Fitzroy Terminal



FITZROY TERMINAL PROJECT
INITIAL ADVICE STATEMENT
JUNE 2011

CONSULTING GROUP
ENVIRONMENTAL ENGINEERING

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Executive Summary

This Initial Advice Statement (IAS) has been prepared by CQ Consulting Group on behalf of Fitzroy Terminal Project Pty Ltd. The proponent, whose major shareholder is a leading Queensland company, the Mitchell Group, proposes to deliver the Fitzroy Terminal Project (FTP) to help alleviate the current coal export demands on port infrastructure along the east coast of Australia.

Using a combination of existing and new rail networks, an overland conveyor system, modern covered barges and purpose built transhippers; the $1.2 billion project will have the capacity to export up to 22 million tonnes of coal per annum.

Located approximately 50 kilometres south-east of Rockhampton and approximately 40 kilometres north-west of Gladstone in Central Queensland the FTP will provide a low impact, timely and innovative coal export solution. The Project will support and contribute to the regional and national strategies for sustainable and economic development.

The FTP will initially handle approximately 10 million tonnes per annum (Mtpa) of coal from the existing Blackwater and Moura rail networks via the multi-user rail spur corridor also proposed for Xstrata Coal's (Xstrata) Balaclava Island Coal Export Terminal (BICET). The FTP coal will then be barged along Raglan Creek near Port Alma and transferred onto ships in the open waters under strict environmental controls.

The Project will include construction of a rail line, rail unloading facility, stockyard and barge loading terminal as well as upgrades to power and water supply and the purchase of marine vessels. Approximately 380 people will be employed directly on the Project during construction and 150 people during the operational phase. Indirect community benefits will include flow-on business opportunities, marine operational training and improvements to public facilities at Port Alma.

FTP is being developed to synergize with other infrastructure projects, including the approved Wiggins Island Coal Export Terminal (WICET) development and Xstrata's proposed BICET Project. It will provide an innovative export solution for new and existing coal mine projects within the Central Queensland Region, including low tonnage coal mines which are often excluded from the major port developments.

It is anticipated the Project would trigger both a State and Commonwealth assessment process and that the Environmental Impact Statement (EIS) would be undertaken under the bilateral agreement between the Commonwealth and Queensland Government relating to the impact assessment process.

A comprehensive EIS assessment and approvals process under various pieces of Local, State and Commonwealth legislation will be required. This IAS has been prepared to provide sufficient information to the government and the community in relation to potential environmental, planning, economic, cultural and social impacts associated with the construction and operation of the FTP. This information is intended to trigger and initiate the consultation process and scoping of the Project as well as enabling:

- The Coordinator-General (CoG) to declare the Project a "Significant Project" under the provisions of the *State Development and Public Works Organisation Act 1971* (*SDPWO Act),* and;
- The Commonwealth Minister for the Environment to declare the Project a "controlled action" under the *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*) as part of the referral under that Act.

Items for consideration in determining declaration as a significant project under Section 27 of the *SDPWO Act* are listed in **Table ES1**.

Table ES 1: Items for consideration in determination of a significant project

Item for Consideration	Reasons
IAS	Information in this IAS in relation to the nature of, the reason for and the potential impacts of the FTP.
Planning Schemes or Policy Framework	The Project falls within the planning scheme area of both the Rockhampton Regional Council and the Gladstone Regional Council. The terrestrial portion of the Project area is currently zoned as rural under the Calliope Shire Council Planning Scheme. The terminal and barging facility will be based within the limits of the Port Alma Operational Zone and shipping activity will occur within designated shipping channels. The Project will support key government priorities such as easing congestion at coal port facilities along the Central Queensland coast.
Potential Effect on Relevant Infrastructure	Roads – increased traffic on the nearby Bruce Highway, possible permanent rural road closures due to new rail corridor. Rail – rail spur connection to the North Coast Line. Water Supply – water will potentially be drawn from the Gladstone – Fitzroy Water Pipeline Project (long term). Sewerage Treatment – sewage will be treated in an on-site facility.
Employment Opportunities	The Project has the potential to provide direct employment for up to 380 people during construction, with a further 150 people during operation/maintenance, plus flow-on opportunities.
Potential Environmental Effects	It is anticipated that the Project will trigger referral and assessment at all levels of government and require a whole of government response. An overview of the key legislative and approval processes that are likely to be triggered by the Project are set out in **Section 1.5** and **Table 1.2** of the IAS.
Complexity of local, State and Australian Government Requirements	It is anticipated that the Project will trigger 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 set out in **Section 1.5** and **Table 1.2** of the IAS.
Investment Requirements	The Project's total expenditure will be approximately $1.2 billion (Stages 1 and 2).
Strategic Significance of the Project	The Project will involve a significant investment in the local community and Queensland economy, provide substantial employment opportunities at a regional level, and contribute to the provision of critical infrastructure to meet the increasing global demand for export quality coal. The FTP will also cater for smaller tonnage mines that are not well accommodated for in current or future proposed coal port facilities.

1 Introduction

1.1 Project Overview

Located approximately 50 kilometres south-east of Rockhampton and 40 kilometres north-west of Gladstone and in Central Queensland (**Figure 1.1**) the FTP will provide a low impact, timely and innovative coal export solution. It will build on proposed rail infrastructure and use proven barge technology to export around 10 million tonnes per annum (Mtpa) of coal initially (Stage 1) and up to approximately 22 Mtpa per annum by Stage 2.

The multi-user rail corridor and stockpile areas nominated for the proposed Xstrata Balaclava Island Coal Export Terminal (BICET) Project allows for additional users. The FTP proposes to construct a rail line within this multi-user corridor and coal stockpile sites within the stockyard areas. The Project also includes upgrades to the existing power supply, connection of a water supply pipeline, construction of a 13-kilometre rail line, stockyards, a three-kilometre covered conveyor and a barge loading terminal near Raglan Creek (**Figure 1.2**).

The FTP will initially transport coal from the existing Blackwater and Moura rail networks via the proposed rail corridor spur off QR National's North Coast Line. The coal will then be stockpiled on a site identified by the Gladstone Port Corporation (GPC) and Xstrata on land adjacent to the proposed BICET Project stockyard as being earmarked for other users. It will then be transferred via a three kilometer covered conveyor through a terminal straight into the hulls of covered barges. The coal will be barged along Raglan Creek within port limits near Port Alma prior to unloading from the barges onto ships in the open waters using purpose built transhippers operating under strict environmental controls.

Barging is not a new concept, increasingly improving as an effective mode of transport throughout the world for example:

- Transporting goods by barging is used extensively in Europe, the Asia-Pacific and North and South America due to the need for minimal onshore development, efficient loading capabilities and low environmental impact transport movements;
- In Australia barging operations are used to transport materials at various ports including the Gladstone Harbour and to transport iron ore from Onesteel at Whyalla to an offshore transhipper in the upper Spencer Gulf in South Australia; and
- The vast majority of the 200 million tonnes of coal produced in Indonesia each year is transported by barge at some time in its delivery to ship.

Detailed studies will be undertaken for a range of disciplines during the EIS to determine the potential environmental, cultural and social impacts that could arise as a result of the Project and to determine appropriate mitigation measures to avoid or minimise these impacts.

Upgrades to major infrastructure and third party operations indirectly associated with this project will not form part of the EIS including the following:

- Duplication of the North Coast Rail line(NCL);
- Rollingstock and workshops for the NCL;
- Upgrades to power transmission lines; and
- Shipping of coal from the transhipper to offshore destinations.

The proponent is working closely with QR National to plan for development of infrastructure and the long-term rail transport of coal from the mines to the terminal.

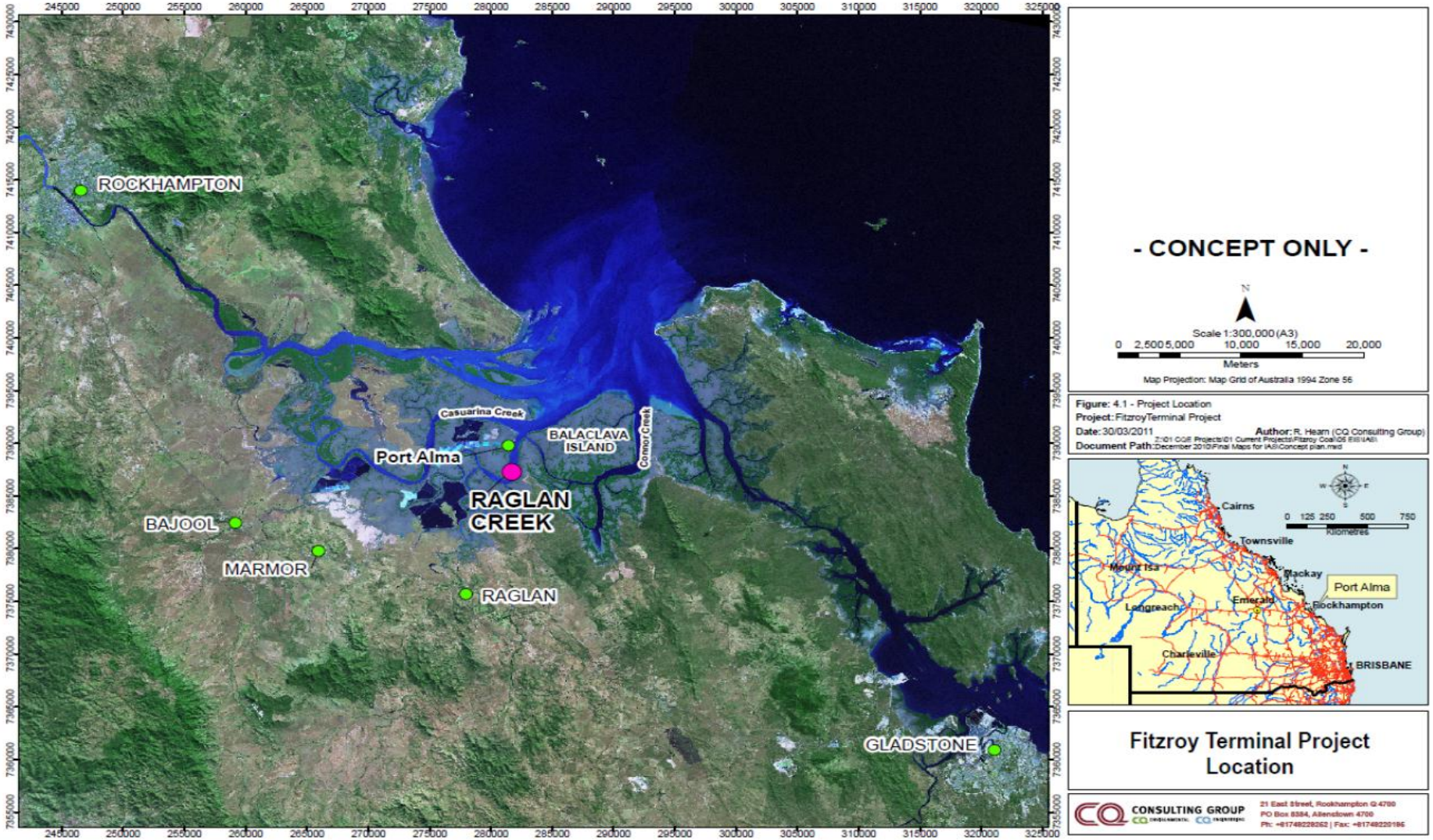

Figure 1.1: Project Location

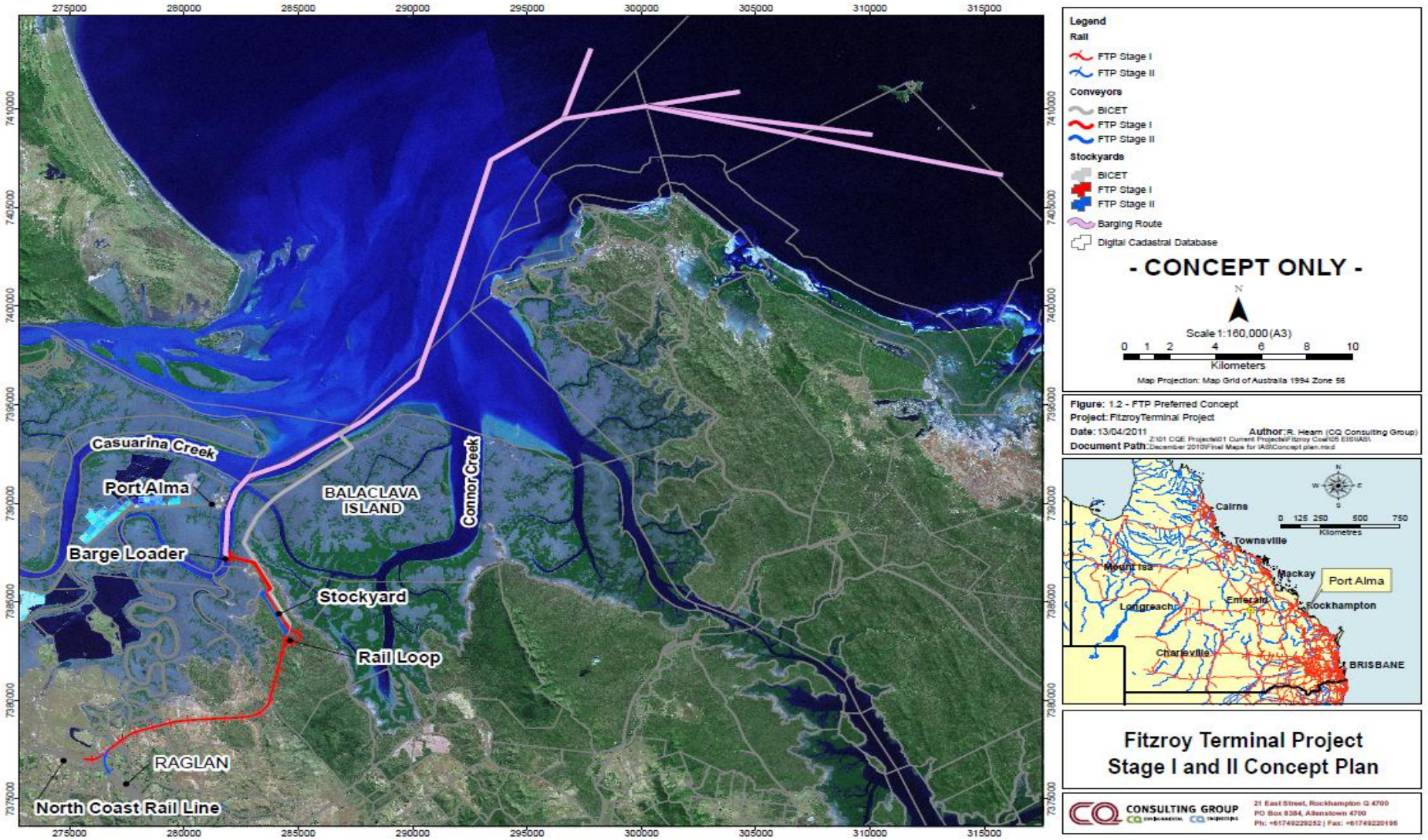

Figure 1.2: Fitzroy Terminal Project Concept Plan to Transhippers *(note FTP is not part of Xstrata BICET Project)*

1.2 The Proponent

The proponents for the FTP include Brisbane based family owned company, The Mitchell Group (51 percent) and a consortium of Australian private investors with mining and major project development experience who own the remaining 49 percent.

Fitzroy Terminal Project Pty Ltd was formed in 2010 as a special purpose company for the development of the FTP. The investors have extensive experience with developments throughout Australia and South-East Asia.

Contact details for FTP and EIS Project Manager are provided in **Table 1.1**.

