
- Hydrogeological surveys;
- Coastal engineering modelling;
- Environmental noise assessment;
- Ecological assessments;
- Soil and groundwater contamination assessment;

[1] *The 2002 State Coastal Management Plan remains in force until commencement of the State Coastal Plan, which is anticipated to take place in mid 2011.*"

- Water quality monitoring and assessment;
- Traffic and transportation study;
- Socio-economic assessment;
- Hazard and risk assessment; and
- Cultural heritage assessments.

6.2 Zoning and Planning Scheme

The subject site is within the Rural Zone of the Cook Shire Council Planning Scheme. A detailed assessment of the Project against the relevant planning scheme provisions will be carried out as a part of the EIS.

6.3 Mineral and Petroleum Resources

The Project Site is not located on or adjacent to any existing mining or petroleum activities. No mining leases are situated within close proximity to the Project Site. The closest mining lease is situated at Cape Flattery, approximately 120 kilometres to the south east. There are no petroleum resources identified for the Project Site or the surrounding area.

6.4 EPC 2334

The proponent has applied for an EPC related to the Project which is detailed in Table 6.4 below and the area shown in Figure 3.1. The application, lodged with DEEDI is in accordance with section 81 of the *Mineral Resources Regulation 2003*. The current exploration permit (EPC 2334) covers the same blocks/sub-block as historical EPC 463, however the proposed activities will be constrained to the study area one kilometre from the National Park boundaries and at least 500 metres from the Fish Habitat Area.

Table 6.4: Proposed Wongai Project Exploration Permit Tenures

EPC Tenure No.	Status	No. of Sub-blocks
2334	Application	101 (To be determined having regard to potential impacts on environmentally sensitive lands and with regard to any planning restrictions)
463	Expired	101

7. Conclusions

The Project will see the development of a small underground coal mine on land identified by the Kalpowar People as a resource that has the potential to provide significant benefits for community members through the establishment of trusts for health, education, cultural and housing needs. In 2006 the Project Site was identified by the Traditional Owners, DERM and the conservation groups as being set aside for future development. The Project is proposing to provide carried ownership rights (equity) for the Traditional Owners, exceeding historical levels of support at other mining operations across Australia.

Extensive studies previously conducted by Utah, BHP Australia Coal and Bathurst Coal Pty Ltd on the Project Site in the 1970's, 1980's and 1990's identified reserves of high quality coking coal. Previous feasibility studies which were conducted when the price of coking coal was much less than it is today recommended that the resource not be mined due to uncertainty with imminent conservation declarations adjacent to the Site. Although the Project Site is adjacent to a number of conservation areas including important wetlands, national parks and fish habitat areas, the Site itself is only constrained by a nature refuge on the northern portion, which does not exclude mining. Other potential constraints will be identified in the EIS for incorporation into the mine design.

The Project Site has been significantly disturbed in the past due to uncontrolled fire regimes, historic exploration activities, cattle grazing, clearing, unrestricted camping, shooting, illegal dumping and four-wheel driving by visiting campers. Development of a mining operation will enable tighter controls and therefore improved protection of environmental and cultural values on the property. The Project will avoid or minimise impacts to the environment, cultural and social values through careful mine planning, concept planning incorporating previously disturbed areas, the use of covered innovatively designed conveyors which have minimal footprint requirements and the construction of a small jetty instead of a traditional port facility. Shallow draft barges will transport coal to the export ships negating the need to dredge.

With predicted exports of only 1.5 Mtpa the Project has an anticipated mine life of 30 years and will only supply approximately one ship per month.

Comprehensive studies will be undertaken during the EIS to identify potential impacts and to recommend ways in which to avoid or minimise these impacts. The Proponent is committed to developing an Environmental, Cultural and Safety System for the Project prior to the commencement of the onsite field investigations. This system will be built on as more information is made available regarding the Project Site and the Project design. Risk assessment and mitigation will be considered prior to any task or activity taking place on the Site.