Table 1.1: Proponent Contacts

Contact Details	Mitchell Group - Mitchell Ports & Infrastructure	EIS Project Manager CQ Consulting Group
Name	Ben King	Patrice Brown
Title	Director, Project Manager Fitzroy Terminal Project Pty Ltd	Director CQ Consulting Group (CQ Environmental)
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Mitchell Group is an Australian company with global reach and business in the delivery of unconventional energy outcomes, coal and gas drilling, port development and operation, infrastructure and equipment supply.

Operating through vertically integrated entities, Mitchell Group assimilates knowledge and leverages off existing specialised capabilities to add value to projects.

Originally founded in 1969 by Peter and Deidre Mitchell, Mitchell Group - formerly Mitchell Drilling Contractors- was an exploration drilling company. Over the next 40 years the small scale domestic operation grew to become the largest privately owned drilling company in Australia and built a solid reputation as an industry leader and drilling technology pioneer.

The company expanded internationally in early 2001 and in 2008 the Australian drilling operations were sold to infrastructure specialist AJ Lucas. Under the guidance of CEO Nathan Mitchell, the Group retained the international drilling and equipment hire operations and has continued to secure long term quality drilling contracts.

A shift in business strategy shortly after the sale of Australian operations has also seen the company successfully diversify into new industries and manage collective enterprise. Mitchell Group has projects in Mozambique, India, China, Sri Lanka and Australia and the company continually endeavours to explore and assess new ventures such as the FTP and partnerships that provide for integration with their business model.

1.3 Project Need

Australia is the world's largest coal exporter, with Queensland contributing a large share of these exports. During the year 2009-10 Queensland produced 187 million tonnes (Mt) of saleable export coal. This comprised of 120 Mt of metallurgical coal and 67 Mt of thermal coal, with the total export being 10 percent up from the 2008/2009 figures (*AustCoal Consulting Alliance, 2010*).

In addition to new mines, existing mines are seeking to expand to cater for the increased global demand for coal and the higher contract prices available.

Global demand for coal has more than doubled in the last 30 years. Australia is the world's largest exporter of coal, yet its port infrastructure is struggling to keep pace. Queensland's coal industry continues to experience rapid growth, with 36 companies pursuing over 90 mine expansions and/or new coal mine projects within the Central Queensland region alone. The Australian Bureau of Agriculture and Resource Economics and Sciences further predict that by 2016 Australia's coal exports will increase by over 50 percent to 460 million tonnes per annum.

Constraints in the export supply chain, including port capacity, are limiting the ability of Australian coal mines to meet the demand from offshore markets. Queensland and Australia have suffered from prolonged and highly publicised bottlenecks in coal export infrastructure. In May 2007, Xstrata Coal chief executive Peter Coates was quoted as saying *"It's costing the coal industry between New South Wales and Queensland something like $1 billion a year"*.

Currently coal from the Bowen Basin is transported on the Blackwater and Moura QR National rail lines to the Port of Gladstone's RG Tanna and Barney Point Coal Terminals for export.

The RG Tanna Coal Terminal and Barney Point Coal Terminal have no further development capacity in their rail receival and port facilities. Customer contracts have been established for the existing capacity tonnage; any significant additional export tonnage will need to be exported via a new terminal.

State and Federal Governments continue to investigate and fast track solutions to ease the congestion at coal terminal ports along the Queensland Coast. Options for resolving these bottlenecks have been slow to evolve and port expansion timelines struggle to meet the increasing demands from the coal industry.

As stated in the *Australian Government's National Port Strategy 2010*:

"*Australia is an island whose place in the international economy and whose productivity, living standards and quality of life depend on trade performance. As a maritime nation, Australia's ports are an important gateway for goods and for our defence. Consequently, ports and associated infrastructure are of the utmost economic and social importance to Australia. "*

1.3.1 Other regional projects and proposals

Gladstone Ports Corporation (GPC) has received State and Commonwealth approvals for the Wiggins Island Coal Export Terminal (WICET), with the initial stage expected to be completed in the near future. The WICET Project, although not yet developed, has received indicative tonnage nominations from coal miners greater than the 80 Mtpa of capacity available.

Xstrata are currently finalising its EIS for a proposed 35 Mtpa rail line, loop, stockpile, conveyor and coal port on Balaclava Island near Port Alma (the BICET project) under a bilateral EIS process.

Central Queensland, one of the hubs of coal production in Australia, relies on transport through the expanding ports of Gladstone, Hay Point and Dalrymple Bay. The Project proponent believes that even with expansions, WICET coming online and the development of Xstrata's proposed BICET, global demand for coal export from Australia will still not be met due to limitations on total port capacities.

Establishment of the FTP 'barge loader' coal export facility on Raglan Creek between Rockhampton and Gladstone would partly address these critical export capacity issues, in a timely manner, allowing increasing coal tonnages from the Blackwater and Moura systems to be transported from mines in the Central Queensland coal fields.

The facility will also cater for the smaller tonnage mines that are not well accommodated currently and are restricted from development due to inability to access markets.

1.4 Project Tenure

The proposed FTP site is primarily located on freehold land, lease land and on unallocated state land (USL) (refer to **Figure 1.3**). Details of the lot and plan numbers for the final site selection will be listed in the EIS when the final footprint is determined and agreements have been reached with land owners and lease holders.

Due to the increasing demand from expanding industry and residential sectors, there has been increased pressure on essential services. The Queensland Government designated an infrastructure corridor in May 2008 on the land between Stanwell Energy Park and the Gladstone State Development Area (GSDA) to house multiple pipelines. The corridor is approximately 90-kilometres long and is 100-metres wide. Part of this corridor intersects the proposed rail line corridor.

The Gladstone Area Water Board (GAWB) has been the first service provider to secure State and Commonwealth approvals within the designated infrastructure corridor. This has been secured for the proposed Gladstone – Fitzroy Pipeline Project.

FTP, Xstrata and QR National will work with the State Government and GAWB to select the most appropriate means of enabling infrastructure corridor projects to proceed without design conflicts.

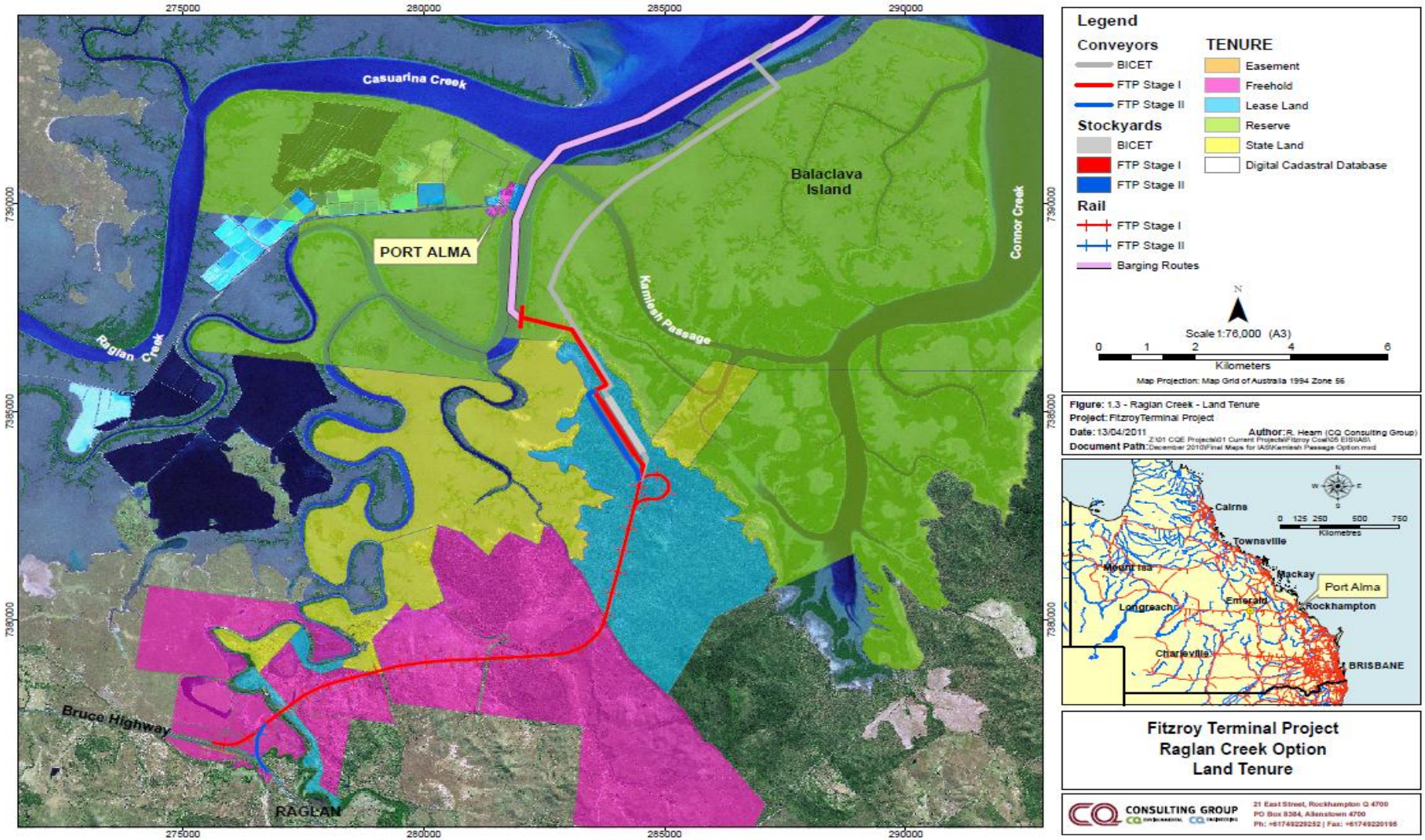


Figure 1.3: Land Tenure ***(note FTP is not part of Xstrata BICET Project)***

1.4.1 Planning Schemes

A detailed assessment of the FTP against the relevant planning scheme provisions will be carried out as a part of the EIS.

The FTP is proposed for land within two local government areas. A small section of the rail spur line is located in the Rockhampton Regional Council area, and is therefore subject to the Fitzroy Shire Planning Scheme 2007 while the majority of the Project is located in the Gladstone Regional Council area which currently refers to the Calliope Shire Planning Scheme 2007. A detailed assessment of the FTP against the provisions of these two planning schemes and other relevant planning provisions will be required as part of the Project's development.

1.5 Legislative and Approvals Requirements

In Queensland, key environmental impact assessments are run under one of three Acts, being:

1. *State Development and Public Works Organisation Act 1971* (*SPDWO Act*) – process undertaken where a project is declared to be a 'significant project' by the Queensland Coordinator-General (CoG) of the Department of Employment, Economic Development and Innovation (DEEDI).

   This Act draws together a range of powers and functions used by the State Government to facilitate large projects in Queensland. The CoG 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 Projects' potential effect on relevant infrastructure;
   b) The employment opportunities that will be provided by the Project;
   c) The potential environmental effects of the Project;
   d) The complexity of local, State and Commonwealth requirements for the Project;
   e) The level of investment necessary for the proponent to carry out the Project; and
   f) The strategic significance of the Project to the locality, region or the State.

   The CoG will consider the potential environmental effects the Project 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.

2. *Environmental Protection Act 1994* - This is only pursuant to activities identified as environmentally relevant activities (ERA) under the *Environmental Protection Regulation 2008.* Construction and operation of the Project along with the associated supporting infrastructure and services will require development approval for various ERAs.

3. *Sustainable Planning Act 2009* – development approvals such as permits for building construction may be required under this Act; these cannot be issued until the CoG approves the EIS.

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 1.2**.

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.

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 in **Figure 1.5** below.

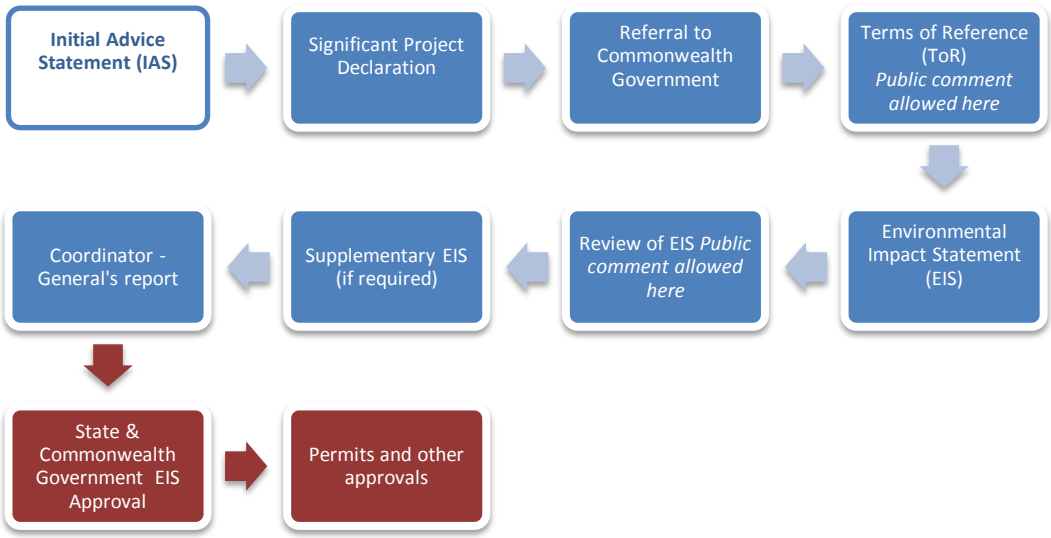


Figure 1.4: Accredited State EIS Process

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 environmental impact statement (EIS);
- Review and assessment of EIS by CoG, SEWPaC and GBRMPA (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 CoG's report has been finalised, the CoG will then distribute the report to the Australian Government, relevant state government agencies and local authorities which are responsible for approvals and overseeing project development. This involves:

- Australian Government approval (as part of the bilateral or parallel EIS approval);
- State development approvals and permits; and
- Local Authority (Council) approvals.

The Commonwealth Minister has 30 business days after receiving the CoG Assessment Report to make his/her decision on the proposal.

Table 1.2: Relevant Legislation

Legislation	Administering Authority	Approval Trigger	Approval Type	Relevance to project
COMMONWEALTH				
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 (NES).	Referral to SEWPaC for determination of 'controlled action' status.	The proposed barging and transhipment activities will be undertaken in the proximity of the Great Barrier Reef Marine Park (GBRMP), Great Barrier Reef Coast Marine Park (GBRCMP) and World Heritage Area, which are recognised as matters of national environmental signification under Part of the *EPBC Act.*
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.	Shipping and transportation of goods at sea and works in tidal areas all require permits. No sea dumping proposed. The permit application process under this act is triggered at the time of referral application.
Native Title Act 1993	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 (e.g. unallocated State Land).	Compliance with this act including the need for relevant notifications of agreements under the Act, will be addressed in the EIS	Part of the Land comprising the project area is subject to the following active Native Title Claims: • QC01/29 by the Port Curtis Coral Coast People; • QC97/21 by the Darumbal People; and • QC99/1 by the Darumbal People No.2.

Legislation	Administering Authority	Approval Trigger	Approval Type	Relevance to project
STATE				
Aboriginal Cultural Heritage Act 2003	DERM	Activity that has the potential to harm Aboriginal cultural heritage.	Cultural Heritage Management Plan (CHMP).	Proponent has to demonstrate a 'duty of care' and that all reasonable and practicable measures have been taken to protect cultural heritage.
Environmental Protection Act 1994	Department of Environment and Resource Management (DERM)	Project encompasses a range of Environmentally Relevant Activities (ERA's).	Permits.	EIS prepared under the *State Development and Public Works Organisation Act 1971* to address issues.
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.	Various guidelines need to be considered as the Project development is near Raglan Creek and unloading proposed in marine waters. 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.
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.	No declared protected areas identified within the Project area at this stage.
Queensland Coastal Protection and Management Act 1995	DERM	The principal objectives of the *Coastal Protection and Management Act 1995* are the protection, conservation, rehabilitation and management of the state's coastal resources and biodiversity by the provision, in conjunction with other legislation, of a	Part of EIS.	Development in a coastal area. Tidal works permit (sought under the Operational Works permit process).

Legislation	Administering Authority	Approval Trigger	Approval Type	Relevance to project
		coordinated and integrated management and administrative framework for the ecologically sustainable development of the coastal zone. The Project will require operational works permission under this Act for works in a tidal area. This includes construction within tidal areas.		
Queensland Fisheries Act 1994	DEEDI	Part 6 of the *Fisheries Act 1993* provides for the declaration of fish habitat areas and the protection of marine plants against all unlawful removal, destruction or damage.	Permit.	Project site is outside of Fish Habitat Area (FHA). Some marine plants will be disturbed. Works in a tidal area will require a permit.
State Development and Public Works Organisation Act 1971	DEEDI	The *SDPWO Act* empowers the Coordinator -General to declare a project to be a 'significant project' for which an EIS is required. An application for a 'significant project' declaration is made to the Coordinator-General by the Initial Advice Statement. The EIS process is set out in Part 4, Division 3 of the *SDPWO Act.*	EIS Approval.	A summary of the project's alignment with the criteria which is to be taken into consideration when making a 'significant project' declaration is set out in **Table ES1** in this IAS.
Sustainable Planning Act 2009	Department of Local Government and Planning (DLGP)	Land Use and Tenure.	Development Permit.	Triggers for development requiring assessment and approval under the relevant planning scheme(s) will be reviewed in detail in the EIS.

Legislation	Administering Authority	Approval Trigger	Approval Type	Relevance to project
Transport Operations (Marine Safety) Act 1994	MSQ	Provides a system that achieves an appropriate balance between regulating the maritime industry to ensure marine safety and enabling the effectiveness and efficiency of the Queensland maritime industry to be further developed.	Permit - Certificate of Compliance.	Ships may require Certificates of Compliance (in regards to seaworthiness). FTP will also be required to comply with the various Regulations and Standards under this Act.
Transport Operations (Marine Pollution) Act 1995	MSQ	Protection of Queensland's marine and coastal environment by minimising deliberate and negligent discharges of ship-sourced pollutants into coastal waters.	Part of EIS/Permit.	Penalties may apply, or permits may be required for accidental or otherwise discharge of a pollutant (oil, sewerage, garbage or other contaminants). This includes the transfer of products from one ship to another.
Vegetation Management Act 1999	DERM	Vegetation clearing.	Development Permit.	Clearing of vegetation protected by this act will be required for geotechnical investigations and development of the stockyard and conveyor and associated access. 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.	The project will require water supply and the construction of the rail line may require riverine permits for works in a water course.

1.6 Local Government Approvals

The subject site is within both the Rockhampton Regional Council and Gladstone Regional Council local government boundaries. The FTP will constitute development which is a material change of use of the project land under section 10 of the *Sustainable Planning Act 2009* (Qld) (SPA). The specific requirements relating to assessment and approval under the relevant planning scheme(s) 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 and 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 CoG's report will be taken to be a Concurrence Agency response under SPA.

Additional local government approvals, including Operational Works and Environmental Relevant Activity (ERA) activities may also be involved, depending upon the final development proposal and ancillary infrastructure and uses associated with the Project, including roads, services infrastructure, filling and excavation and so on.

1.7 Other Legislation

Other legislation and guidelines which may be triggered by this Project includes but is not limited to:

- *Land Act 1994;*
- *Transport Infrastructure Act 1994;*
- *ANZECC Best Practice Guidelines for Waste Reception Facilities at Ports, Marinas and Boat Harbours;*
- *Land Protection (Pest and Stock Route Management) Act 2002;*
- *Acquisition of Land Act 1967;*
- *Animal Care and Protection Act 2001;*
- *Nature Conservation (Wildlife) Regulation 1994;*
- *Quarantine Act 1908*
- *Quarantine Regulations 2000;*
- *Soil Conservation Act 1986;*
- *State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils*; and
- GPC Draft Land Use Plan.

1.8 Purpose of IAS

This IAS has been prepared by CQ Consulting Group (CQCG) on behalf of Fitzroy Terminal Project Pty Ltd to identify the environmental, planning, economic, cultural and social values and potential impacts relevant to the construction and operation of the proposed FTP.

The IAS has been prepared to provide sufficient information to the government and the community in relation to potential environmental, planning, economic, cultural and social impacts associated with the construction and operation of the FTP. This information is intended to trigger and initiate the consultation process and scoping of the Project as well as enabling:

- The CoG to declare the Project a "Significant Project" under the provisions of the *State Development and Public Works Organisation Act 1971* (*SDPWO Act*), and;
- The Commonwealth Minister for the Environment to declare the Project a "controlled action" under the *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*) as part of the referral under that Act.

2 Proposed Development

2.1 Proposed Operations

The Project includes a rail line spur within the multi-user rail line corridor that is proposed for multi-users including Xstrata's proposed BICET Project off the North Coast rail line (NCL), coal stockpiles on flood-free high ground and an approximately three kilometre-long conveyor to a new barge loading terminal on Raglan Creek. Coal would be loaded into the hulls of covered barges at the terminal; the barges would then travel through the port limits to ships in open waters for off-shore transfer (either directly from the barges or using a purpose built transhipment facility).

Figure 2.1 provides a flow diagram of the proposed coal transportation operation.

The ultimate capacity of the facility will be refined during the engineering and EIS processes, however, at this stage the nominal original capacity that is being considered in the Feasibility Study is 10 Mtpa (Stage 1) and up to approximately 22 Mtpa for Stage 2. Enclosed barges would be used for the first and second stages and if the BICET is approved and constructed an additional berth may be considered for FTP in the future as a third stage.

When operational, the FTP will consist of three major infrastructure components:

1. **Rail Infrastructure** – delivery of the coal from the mine to a stockpile location via rail. The operational aspect will be undertaken by QR National;
2. **On-Shore Operations** – stockpiling, conveyors and barge loading terminal; and
3. **Off-Shore Operations** – barge transit and transfer unloading onto ships in open waters.

In summary, the scope of the proposed development will include the construction and operation of the following:

- Rail line off the NCL constructed within the multi-user rail corridor;
- Bottom-dump under rail unloading facility near the balloon loop;
- Stockpiling facilities;
- Carpark, administration office, security office and vehicle shed;
- Provisioning facilities at Port Alma for refuelling and maintenance of barges;
- Enclosed three-kilometre conveyor;
- Access road and ramp at Raglan Creek;
- Covered barges with a loading capacity of up to 10,000 dead weight tonnage (DWT);
- Floating offshore purpose built transhipper;
- Navigational aids; and
- Supporting infrastructure including power supply, lighting, water supply and sewage, fire fighting system, dust suppression, drainage, slurry return system, fences, landscaping and lighting.

The full scope of other associated infrastructure including provision of power and water and other services will be determined during the engineering study in conjunction with the utility providers. The Study Area for the Project is shown in **Figure 2.2**. A concept layout of the FTP stages is shown in **Figure 2.3.** The proponent is aware the final concept plan for the rail line, stockyards, conveyor and the proposed BICET layout may change as environmental and engineering studies are completed.

The proposed FTP terminal site is located immediately to the south of Port Alma, outside the Safety and Exclusion Zone as designated by GPC. The zone has been designated because explosive products are exported in and out of Port Alma.

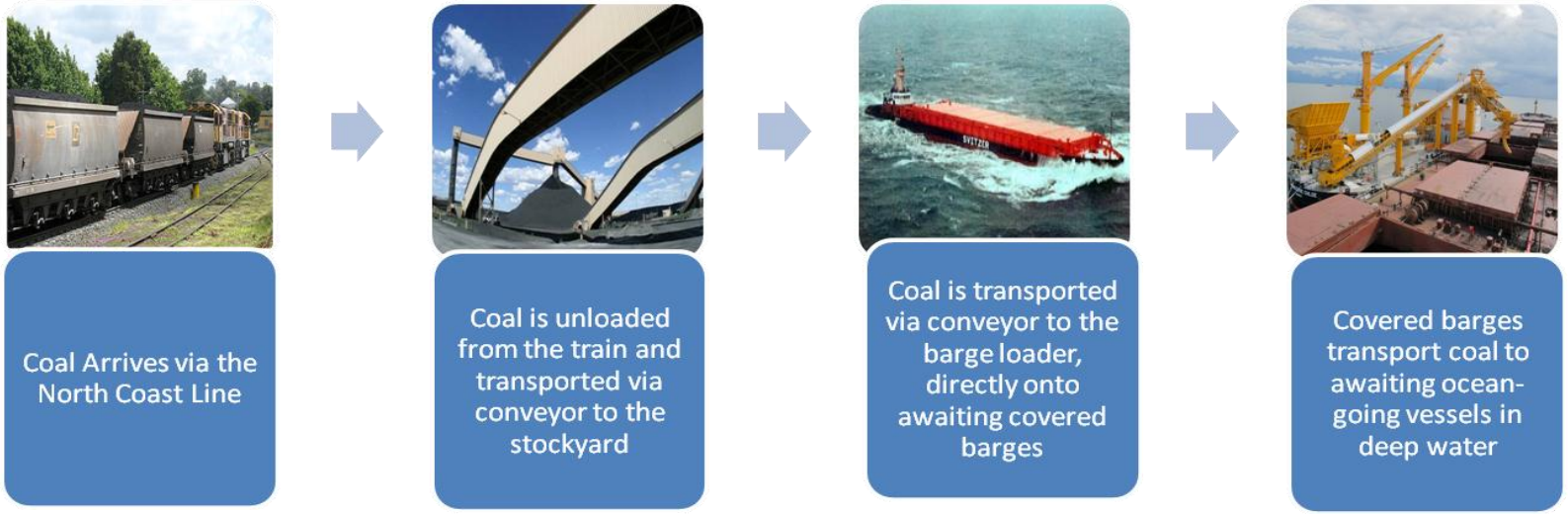


Figure 2. 1: Fitzroy Terminal Project - Flow Diagram

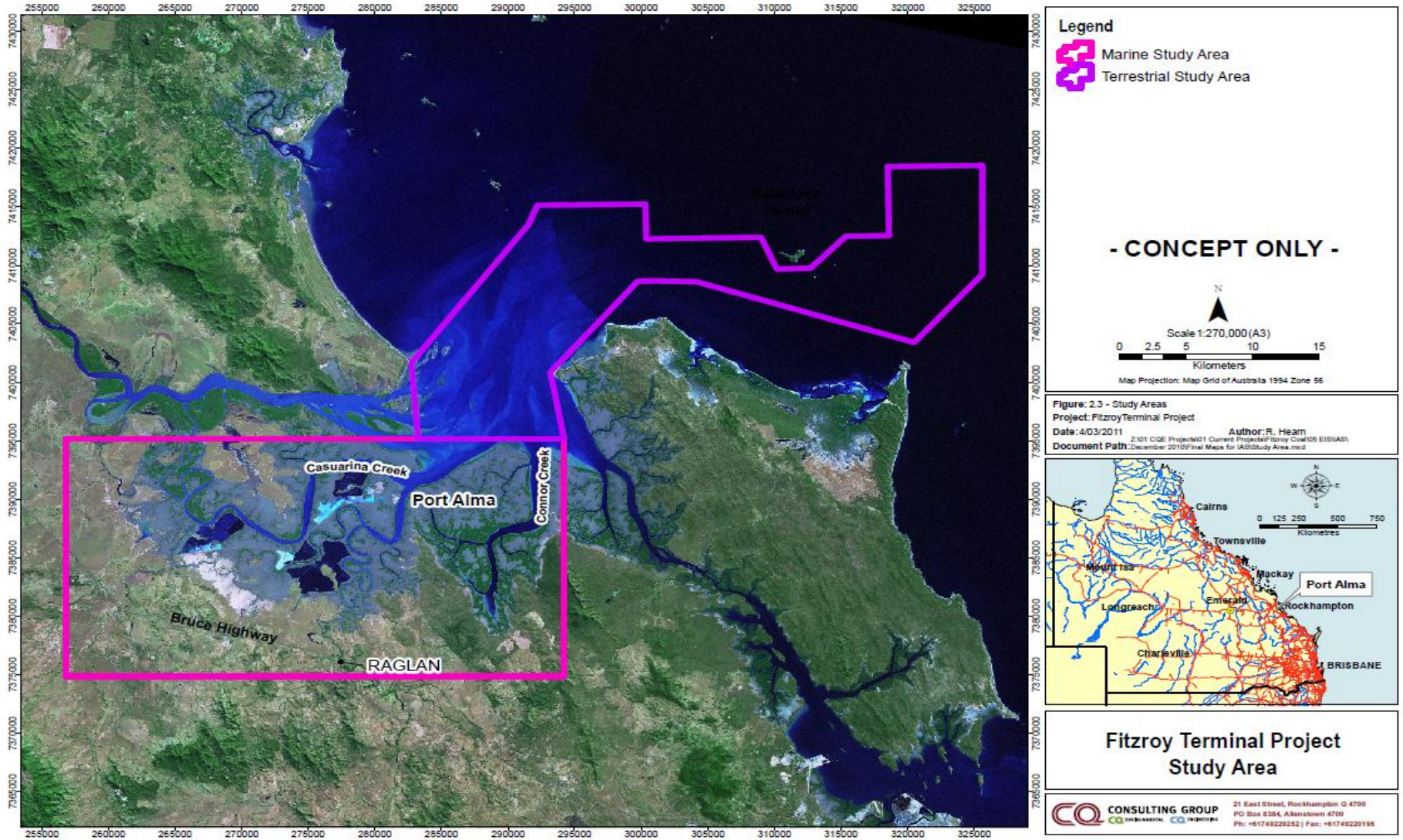


Figure 2. 2: Fitzroy Terminal Study Areas

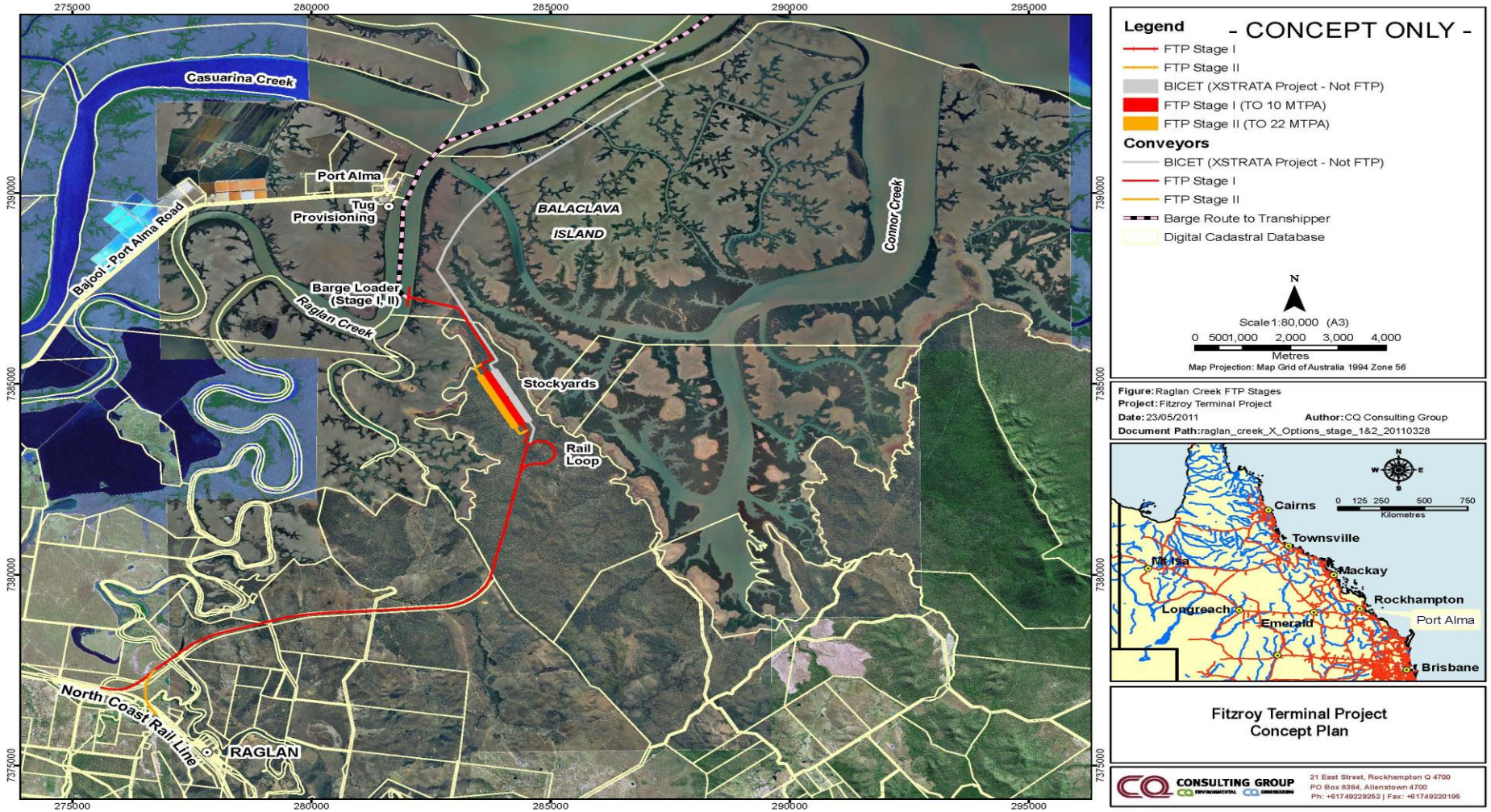


Figure 2.3: Fitzroy Terminal Project Concept Plan (*this concept design may change slightly as environmental and engineering studies are completed).*

2.1.1 Rail infrastructure

The scope of railway works included in this proposal comprises all of the works required to provide rail access to and from the FTP. Train provision, rollingstock maintenance, and servicing will be undertaken by QR National offsite facilities.