Consultation with key stakeholders commenced in early 2011. In addition to the Local, State and Australian government agencies, the key stakeholders are Traditional Owner's from adjacent lands, landowners and neighbours, the communities of Cooktown, Hope Vale, Lakeland, Laura and Coen, fishing groups, businesses and tourism groups.

The consultation process will aim to build community awareness and understanding of the Project. Input will be sought from all stakeholders throughout the EIS to ensure they are informed about the Project, have input into identifying potential impacts and proposing acceptable mitigation solutions.

As per the legislative process the EIS will be publicly advertised and displayed for public comment prior to the Australian and State governments undertaking an assessment of the proposed Project.

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9. Glossary

Term	Explanation
AHD	The Australian Height Datum is a geodetic datum for altitude measurement in Australia
ANZECC	Australian and New Zealand Environment and Conservation Council
AQIS	Australian Quarantine and Inspection Service
ASS	Acid Sulfate Soils
BoM	Bureau of Meteorology
BHP	Broken Hill Proprietary
CG	Coordinator-General
CSC	Cook Shire Council
DEEDI	Queensland Department of Employment, Economic Development and Innovation
DERM	Queensland Department of Environment and Resource Management
DME	Queensland Department of Mines and Energy
DWT	Dead Weight Tonnage
EEC	European Economic Community - an international organisation created with a view to bringing about economic integration (including a single market) among the Inner Six of European integration; the Western European countries of Belgium, France, Germany, Italy, Luxembourg and the Netherlands.
EIS	Environmental Impact Statement
EMP	Environmental Management Plan – part of the EIS process
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPP Water	*Environmental Protection (Water) Policy 2009*
EVs	Environmental Values
FHA	Fish Habitat Areas
Fisheries Act	*Fisheries Act 1994* (Qld)
GBR	Great Barrier Reef
GBRCMP	Great Barrier Reef Coast Marine Park is a State marine park that runs the full length of the Great Barrier Reef Marine Park (GBRMP) from just north of Baffle Creek (north of Bundaberg) to Cape York. It provides protection for Queensland tidal lands and tidal waters.
GBRMP	Great Barrier Reef Marine Park is a National marine park that protects the Great Barrier Reef from damaging activities.
GBRMPA	Great Barrier Reef Marine Park Authority
HES	High Ecological Significance wetlands as described in the *Temporary State Planning Policy 1/10: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments*
IAS	Initial Advice Statement
IMS	Introduced Marine Species
MNES	Matters of National Environmental Significance under the *EPBC Act*
Mtpa	Million tonnes per annum
NCA	*Nature Conservation Act 1992* (Qld)

NCWR	*Nature Conservation (Wildlife) Regulation 2006*
Term	**Explanation**
RE	Regional ecosystems as defined by Sattler and Williams (1999) as vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil.
RL	Reduced Levels which means a height above (or below) a datum such as the AHD.
RNE	Register of National Estate under the *Australian Heritage Commission Act 1975*. The RNE was frozen on 19 February 2007, which means that no new places can be added or existing places removed. The RNE will continue to act as a statutory register until February 2012. During this period SEWPaC is required to consider the RNE when making decisions under the *EPBC Act*
SDPWO Act	*State Development and Public Works Organisation Act 1971*
SEWPaC	Commonwealth Department of Sustainability, Environment, Water, Population and Communities
SIA	Social Impact Assessment – part of the EIS process
USL	Unallocated StateLand
VMA	*Vegetation Management Act 1999* (Qld)
WP	Wongai Project
WQOs	Water Quality Objectives

10. Limitations of this Report

The conclusions presented in this Initial Advice Statement (IAS) are based upon observations and information collated from desktop studies and a preliminary site inspection of the described Study Area. The authors have relied heavily on the accuracy and completeness of this information as it existed at the time of writing.

In preparing this IAS, CQG Consulting has relied upon, and presumed accurate, any information provided by the Proponent and/or from other sources as deemed reliable. Except as otherwise stated in the IAS, CQG Consulting has not attempted to verify the absolute completeness or accuracy of any such information. If the information is subsequently determined to be incomplete, false or inaccurate then it is possible that the observations and conclusions as expressed in this report may change at the time of writing of the EIS documentation.

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