It is intended that the balloon loop will be designed to accommodate trains coming from the Blackwater (preferred initially) and the Moura / Surat rail networks.

The key components of the rail infrastructure include:

- Rail connections to the existing North Coast Line (NCL) and modifications/upgrading to the NCL near the junction and the construction of a 13-kilometre rail line within the multi-user corridor also proposed for use by Xstrata;
- Associated roadworks and drainage structures; and
- Upgrades of signalling, including at level crossings and occupational crossings.

Train movement frequencies and points of origin will depend on the contracted tonnage output from each mine customer and QR National requirements. This is currently being investigated by the project team.

2.1.2 On-shore operations

The Feasibility Study is currently investigating the options for the optimal design of the stockpile, conveyors and barge loading facilities.

It is anticipated that the stockpile capacity will be approximately seven percent of the total annual volume of exported coal. The stockpiles will be bunded to capture contaminated stormwater and serviced by stormwater treatment ponds. The size and locations of the ponds will be determined through detailed engineering design. Appropriate facilities to control coal dust will be implemented at the stockpile, along the conveyor transfer points and at the barge loading area.

A conventional under-track coal unloader, using bottom dump wagons similar to those existing at other facilities is envisaged. Coal will be dropped into a hopper from the underside of wagons with the wagon doors triggered by automatic mechanisms. Coal will then be fed via a series of conveyors to the stock yard for stacking. Currently it is envisaged that track mounted boom stackers will be used.

Optimal arrangements for reclaiming coal from the stockpiles onto the barge load belt are subject to engineering consideration. Current designs utilize a track mounted bucket wheel stacker/reclaimer system. Whilst relatively high in initial capital cost, this method provides for reduced dust emissions and product damage. Alternative such as dozers pushing into underground feeders will be assessed and may be used for Stage 1.

For efficient discharge of trains it is likely the system will be designed to discharge coal at 6,000 tonnes per hour (tph). The terminal will include a by-pass belt direct from wagon unload to barge load for times when coal can be loaded directly on to the barge and not have to be rehandled through the stockpiles.

The terminal will include a barge loading conveyor and a berth, see example **Photograph 2.1**. The location and type of barge loading facility will be determined during the feasibility studies and EIS phases.

Photo 2.1: Example of a Barge Loading Facility

2.1.3 Off-shore operations

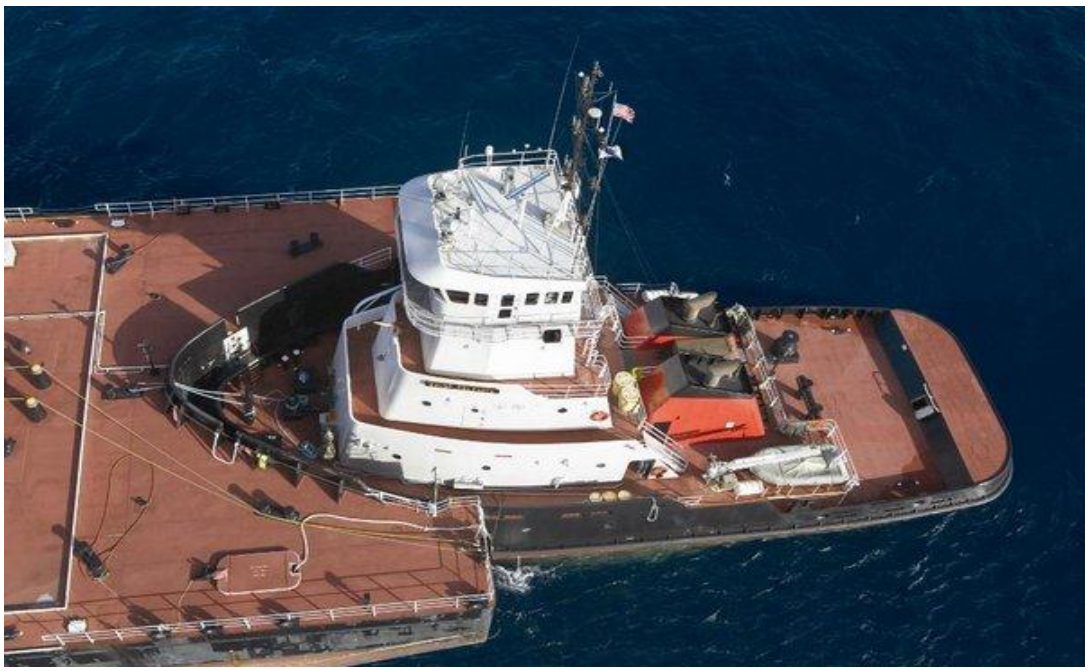
The FTP will use either self-propelled or articulated tug push covered barges of up to 10,000 (dead weight tonnage) DWT capacity. Typically these barges travel at approximately eight knots (14.8 kilometers/hour) and require a draft between 4.5 and 6.5 metres, are 100 metres long and approximately 30 metres wide. The proposal is for barges to travel along Raglan Creek within port limits past Port Alma and unload directly into ocean-going ships moored alongside purpose built transhippers within the designated shipping lanes near Hummocky Island. Empty barges will return along the same route. A maintenance dredging program is currently undertaken by GPC at Port Alma. An additional small section of Raglan Creek may need to be slightly deepened for the Project to allow for barges to traverse the channel.

The barges and the sea-going vessels will be designed to Australian Standards and International Lloyd's classification. A key element of the Feasibility Study is the investigation and assessment of the various options for barge and transhipper configurations. Selection will depend on dredging requirements, capital and operational costs and most importantly the need to ensure minimal risk of environmental nuisance or harm. Barging technology is advancing at a rapid rate with barges now being used for a range of applications world-wide including in sensitive environments.

Refer to **Photographs 2.2** and **2.3** for examples of articulated barges and **Photograph 2.4** for self-propelled barge. **Photographs 2.5, 2.6** and **2.7** show a state-of-the-art transhipper which is being considered for the FTP.

The maintenance facilities and anchorages for barges will be located at Port Alma. Barging may occur 24 hours a day, 365 days a year, depending on train delivery, barge loading requirements, shipping schedules and climatic conditions. However, operational models may reduce active days to as little as four days in seven when previously listed factors are taken into consideration. Navigational aids will be required along the route to enable round-the-clock operation. A channel leading beacon or similar will be used on the barges which can change colour if the barge travels off-centre from the route. The terminal and coal ships will all have adequate lighting to permit safe night loading.

Coal will be transported via the designated channel to various transhipment locations outside of Port Alma to ocean-going vessels for export. Ocean-going vessels will moor in areas designated by the Harbour Master whist they await loading at the transhipment points.



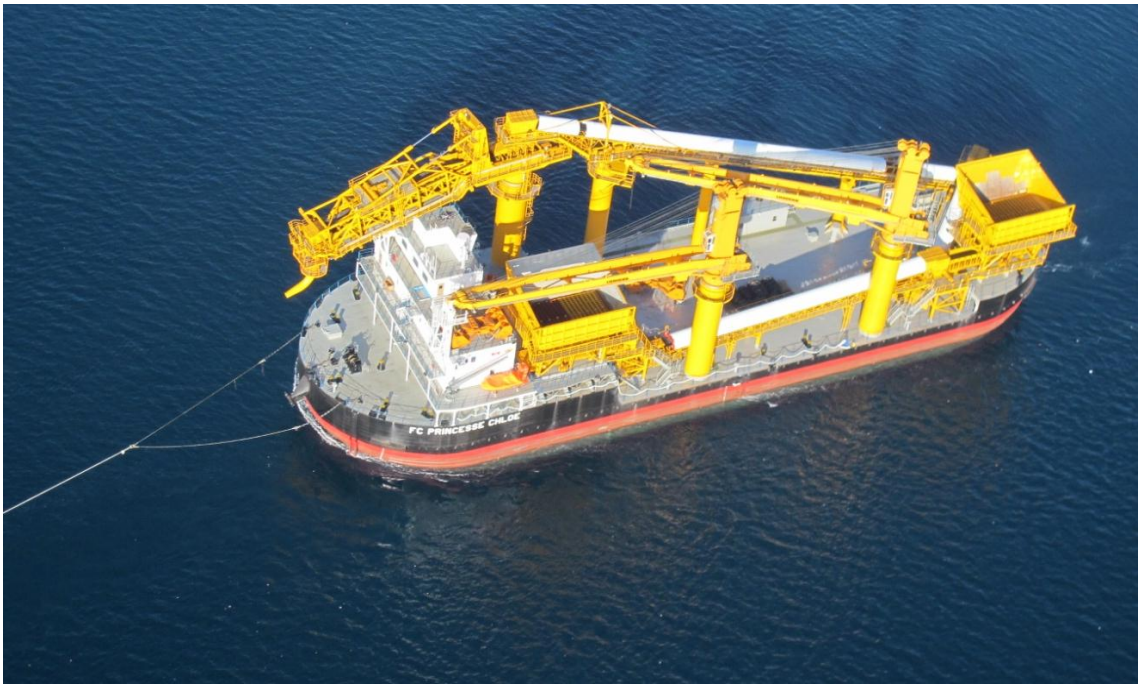
Photograph 2.2: Articulated barge/tug (aerial view)

The articulated barge arrangement shown above allows for a shallow draft barge to be controlled by the locking in of a tug at the rear of the barge. This type of barge would minimise the amount of dredging required due to the shallow draft.

Photograph 2.3: Articulated barge/tug (side view)

This information has been provided for conceptual purposes only, actual vessels and sizes cannot be presented as they have yet to be finally determined.

Photograph 2.4: Example of a self propelled, self unloading barge (SUB)



Photograph 2.5: Example of a transhipper (aerial view)

Photograph 2.6: Example of a transhipper (side view)

Photograph 2.7: View of transhipper unloading into ship's hull

2.2 Supporting Infrastructure

In addition to the terminal requirements, the FTP will also include:

- **Power supply**: initial enquiries have identified two possible options; 66 kilovolt (kV) supply from Ergon Energy's Eagan's Hill substation near Rockhampton or 275kV supply from Powerlink's main northern line which runs along the Bruce Highway. Temporary power supply (generators, nearby substation at Raglan or Port Alma) will be required for construction;
- **Water supply**: water will likely be provided by the GAWB from either Gladstone or the proposed Gladstone – Fitzroy Pipeline. The proponent is currently in the process of discussing this requirement with GAWB. Initially water may be sourced from aquifers, seawater or on-site capture;
- **Road Infrastructure**: access roads will be constructed connecting site facilities with existing local roads and the Bruce Highway;
- **Accommodation**: It is intended that the FTP workforce will reside in existing nearby rural towns and Rockhampton or Gladstone; and
- All efforts are being made to share service infrastructure with the proposed BICET Project to minimise the project footprint. The FTP is however presented as a stand-alone project for the purposes of feasibility, environmental and engineering studies in the event the BICET Project is not approved.

2.3 Timeframe

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

QR National has indicated that the rail infrastructure (specifically the Blackwater Rail Line) can be enhanced to handle tonnage from the Central Queensland mines within the timeframe proposed by FTP and the Project is currently in the priority list for QR National.

Sufficient barge and tug stocks are available globally, and 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 construction period will be required to complete the rail loop and barge terminal, as well as order and mobilize other associated equipment such as rolling stock, tugs/barges and facilities.

Table 2.1 provides details of the currently anticipated timelines for the Project through to commissioning.

Table 2.1: Proposed timeframe for the Fitzroy Terminal Project

STAGE	CURRENT SCHEDULE
Land agreements / commence land acquisition	Q2 2011
Submission of IAS and commencement of EIS process	Q2 2011
Referral to Australian Government (EBPC)	Q2 2011
Finalisation of Terms of Reference	Q4 2011
Environmental and engineering assessment	Q4 2010 to Q1 2012
EIS on public display	Q2 2012
Supplementary EIS (if required)	Q3 2012
Coordinator-General's Report	Q4 2012
Commence onsite construction	2013
Commissioning	2015

Q= quarter

2.4 Project Site Alternatives

Several options for the FTP which included a rail spur and balloon loop off QR National's existing NCL, conveyors and barging operations between Rockhampton and Gladstone have been considered since 2008. All land-side options seek proximity to the NCL, a waterway of adequate size for barge conveyance and sufficient land for unloading, stockpiling, conveyor facilities and barge loading terminal.

The alternative site options considered for the FTP can broadly be defined into the following:

- Fitzroy River option – stockpiles near the Bruce Highway, south of Rockhampton and barging over 50 kilometres along the Fitzroy River. The declaration of the Fitzroy River as a Fish Habitat Management Zone A area in 2008 and challenges presented by flood events eliminated this option;
- Casuarina Creek option – stockpiles located near the townships of either Bajool or Marmor and barging over 40 kilometres along Casuarina Creek which is within a mining lease. This option would require dredging along Casuarina Creek and an agreement with mining lease holder to traverse their mining lease;
- Connor Creek option –this option would largely follow the proposed rail corridor, with additional rail and conveyor infrastructure installed to the eastern bank of Connor Creek. This option has been ruled out due to the recent offset agreement between GPC and the Australian government for the LNG projects in Gladstone; and
- Preferred option, Raglan Creek, which is outside of the Fish Habitat Area, requires minimal dredging and is currently used for other ships entering Port Alma, this option would align with GPC and QR National's objective to utilise the multi-user rail corridor also proposed for use by the BICET Project.

The barge loading terminal routes and ocean-going vessel loading locations will be selected during the EIS with consideration of ecological values, wave and current conditions.

2.5 Waste Management

Waste management will be investigated in detail as a part of the EIS process and a Waste Management Plan will form part of the overall EMP.

2.6 Water Management

Total water consumption is estimated at around 77 and 143 mega litres per annum for Stages I and II respectively. Both potable and non potable water will be required on site. Accurate consumption estimates will be developed during future engineering studies.

Potable water will be required for staff and office amenities. Potable consumption will represent around five percent of total water needs. Depending upon the quality of the water supply to FTP, an onsite water treatment facility may be required to produce the potable water. Bottled water may be used for drinking water only.

Non potable water will be required for dust suppression, cleaning, ballast, conveyor belt cleaning. Dust suppression during conveying, stockyard operations, stockpiles and barging operations will be critical to the FTP.

Rainfall capture and recycling strategies will be incorporated into the final project design.

Waste water will be contained in constructed storage facilities for reuse. Overflow to surrounding watercourses may only occur in extreme weather events under conditions specified by the Department of Environment and Resource Management (DERM). The design will incorporate best practice stormwater management to reduce the likelihood of any contaminants leaving the site.

Detailed investigations into storm water and waste water management and treatment of sewage will be carried out as a part of the EIS process.

3 Existing Environment

3.1 Climate

As no Bureau of Meteorology (BoM) data was available for the Raglan township in relation to maximum mean temperatures data was gathered from the weather station of Rockhampton.

The average air temperature at Rockhampton is 28 degrees with the summer and winter average maxima between 32 and 23 degrees, respectively.

The region has a sub-tropical climate and experiences average annual rainfall of approximately 800 millimetres. The majority of rainfall occurs during the summer months. The nearby Rockley Station (station number 039250) does have a significant mean rainfall dataset (1939 to 2011), which is comparable to the Rockhampton data.

Climate data for Rockhampton (and Rockley where applicable), is presented in **Table 3.1**. Rockley is located approximately 18 kilometres west of the Study Area, with Rockhampton Airport is located approximately 45 kilometres to the north-west of the Study Area.

Table 3.1: Rockhampton Airport - Meteorological Records (1939-2010)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max Temp (ºC)	31.9	31.2	30.5	28.8	26.0	23.5	23.1	24.8	27.3	29.6	31.2	32.1	28.3
Mean Min Temp (ºC)	22.1	22.1	20.8	17.9	14.2	10.9	9.5	10.7	13.7	17.0	19.5	21.1	16.6
Mean Rainfall (mm)	128.4 (141.4)	142.2 (150.5)	96.5 (87.1)	45 (44.6)	48.2 (40.0)	39.4 (35.5)	28.7 (29.1)	28 (23.8)	23 (23.5)	50.3 (60.7)	68.9 (83.0)	102 (132.7)	800.5 (847.3)

(Rockley Station mean rainfall data, 1939 - 2011)
All data sourced from the BoM, 2011

Prevailing winds in the Study Area (see **Figure 2.2**) are predominately southeast however northeast sea breezes are experienced during spring and summer in the late afternoons. The region lies within the cyclone risk zone and is subject to summer thunderstorms. Fogs are experienced in winter and early spring (BoM, 2010).

3.2 Land and Infrastructure

3.2.1 Existing land use

The existing land use in the Study Area is predominantly cattle grazing, salt production, fuel storage and port activities. A number of easements traverse the Project Area.

The Queensland Government has announced a new policy framework to protect strategic cropping land within the State. A review of the draft trigger map released by DERM does not appear to show any strategic cropping land within the Study Area. A further review will be conducted once the Regulatory Assessment tool has been finalised and released by DERM and will be included in the EIS.

For more information on land tenure refer to **Section 1.4**.

3.2.2 Topography and landscape

The topography of the Project Area is predominately flat with a gentle slope towards the waterways, with some higher relief topography in the south-east. Much of the area is comprised of Eucalypt woodlands that have been cleared for grazing. Elevations in the Project Area range from 0 metres to 50 metres above mean sea level or Australian Height Datum (AHD).

3.2.3 Soils

A detailed soil assessment will be undertaken as part of the EIS. Desktop studies have identified the following soil types in the Project Area;

- Hydrosol soils defined as seasonally or permanently wet soils prone to acid sulfate soils (ASS); and
- Sodosol soils defined as being soils high in sodium with an abrupt increase in clay in the subsoil, which is potentially dispersive making soils particularly prone to tunnel and gully erosion.

With reference to the *'State Planning Policy 2/02 Guideline, Acid Sulfate Soils'*, ASS occur predominantly in low-lying coastal areas generally below relative level (RL) five metres AHD, such as the alluvial and estuarine deposits within the Project Area. It is considered that the probability of ASS occurrence in the development of the Project is highly likely.

3.2.4 Geology

The geology underlying the Study Area is 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.

More ancient material exists in the Crana Beds and Mount Holly Formation, which were laid down during the Carboniferous to late Silurian period of the Palaeozoic era (280 – 425 million years ago) and comprises crinoidal and coralline limestone, basic and acid flows, tuffaceous, conglomerate, mudstone and lithic arenite.

Geoscience Australia's (2010) surface geology of Australia identifies that the Study Area comprises the geological units as listed in **Table 3.2** and presented in **Figure 3.1**.

Table 3.2: Geological Units of the Study Area

Map Symbol	Formation	Era	Period	Rock Type	Lithology Description
Qha		Cainozoic	Holocene	Sedimentary	Gravel, sand, silt, clay: alluvium.
Qhm		Cainozoic	Holocene	Sedimentary	Mangrove swamps, mud flats, salt pans.
Clt	Crana Beds	Palaeozoic	Carboniferous	Sedimentary	Feldspathic and lithic arenite, conglomerate, mudstone, siltstone, andesite flows and tuff; rare acid flows.
Dh	Mount Holly Formation	Palaeozoic	Late Silurian to mid-Devonian	Volcanic	Acid or intermediate ash-flow tuff, ash-fall tuff, acid or basic flows, volcanic arenite, siltstone, mudstone, conglomerate, crinoidal and coralline limestone.

3.2.5 Contaminated land

A search of the Environmental Management Register/Contaminated Land Register (EMR/CLR) held by DERM and onsite investigations will be conducted as a part of the EIS process to identify any existing contaminated land within the proposed development area.

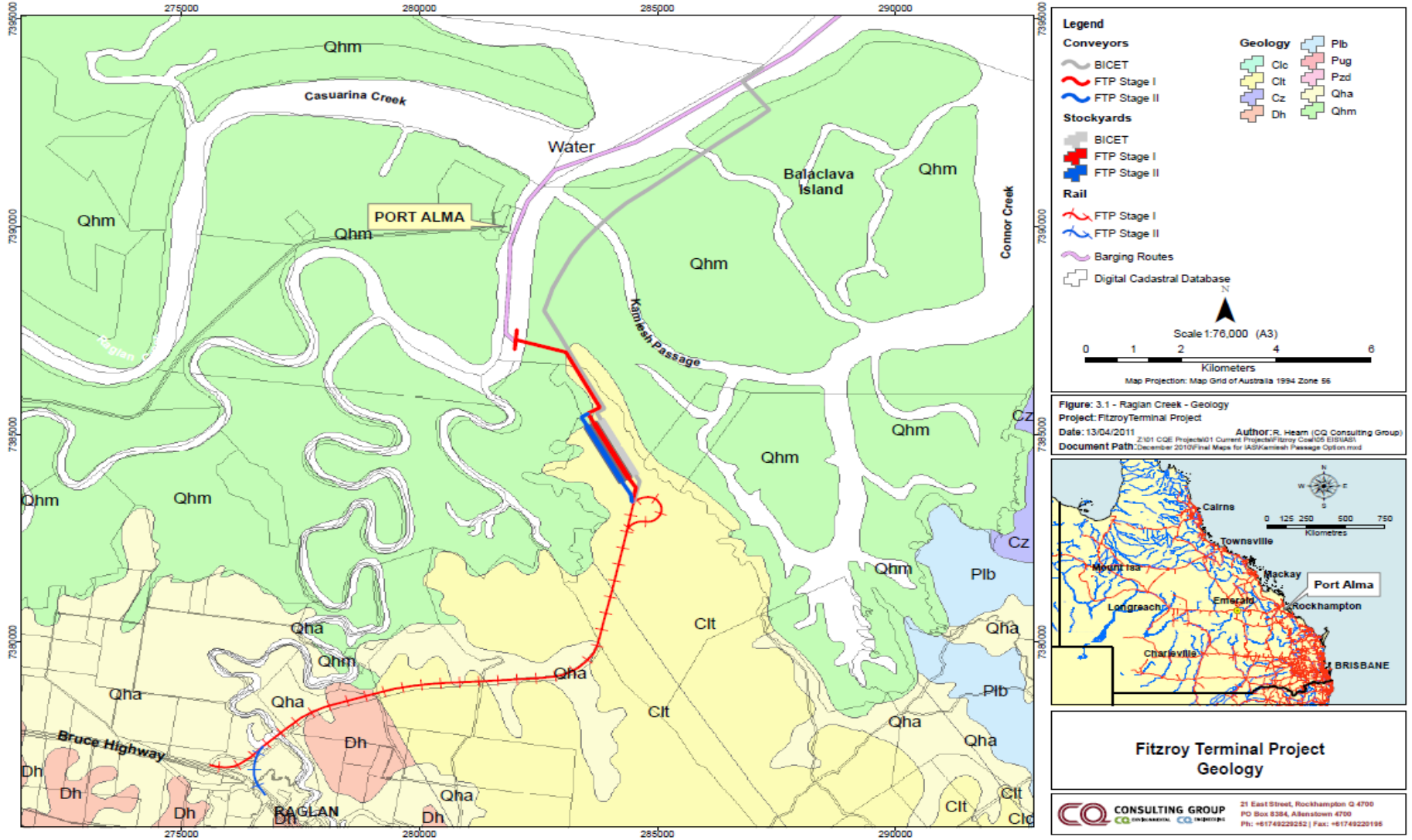


Figure 3.1: Geology of the Study Area ***(note FTP is not part of Xstrata BICET Project)***

3.3 Hydrology and Water Resources

3.3.1 Hydrology

The Study Area (see **Figure 2.2**) is located within the Fitzroy River catchment which encompasses an area of approximately 142,500 square kilometres (the second largest catchment in Australia).

After heavy rainfall events in the catchment, the Fitzroy River and its tributaries are capable of significant flooding. The Fitzroy River has a long and well documented history of flooding with the highest recorded flood occurring in January of 1918, reaching 10.11 metres on the Rockhampton gauge. The most recent major flood occurred in January 2011 following a period of higher than average rainfall in the catchment area. This flood rose to a height of 9.2 metres on the Rockhampton gauge.

Aerial photography taken during high tide and a major flood event in the Fitzroy River (9.2 metres on 5 January 2011) found the proposed FTP stockpile area and terminal site to be above inundation levels (see **Photograph 3.1**). Initial review of data from the Port Alma tidal gauge indicates that during flood events in the Fitzroy River, tide heights are elevated by between 200 to 400 millimetres.

3.3.2 Surface water

The Study Area is located within the saltwater/tidal reaches of the Raglan Creek. Drainage within the Study Area flows toward the Raglan Creek, Casuarina Creek or Connor Creek, with additional shallow ephemeral drainage lines intermittently spread across the Study Area. These drainage lines typically hold water in the flood season (December to February) and evaporate in the drier months. The watercourses in the Study Area including Raglan Creek which flows into Keppel Bay are typically very turbid (see **Photograph 3.2**).

Baseline water quality sampling of the Fitzroy River Estuary (including Casuarina and Raglan Creeks) undertaken in January 2011 (post major flood event) identified the following trends:

- Water temperature ranged between 25.5 and 31.6 °C (temperature typically decreased with water depth);
- pH ranged between 7.3 and 8.1 (pH generally increased towards the estuary mouth, and there was little variation with water depth);
- Conductivity was lowest in Casuarina Creek, and relatively low in Raglan Creek (conductivity was generally higher in deeper waters probably due to high rainfall events at the time of sampling, and increased towards the mouth of the estuary);
- The turbidity level was high at all sites and depths, which is expected due to the naturally high turbidity of the estuary in the post flood conditions; and
- The dissolved oxygen concentration was generally higher in surface waters and areas closer to the river mouth, which is likely to be due to physical mixing of the water column and oxygen in the atmosphere (due to wind- and tide-associated water movement).

Current activities within the waters of Raglan Creek include shipping and boating movements and maintenance dredging at Port Alma.

Additional water quality surveys will be undertaken during the dry season as part of the EIS.

Photograph 3.1: Proposed stockyard area above waterline during major flood event high tide Jan 11

Photograph 3.2: Raglan Creek discharging into Keppel Bay during high tide, peak flood Jan 11

3.3.3 Groundwater

There is little available data regarding groundwater in the Study Area however this will be further investigated during the EIS process. Groundwater is extracted in the Bajool and Port Alma area for salt production.

3.3.4 Marine waters

The Study Area is located adjacent to and within Keppel Bay.

Keppel Bay is a complex coastal sedimentary system dominated by strong tidal currents and episodic flood discharge (with a seasonal bias to higher flows in summer) from the adjacent Fitzroy River. The Bay is a semi-

enclosed shallow coastal embayment bounded to the north by Great Keppel Island and to the south by Curtis Island.

Keppel Bay is located within the Coral Sea, which is characterised by a warm and stable climate, frequent rains and tropical cyclones.

3.3.5 Great Barrier Reef

The Coral Sea hosts the Great Barrier Reef, an area that was declared a Marine Park (Great Barrier Reef Marine Park) in 1975, a World Heritage area in 1981 and the Great Barrier Reef Coast Marine Park (State Marine Park) in 2004. 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.

3.3.6 Wetlands

The Study Area is identified as being within the same catchment area as a Ramsar wetland (Shoalwater and Corio Bay Area); however, this is approximately 100-kilometres north of the Study Area and will not be impacted by the FTP (**Figure 3.2**).

There are several High Ecological Significant (HES) wetlands within and adjacent to the Study Area. The nearest GBR Wetlands Protection Area is less than one kilometre east of the southern extent of the Study Area. The trigger area associated with this wetland is approximately 400-metres east of the Study Area.

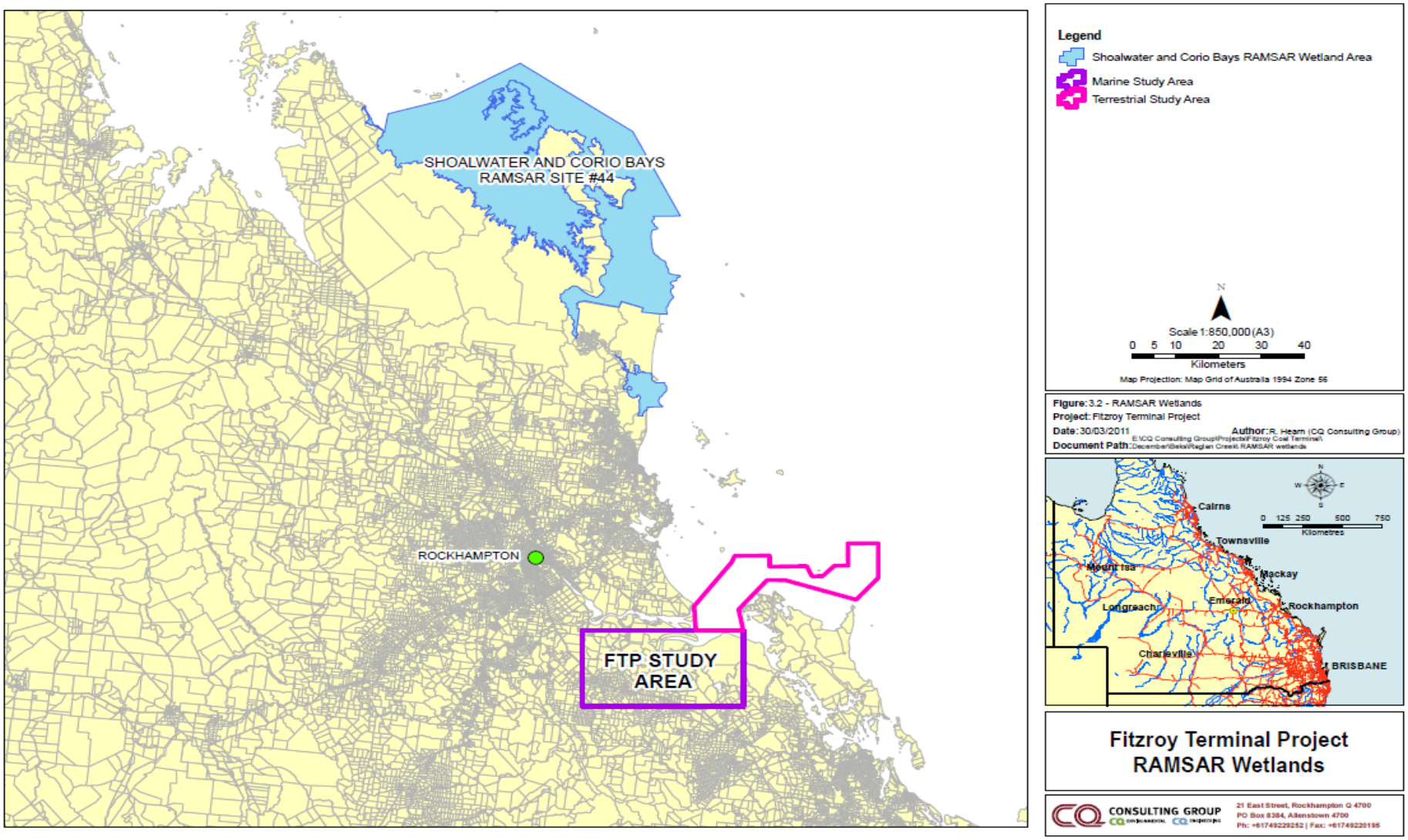


Figure 3.2: Ramsar site no 44 - Shoalwater and Corio Bays

3.4 Ecology

3.4.1 Existing vegetation

The *EPBC Act Protected Matters Report* (2011) identifies two Threatened Ecological Communities as being likely to exist within the Study Area:

- Semi-evergreen vine thickets; and
- Weeping Myall Woodlands.

A detailed ecological assessment including vegetation surveys will be undertaken as a part of the EIS process however desktop searches indicate that the rail spur and stockpile would require some clearing of "Least Concern" vegetation and the construction of the barge terminal would disturb some mangroves.

Regional ecosystem (RE) mapping (DERM, 2011) identifies seven vegetation types as existing in the Study Area. These vegetation types are listed in **Table 3.3** and presented in **Figure 3.3**.

Table 3.3: Regional Ecosystems

RE Code	Description	VMA Status
11.1.4	Mangrove low forest on Quaternary estuarine deposits. Low open-shrubland to closed forest of mangrove species forming a variety of associations, depending on position in relation to salt water inundation. *Avicennia marina* is the most common dominant.	Least Concern
11.3.4	*Eucalytpus tereticornis* woodland to open-forest. Other tree species that may be present and locally dominant include *E. Camaldulensis*, *Corymbia tessellaris*, *E. Collabah*, *C. clarksoniana*, *E. Populnea* or *E. Brownie*, *E. Melanophloia*, *E. Platyphylla* or *Angophora floribunda*. A shrub layer is usually absent, and a tall grassy ground layer is often prominent and may include any of *Bothriochloa bladhii* subsp. *bladhii*, *Aristida* spp., *Heteropogon contortus*, *Dichanthium* spp. and *Themeda triandra*. Heavily grazed areas tend to have shorter or annual grasses. Occurs on Cainozoic alluvial plains and terraces.	Of Concern
11.3.2	*Eucalyptus populnea* woodland to open-woodland. *E. melanophloia* may be present and locally dominant. There is sometimes a distinct low tree layer dominated by species such as *Geijera parviflora*, *Eremophila mitchelii*, *Acacia salicina*, *Acacia pendula*, *Lysiphyllum* spp., *Cassia brewsteri*, *Callitris glaucophylla* and *Acacia excels*. The ground layer is grassy dominated by a range of species depending on soil and management conditions. Species include *Bothriochloa decipiens*, *Enteropogon acicularis*, *Aristida ramose* and *Tripogon loliiformis*. Occurs on Cainozoic alluvial plains with variable soil types including texture contrast, deep uniform clays, massive earths and sometimes cracking clays.	Of Concern
11.11.15	*Eucalytpis crebra* +/- *Corymbia erythrophloia* +/- *E. populnea* +/- *E. melanophloia* +/- *C. tessellaris* +/- *C. clarsoniana* woodland often with a shrubby layer. Occurs on undulating rises and low hills, often with distant strike pattern formed on moderately to strongly deformed and metamorphosed sediments and interbedded volcanic and Permian sediments.	Least Concern
11.1.2a	Estuarine wetlands (e.g. mangroves). Bare mud flats on Quaternary estuarine deposits, with very isolated individual stunted mangroves such as *Avicennia marina* and/or *Ceriops tagal*. May have obvious salt crusts on the soil surface.	Least Concern
11.1.4d	Estuarine wetlands (e.g. mangroves). Dominated by a range of species from genera such as from *Avicennia* sp., *Ceriops* sp., *Rhizophora* sp. and *Bruguiera* sp. which form a closed forest. Occurs on the landward edge of the tidal flats and in the upper tidal reaches of creeks and rivers where there is a high freshwater influence.	Least Concern
11.2.3	Microphyll/notophyll vineforest to semi-deciduous vine thicket on Quaternary coastal dunes. Commonly consists of the following trees: Pleiogynium timorense, Mimusops elengi, Cupaniopsis anacardioides, Exocarpos latifolius, Pouteria sericea and Diospyros geminate. In dry, exposed and windswept locations, this RE may reach 4-5m and up to 15m in other locations, and include	Of Concern

RE Code	Description	VMA Status
	deciduous emergent species. A shrub layer may be present. Vines are common. Ground layers are sparse or absent. Occurs on Quaternary coastal dunes and adjacent swales. Soils are fine to coarse beach sands possibly enriched by calcareous sediments.	
11.11.5	*Eucalytpis crebra* +/- *Corymbia erythrophloia* +/- *E. populnea* +/- *E. melanophloia* +/- *C. tessellaris* +/- *C. clarsoniana* woodland often with a shrubby layer. Occurs on undulating rises and low hills, often with distant strike pattern formed on moderately to strongly deformed and metamorphosed sediments and interbedded volcanic and Permian sediments.	Of Concern

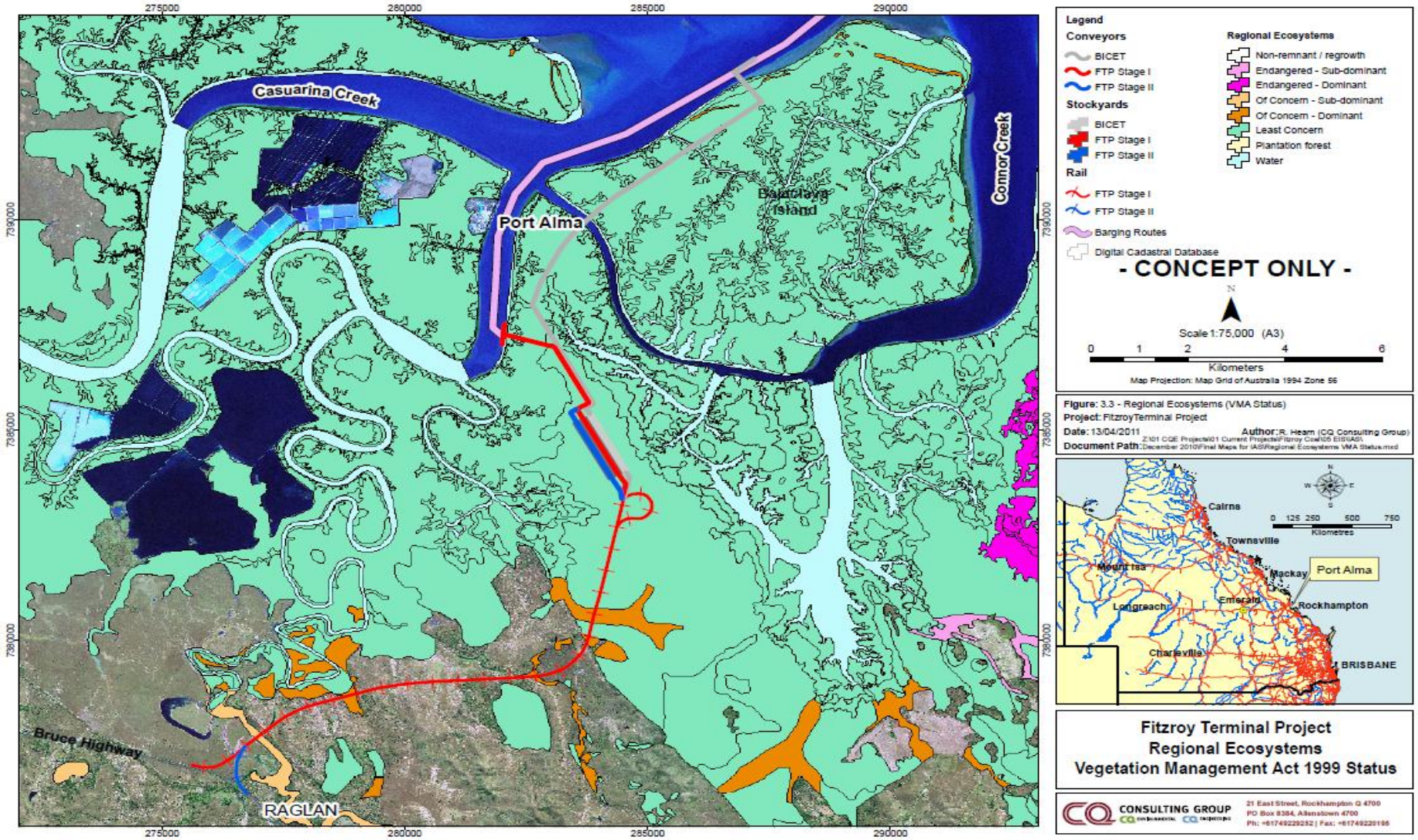


Figure 3.3: Regional Ecosystems in the Study Area

3.4.2 Fauna

A number of migratory birds and nationally significant birds inhabit the Fitzroy River and nearby islands. Other native species in the Study Area are likely to include kangaroos, emus, wallabies, and a wide variety of birds and reptiles.

An *EPBC Act Protected Matters Report* (2011) and *Wildlife Online* (DERM, 2011) database search was undertaken to determine conservation significant species that could potentially be present in the Study Area. Species recorded in both database searches as holding a conservation status are listed **Table 3.4**. .

Seven species of terrestrial birds, five wetland birds, several whale, dolphin and turtle species and a salt-water crocodile are identified as migratory species known within the Study Area. Several species of the Syngathidae family, pipefish (30) and four seahorses, have been listed in the *EPBC Act Protected Matters Report* (2011).

Species such as the Australian snubfin dolphin (*Orcaella heinsohni*) and the Dawson Yellow Chat (*Epthianura crocea macgregori*) are known to exist within the Study Area and are considered species of very high regional ecological significance. For these and other species, research specialists will be employed to inform design concepts and mitigation measures during EIS investigations.

A number of pest species inhabit the Study Area, including feral pigs, red foxes and cane toads. A Pest Management Plan will be prepared and incorporated into the overall Environmental Management Plan (EMP).

Table 3.4: Threatened species in the vicinity of the Study Area

Species	Common Name	EPBC Act	NC Act
Mammals			
Balaenoptera musculus	Blue Whale	Endangered	N/A
Chalinolobus dweri	Large-eared Pied Bat, Large Pied Bat	Vulnerable	Rare
Dasyurus hallucatus	Northern Quoll	Endangered	N/A
Megaptera novaeangliae	Humpback Whale	Vulnerable	Vulnerable
Nyctophilus timoriensis (South-eastern form)	Greater Long-eared Bat, South-eastern Long-eared Bat	Vulnerable	Vulnerable
Xeromys myoides	Water Mouse, False Water Rat	Vulnerable	Vulnerable
Birds			
Epthianura crocea macgregori	Yellow Chat – Dawson	Critically Endangered	Endangered
Erythrotriorchis radiatus	Red Goshawk	Vulnerable	Endangered
Geophaps scripta scripta	Squatter Pigeon (southern)	Vulnerable	Vulnerable
Macronectes giganteus	Southern Giant-Petrel	Endangered	N/A
Pterodroma neglecta neglecta	Kermadec Petrel (western)	Vulnerable	N/A
Rostratula australis	Australian Painted Snipe	Vulnerable	Vulnerable
Turnix melanogaster	Black-breasted button quail	Vulnerable	Vulnerable
Reptiles			
Caretta caretta	Loggerhead Turtle	Endangered	Endangered
Chelonia mydas	Green Turtle	Vulnerable	N/A
Delma torquata	Collared Delma	Vulnerable	Vulnerable
Denisonia maculata	Ornamental Snake	Vulnerable	Vulnerable

Species	Common Name	EPBC Act	NC Act
Dermochelys coriacea	Leatherback Turtle, Leathery Turtle	Endangered	Endangered
Egernia rugosa	Yakka Skink	Vulnerable	Vulnerable
Eretmochelys imbricata	Hawksbill Turtle	Vulnerable	N/A
Furina dunmalli	Dunmall's Snake	Vulnerable	Vulnerable
Lepidochelys olivacea	Olive Ridley Turtle, Pacific Ridley Turtle	Endangered	Endangered
Natator depressus	Flatback Turtle	Vulnerable	Vulnerable
Rheodytes leukops	Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle	Vulnerable	Vulnerable
Sharks			
Pristis zijsron	Green Sawfish, Dindagubba, Narrowsnout Sawfish	Vulnerable	N/A
Rhincodon typus	Whale Shark	Vulnerable	N/A

Notes:

1. N/A – not listed under the respective Act.
2. Wildlife Online (2010) database search did not indicate any previous collections of the EPBC Act listed *Dasyurus hallucatus* or *Neochmia ruficauda ruficauda* species.

3.5 Protected Areas and Conservation Estate

3.5.1 State and Commonwealth Marine Parks

The proposed barge terminal and other onshore operations will be located approximately one kilometre from the boundary of the State listed Great Barrier Reef Coast Maine Park (GBRCMP) and approximately nine kilometres from the Commonwealth listed Great Barrier Reef Marine Park (GBRMP) (**Figure 3.4**). The GBRMP is designated as both a National Heritage and World Heritage Area.

The proposed barging and transhipment activities will be undertaken in the proximity of the Great Barrier Reef Marine Park (GBRMP), Great Barrier Reef Coast Marine Park (GBRCMP) and World Heritage Area, which are recognised as matters of national environmental significance under Part 3 of the *EPBC Act.*

Potential impacts on flora, fauna, water quality and world heritage values will be investigated during the EIS phase by specialists. The investigations will include determining impacts from construction activities (particularly water quality impacts from dredging and underwater noise impacts from pile driving) and operational activities (associated with vessel movements and anchorages).

Permits from GBRMPA will be required for the following activities occurring in the GBRMP:

- Non-tourist commercial charters (operation of barges);
- Transfer of coal from one vessel to another; and
- Dredging (even if dredging is to occur outside of the GBRMP, a permit may still be required if spoil is to be dumped at sea, the intent however is to dispose on land).

Activities occurring within the State marine park (GBRCMP) that may require permits include:

- Transfer of materials from one vessel to another; and
- Operation of vessels within the GBRCMP.

Other permits that may be required for the FTP will be identified in the EIS process.

The following standard measures, which will result in significantly reduced environmental risks, will be implemented for FTP:

- All activities will be restricted to the "General Use Zone" of the GBRMPA;
- The off-shore operations will be similar to those operating elsewhere in the world. Such facilities are operated in Europe to stringent European Economic Community (EEC) standards in environmental protection and occupational health and safety;
- Spill control will be a critical element of the barge and transhipper design;
- Loading onto the ocean-going ship will not take place until the masters of the barges and/or transhippers and the ship are satisfied that all preparations are completed and the prevailing weather conditions are acceptable; and
- The sea-going vessels will comply with current ballast and quarantine regulations.

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

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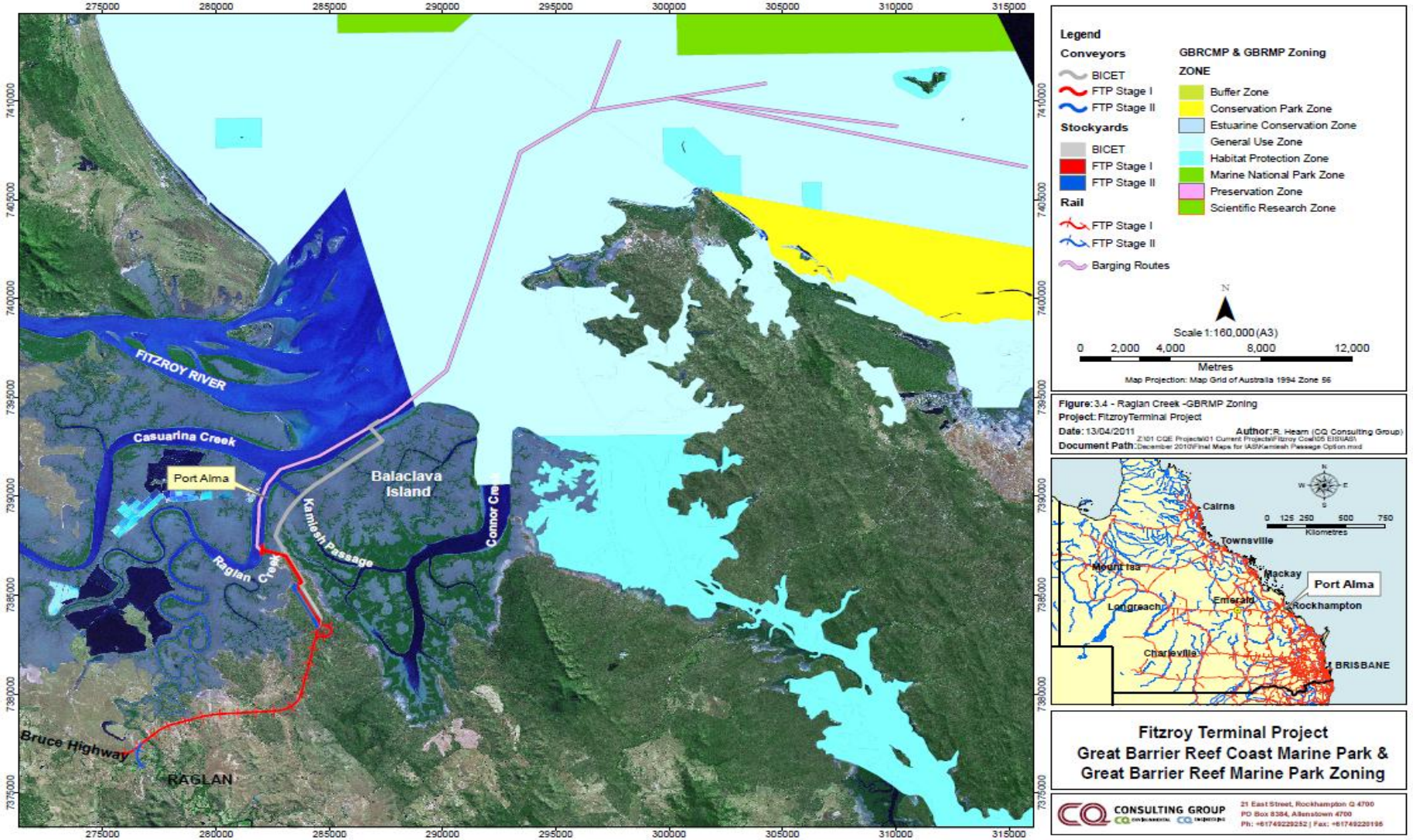

Figure 3.4: GBRMP Zoning

3.5.2 Register of National Estate

Nearby Balaclava Island (which is outside the FTP footprint) is listed on the Register of National Estate (RNE). The RNE was originally established 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*.

3.5.3 Significant wetlands

The area into which the Fitzroy River, Casuarina Creek and Connor Creek converge and enter the ocean is known as the Fitzroy River Delta (within Keppel Bay). An area of 70,254 hectares has been classified as the Fitzroy River Delta, and is listed as a "Nationally Important Wetland" (*Environment Australia*, 2001). This area is adjacent to the Study Area.

The wetland is identified as demonstrating four (out of the possible six) listing criteria, being:

1. It is a good example of a wetland type occurring within a biogeographic region in Australia;
2. It is a wetland which plays an important ecological or hydrological role in the natural functioning of a major wetland system/complex;
3. It is a wetland which is important as the habitat for animal taxa at a vulnerable stage in their life cycles, or provides a refuge when adverse conditions such as drought prevail; and
4. The wetland is of outstanding historical or cultural significance.

Eight types of wetlands were identified by Environment Australia (2001) in the Fitzroy River Delta, as described in **Table 3.5**.

Table 3.5: Fitzroy River Delta Wetland Categories

A. Marine and Coastal Zone Wetlands	
1	Marine waters: permanent shallow waters less than six metres deep at low tide; includes sea bays, straits.
2	Subtidal aquatic beds; includes kelp beds, seagrasses, tropical marine meadows.
6	Estuarine waters; permanent waters of estuaries and estuarine systems of deltas.
7	Intertidal mud, sand or salt flats.
8	Intertidal marshes; includes saltmarshes, salt meadows, saltings, raised salt marshes, tidal brackish and freshwater marshes.
9	Intertidal forested wetlands; includes mangrove swamps, nipa swamps, tidal freshwater swamp forests.
11	Freshwater lagoons and marshes in the coastal zone.
C. Human-made Wetlands	
4	Salt exploitation; salt pans, salines.

The Study Area is also in proximity to the Rodds Bay Dugong Protection Area and Port Curtis wetland, noted in the directory of important wetlands in Australia.

3.6 Noise and Vibration

Ambient noise levels within the Study Area are representative of rural activities with contributions from adjacent land uses. There is traffic noise from the nearby Bruce Highway, Cheetham Salt on and Pacific Salt operations and activities at Port Alma (predominately intermittent traffic noise) and boating activities in the broader Study Area.

Terrestrial and aquatic acoustic monitoring will be conducted as part of the EIS.

3.7 Air Quality

In Central Queensland, air quality monitoring is carried out by DERM, with several sites in the Gladstone region 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 regularly in the Study Area, the closest DERM site was Parkhurst (near Rockhampton) which was phased out in 2004. The annual average of PM_{10} from this site in 2001 was less than 20 µg/m^3, which is less than the national 24-hour exposure standard for PM_{10} of 50 µg/m^3 in the National Environmental Protection Measure (DERM, 2010).

Air quality within the Study Area is anticipated to be typical of a rural, coastal environment with some additional dust from nearby port and road transport activities.

3.8 Indigenous Cultural Heritage

The Study Area includes several watercourses and the Fitzroy River Delta, areas which are considered likely to be of particular significance to Traditional Owners.

Terrestrial cultural heritage mapping of Queensland indicates that sites and artefacts have been found in the general vicinity of the Study Area. Types of sites and artefacts include shell middens, story places and cultural sites. Cultural heritage surveys will be conducted by Traditional Owners and archaeologists as part of the EIS to ensure the design of the FTP avoids or minimises potential impacts.

3.9 Non- Indigenous Cultural Heritage

The off-shore component of the Proposal is within the GBRMP, which is an area that has been declared a World Heritage Area and a National Heritage Place. A search of the Australian and Queensland heritage databases (non-indigenous) lists two places of non-indigenous heritage within five kilometres of the Study Area, which are listed in **Table 3.6** and shown in **Figure 3.5**.

Table 3.6: Sites of non-indigenous heritage in the Study Area

DERM Identification	Place Name	Location	Significance
600388	Parson's Inn	Raglan Station Road, Raglan.	Archaeological value showing excellent examples of traditional building techniques.
600389	Raglan Homestead and Slab Hut	Raglan Station Road, Calliope.	Illustrates early pastoral developments in Queensland.

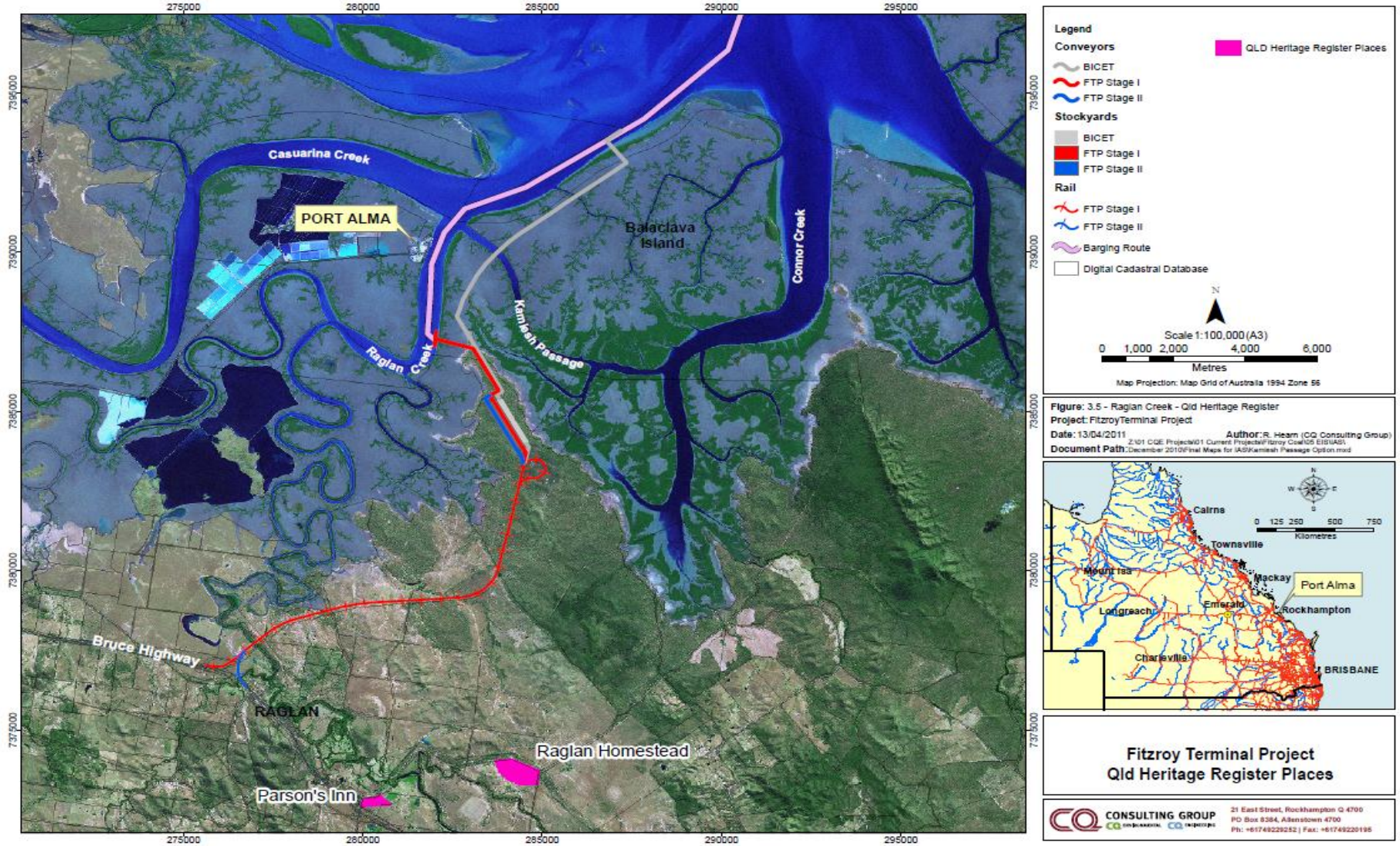

Figure 3.5: Queensland Heritage Places

3.10 Community and Consultation

The Project will be located half way between the regional cities of Rockhampton and Gladstone, near the small rural communities of Raglan, Marmor and Bajool. Demand on employment in the Gladstone region is high due to the recent approvals of a number of major projects. Employment and housing demands in the Rockhampton region are far less making it a more likely centre to service the Project's needs.

Consultation with key stakeholders will commence with the submission of the IAS. Apart from the local, State and Commonwealth government agencies, and the GPC, the key stakeholders are QR National, Xstrata, the Traditional Owners, landowners and neighbours, conservation groups, commercial and recreational fishing groups, business and tourism and economic development groups.

The consultation process will aim to build community awareness and understanding of the FTP. Input will be sought from all stakeholders throughout the EIS to ensure they are informed about the Project, have an opportunity to help identify potential impacts and work with the project team to develop acceptable mitigation solutions.

Significant consultation with individuals, community groups, conservation groups, Traditional Owners, businesses and service providers will be undertaken as part of preparing the overall social impact assessment for the Project.

As per the legislative process the EIS will be publicly advertised and displayed for public comment prior to the government making its final decision on approval.

3.10.1 Economic and surrounding land uses

Beef cattle production is the predominant land use immediately surrounding the Project Area (immediate FTP footprint). The rail junction on the NC Line will require an overpass on grazing land and the proposed multi-user rail corridor will dissect Raglan Station which is recognized as a well run, productive grazing business producing high quality Brahman cattle.

GPC currently operate an existing export facility at Port Alma, which is limited to vessels of up to 35,000 tonnes due to the depth of the existing channel and the berth load rating. Land access to the Port is via the Bruce Highway and Port Alma Road. The existing Port Alma facility consists of:

- An oil storage facility including a number of tanks;
- Salt stockpiles and associated structures;
- Cold stores;
- Public boat ramp;
- Tallow storage and heating equipment;
- Fenced storage yards and associated buildings;
- Port/wharf and conveyor infrastructure; and
- One occupied house opposite the port's entry point.

The Port currently imports and exports ammonium nitrate, in conjunction with activates carried out at the Queensland Government Magazine in Bajool, approximately 26-kilometres from the Port. Smaller tonnages of containers, tallow, general cargo and explosives are also handled at the Port.

The area immediately surrounding Port Alma is subject to commercial salt mining operations (Cheetham Salt and Pacific Salt).

3.10.2 Accommodation and housing

FTP's closest neighbouring community centres are Bajool, Marmor and Raglan. These community centres have slowly developed since the mid 1800s. Many of the community members occupy surrounding properties, which have been developed for agricultural purposes and feature rural homes with associated farming infrastructure.

Gladstone is experiencing an accommodation shortage due to the recently approved LNG projects however the nearby township of Gracemere and the city of Rockhampton have the potential to provide suitable accommodation for the workforce.

3.10.3 Social and recreational services

Local landowners enjoy rural lifestyles and associated recreational activities. The Fitzroy River Delta, including the area immediately adjacent to the existing port at Port Alma, is used by recreational fisherman. These fishermen represent a significant stakeholder group for the Project and they will be engaged early on in the EIS community consultation process to ensure their views are taken into consideration for the project construction and operational design.

4 Potential Impacts and Mitigation Measures

4.1 Land

Construction activities for the FTP 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 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 Environmental Management Plan (EMP).

It is considered that the probability of ASS occurrence in the development of the Project is highly likely. An Acid Sulfate Soils Management Plan will be developed for the FTP at the detailed design stage. The plan will outline appropriate measures to ensure that all disturbance, treatment, verification testing, movement, re-use and management of acid sulfate soils 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 inactive geological faults cross the site, and detailed geological investigations will be required prior to earthworks and construction commencing onsite. Topographic and sub-surface surveys will also be conducted as part of the engineering studies. During the EIS phase, investigations will also be undertaken to determine the presence of contaminated land in the development footprint, for example, old cattle dip sites as well as acid sulfate soils.

4.2 Tenure

A number of tenure types would be potentially affected by FTP's infrastructure requirements. Future land ownership arrangements will not be known until detailed site investigations and engineering concept options are explored. This is particularly the case in respect to the proposed rail line corridor and location of road access as various options are being investigated to minimise the impact on landowners.

The following key objectives will help guide the site selection process with regards to tenure:

- The rail spur line will be established within the multi-user corridor also identified for the proposed BICET Project;
- Consultation will take place with Native Title claimants, GPC, QR National, private landowners and Xstrata regarding the most appropriate land tenure arrangements; and
- Infrastructure will, wherever possible, be placed to reduce environmental impacts and minimise restrictions on adjoining land uses.

4.3 Hydrology and Water Quality

4.3.1 Hydrology

Construction and operational activities for the FTP could cause changes to surface water quality and natural flows if not appropriately managed. Appropriate measures will be implemented to reduce the risk of pollution to surface waters and, as far as possible, retain the natural surface water flows. These measures will be documented in the EIS and the EMP.

Very little flood mapping data exists for the Study Area. Lidar surveys and hydraulic modelling studies will be conducted for the Raglan Creek area of influence as part of the engineering studies for flood mitigation design.

The FTP will be designed to ensure it will minimise flooding impacts to nearby landowners. The rail corridor, rail spur and stockyard will be constructed above flood zones with culverts where appropriate to minimise backup. Bunding around the stockyard will prevent runoff from the coal stockpiles.

Groundwater usage is not proposed for the Project at this stage; however tests will be conducted on the quality and capacity of the aquifer as part of the EIS. Potential impact to groundwater could include leachate from stockpiles if appropriate mitigation measures and bunding around the stockpiles are not implemented.

4.3.2 Water quality

Marine water quality may be impacted from the extended Port Alma dredging operations required to develop channel clearance requirements for barges during construction, and potential fuel and coal spills during operations. Impacts from any coal spillage are likely to be minimal due to the benign nature of most coals and very strict controls that will be put in place to minimise the risk of coal loss. A negative impact upon water quality has the potential to impact upon the water and aquatic values of the Fitzroy Delta and the GBRMP. The potential for these impacts to occur will be investigated during the EIS phase and the FTP designed to minimise these impacts.

4.3.3 Wetlands

Impacts on the hydrology on the wetlands adjacent to the Project Area will be considered in full during the EIS process.

4.3.4 Tides and storm surges

Potential tidal and storm surge impacts will be considered during the engineering studies and infrastructure design (including climate change scenarios) to ensure the infrastructure is placed outside of high risk areas.

4.3.5 Dredging

There is little officially recorded about Raglan Creek's depth and widths. Preliminary bathymetric surveys were conducted in February 2011. This data indicates some dredging of the barging channel and barge loading areas will be required. Official survey and tidal data will be required to assess the need for dredging.

Suspended solids will be increased for short periods of time in close proximity to the dredge and there is the potential for the re-suspension of any contaminants that may occur in the sediments being dredged. There is also the potential for the disturbance of acid sulfate or contaminated soil materials. Dredging operations have improved markedly in recent years. Dredges are fitted with in-situ monitoring equipment which has the ability to immediately shut down dredging operations as soon as predetermined suspended solid limits are reached.

Dredges are also fitted with devices to minimise the likelihood of damage to aquatic fauna.

At this stage it is expected that limited, maintenance dredging would be required on an ongoing basis. Ideally this will be incorporated into GPC's current Port Alma channel dredging program.

The method and frequency of dredging and the ultimate disposal and use of spoil will be determined during the engineering studies and after full consultation with the Gladstone Harbour Master, DEEDI, DERM, GBRMPA, GPC and SEWPaC. During the engineering and EIS processes the proponents will also consult with other interest groups including conservation groups and Native Title claimants in determining the preferred options for dredging operations and possible beneficial reuse of spoil.

All impacts will be discussed in the EIS and appropriate pollution prevention strategies outlined and detailed in the EMP.

4.4 Ecology

The majority of the proposed rail corridor will cross land which has previously been cleared for grazing purposes. Potential impacts to terrestrial flora include removal of some trees and mangroves for the proposed rail corridor and spur, stockyard area, conveyor and barge terminal facility. Site selection will aim to minimise such disturbance, particularly in vegetation communities noted as "Of Concern" (**Section 3.4.1)**.

Dredging, barging and ship movement activities will have the potential to smother aquatic flora and vegetation with suspended sediments. The project area is seasonally impacted by local and Fitzroy River flood events which typically result in high turbidity levels each wet season between November and March.

Aquatic and terrestrial surveys will be conducted as part of the EIS process, with areas or species of specific conservation significance identified. The potential impacts will be discussed in detail in the EIS documentation, and management strategies outlined in the EMP.

Weeds within the Project Area will be surveyed and mapped as part of the flora surveys. The findings will determine the EMP commitments required, however, weed and seed hygiene management measures will be mandatory.

The impact to fauna may occur due to direct impacts (vehicle impact, removal of habitat etc) or indirect impacts (changes to water quality, changes in hydrodynamics etc).

Barging, dredging and shipping movements have the potential to cause disturbance and impacts to marine fauna and fishery resources, which are protected at State and Federal levels, and their habitats supporting this fauna. These impacts will be investigated in the EIS studies by marine specialists through surveys to understand spatial and temporal distribution of key species. The EMP will propose strategies, to avoid or minimise disturbance to these species.

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 EMS to reduce the risk of IMS introduction, including inspection of construction and operational equipment prior to it arriving 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 Area which could potentially be subject to impacts arising from changes in hydrology or accidental release of contaminates such as sediment and coal dust. The FTP construction and operation activities will be designed avoid or minimise impacts to these areas.

Desktop searches has identified that the proposed barging route is in the vicinity of Australian Snubfin Dolphin feeding and socialising locations and intra-area movement channels. Information gathered in the baseline environmental studies for the species and their habitat will inform the overall design of the FTP.

4.5 Noise

Rail transport, unloading, stockpile management, loading, and barging will all generate some noise.

Preliminary inspections have identified relatively few sensitive receptors in the Project Area. The main sensitive receptors will be located in the village closest to the Project site, adjacent to the Project Area (Raglan) at the start of the rail corridor.

The EIS will describe the existing noise levels, and sensitive receptors which may be affected by noise associated with the FTP. Appropriate mitigation measures will be developed to ensure noise levels are minimised and comply with QR National's *Code of Practice for Railway Noise Management (1999).*

Noise could also be generated underwater due to piling for the terminal construction and operation of barges.

Ambient noise levels will be measured on land and underwater and noise contours modelled during the EIS to determine the likely project noise impacts at sensitive receptors. FTP is working with GPC and Xstrata to integrate into the broader acoustic surveys being conducted in the Study Area.

4.6 Air Quality

Fugitive dust will be generated during construction through vehicle movements and earthworks.

Coal dust can cause nuisance and impacts to human amenity and terrestrial and aquatic flora and fauna if not managed appropriately. Unloading, stockpiling, barge loading, barging and ship loading activities all have the potential to cause coal dust generation. Most of the coal is likely to have been wetted down prior to leaving the mine sites (to assist with dust control during rail transport). Coal will be directly unloaded into the hulls of the barges and conveyors will be covered to minimise coal dust generation.

A detailed investigation of the existing air quality and modelling of dust impacts (PM_{10}, TSP and deposition) from the FTP will be undertaken as part of the EIS.

Modelling by specialist air quality scientists will be undertaken to predict the potential coal dust impacts as well as determining additional pollution control requirements to minimise any impacts.

4.6.1 Climate

The FTP will provide a means of transport for coal, which would otherwise have to be funded and operated by another private investor or the Queensland government. The FTP itself will have very little impact on local or global climatic conditions, however it is acknowledged that the Project will be transporting coal for offshore consumption.

Greenhouse gas emissions will be generated through operation of the rail, stockpile management vehicles, barges and ships. The objective of the FTP will be to reduce energy use and associated greenhouse emissions to as low as reasonably practicable.

Energy, fuel use and projected greenhouse emissions will be discussed in the EIS documentation.

The area is subject to cyclonic activity. The barge terminal structure will be designed to appropriate Australian standards for works in tropical cyclone areas. During operation of the FTP, mitigation measures will see barges moored in Raglan Creek or moved off-shore.

4.7 World Heritage Values

The transhipping operations will be conducted in the Commonwealth Marine Park Area. The potential impacts on the values of the World Heritage Area will be investigated comprehensively in the EIS however preliminary investigations suggest the impacts will be avoidable or minimal if the proposed controls are implemented.

4.8 Socio-Economic Impacts

Development and operation of the proposed FTP could result in environmental, social or cultural impacts. 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 Area and surrounds.

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

A number of matters relating to socio-economic impacts will help guide the site selection process. They include:

- Access requirements;
- Location and operational requirements of infrastructure provided by others, including new project proponents (i.e. Xstrata and QR National (QR));
- Location of any sensitive noise receptors;
- Adjoining land uses;
- Initial environmental assessment;
- Complexity of planning and other approvals;
- Cost of infrastructure provision; and
- Extent of available land.

4.8.1 Landholders

The proponent will seek the most secure form of tenure over the land for the FTP. The proponents intend to make arrangements with the individual land owners for the land required for the FTP.

The EIS will report on the agricultural, commercial fishing, salt mining and industrial values of the land and propose mitigation measures to minimise impacts to current land users.

The Study Area is subject to native title claimants (Application QC97/21) by the Darumbal People and the Port Curtis Coral Coast claim (QC01/29).

Negotiations will also take place with the Aboriginal Parties concerning Native Title during the EIS phase and beyond.

4.8.2 Social impact and community

A Social Impact Assessment (SIA) will be conducted to assess the potential impacts on the community, landowners 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 include types of roles, skill requirements, housing and transport requirements.

Direct expenditure and the expenditure of FTP employees and contractors during the 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:

- Impacts on landowners;
- 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 Regional Council planning framework;
- Impacts of the Project on Regional Plans;
- Cultural heritage impacts;
- Economic impacts;
- Infrastructure and service delivery impacts;
- Land use impacts;
- Visual amenity and lighting impacts;
- Disturbance to rural amenity;
- Disturbances to tourism, recreational and commercial fishing;
- Improved marine navigation;
- Training and business development opportunities; and
- Employment opportunities.

The Rockhampton and Gladstone Region have previously undergone impact assessments for major project activity, and solutions to a range of potential issues have been developed in consultation with stakeholders. It is anticipated that a similar outcome can be achieved for this project.

4.8.3 Commercial enterprise

Given that the Region's labour force is currently experiencing close to full employment, it is unlikely that all of the workers will be locally sourced. FTP intends to engage as much of the workforce as possible from the local region and is committed to implementing a skills development program through engaging with local skills development organisations and education centres. The influx of people created by both the construction and operational phases of the FTP will create demand for housing, goods and services, government and other services, which may translate to economic opportunities for local businesses.

The potential impact of the increase in demand created by this project will be assessed in the SIA part of the EIS, and suggested strategies to deal with the increased demand on services and housing will be identified through close consultation with community groups, the relevant Regional Council and the various bodies representing regional businesses.

The commercial activity that would be impacted the most by the proposed rail corridor and stockyard operations are beef cattle grazing businesses. The rail junction will cross over privately owned grazing land and the corridor and stockyard area will dissect and reduce the area of land available for grazing stock on Raglan Station. It is imperative that the land acquisition arrangements with the property owners aim to ensure impacts are minimised where possible. The impacts on the grazing businesses will be considered in the EIS.

Potential impacts on the GPC activities and the salt field operations will be investigated thoroughly during the feasibility and EIS studies to ensure development of appropriate mitigation measures.

Beneficial impacts will flow on from development at Port Alma to service the barges. Consultation with GPC, the public and other port users regarding the future of the Port will provide valuable input into the EIS.

4.8.4 Recreational activities

Consideration needs to be given to the potential impacts of this project on the recreational and commercial users of the Study Area. This will form part of the broader SIA.

The EIS team will consult with local fishing groups and community groups to discuss the proposed project and determine design and operational considerations to ensure impacts to these groups are minimised.

4.8.5 Accommodation and housing

FTP's closest neighbouring community centres are Bajool, Marmor and Raglan. These community centres have slowly developed since the mid 1800s. Many of the community members occupy surrounding properties, which have been developed for agricultural purposes and feature rural homes with associated farming infrastructure.

The FTP will seek labour from the local communities and the Central Queensland region. Skilled labour will need to be brought into the region to operate barges. Buses are proposed to transport workers to and from the site during both construction and operation phases. Facilities will also be available on board the vessels to accommodate marine operators during the operation of the FTP.

4.9 Cultural Heritage

Aboriginal cultural heritage values of the Project Area will be investigated in the EIS, through database searches and site surveys by the Traditional Owners, with an archaeologist, prior to and during earth disturbing activities.

A Cultural Heritage Management Plan (CHMP) 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 phase.

4.10 Infrastructure Impacts

Traffic and transport impacts from the construction and operation of the FTP will be assessed during the pre-feasibility engineering studies and the EIS. Consideration will be given to disruptions to rail, local road traffic, boating movements and shipping movements. The FTP would have some impacts on existing infrastructure including rail, roads, electricity and port facilities. These impacts will be investigated by traffic assessment specialists through modelling under appropriate governmental guidelines and standards during the EIS.

The proponent will work with the relevant Regional Council, government departments, land owners, GPC, GAWB and community groups to identify potential impacts on proposed infrastructure and services to develop solutions to minimise these impacts.

5 Environmental Management

An Environmental Management Plan (EMP) will be developed as a part of the EIS process and will include, but is not limited to:

- A description of activities carried out onsite;
- Roles and responsibilities;
- Staff training and awareness;
- Dredging and sediment disposal;
- Noise emission management;
- Flora and fauna management;
- Waste management;
- Water quality management;
- Cultural heritage protection;
- Dust management;
- Community engagement;
- Training;
- Monitoring activities;
- Pollution risk identification and management;
- Emergency preparedness and response;
- Inspections and maintenance; and
- Improvement and review.

The EMP will be developed as a standalone document that can be read separately from the main EIS document.

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7 Glossary, Acronyms and Abbreviations

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
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASS	Acid Sulfate Soils
BICET	Balaclava Island Coal Export Terminal Project
BoM	Bureau of Meteorology
CoG	Coordinator-General
CITES	Convention on International Trade in Endangered Species
CQCG	CQ Consulting Group
CMS	Convention of the Conservation of Migratory Species of Wild Animals
DEEDI	Queensland Department of Employment, Economic Development and Innovation
DERM	Queensland Department of Environment and Resource Management
Dolphin Poles	Man-made pile structures that provide mooring points at a wharf or jetty structure, also used to cushion ship impacts
DWT	Dead Weight Tonnage
EEC	European Economic Community - an international organisation created with a view to bring 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 Netherlands.
EIS	Environmental Impact Statement
EMP	Environmental Management Plan – part of the EIS process
EP Act	*Environmental Protection Act 1994 (Qld)*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPP Water	Environmental Protection (Water) Policy 2009
EVs	Environmental Values
FHA	Fish Habitat Areas
Fisheries Act	*Fisheries Act 1994*
FTP	Fitzroy Terminal Project
GAWB	Gladstone Area Water Board
GBR	Great Barrier Reef
GBRCMP	The 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	The Great Barrier Reef Marine Park
GBRMPA	Great Barrier Reef Marine Park Authority
GPC	Gladstone Ports Corporation
GRC	Gladstone Regional Council
GSDA	Gladstone State Development Area
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

Term	Explanation
ICUN	International Union for Conservation
IMS	Introduced Marine Species
LNG	Liquefied Natural Gas
LOA	Length overall (in regards to shipping)
MNES	Matters of National Environmental Significance under the *EPBC Act*
Mt	Million tonnes
Mtpa	Million tonnes per annum
NCA	*Nature Conservation Act 1992 (Qld)*
NCL	North Coast Line rail infrastructure
NCWR	*Nature Conservation (Wildlife) Regulation 2006*
PM10	Particulate matter smaller than 10 micrometres
PM2.5	Particulate matter smaller than 2.5 micrometres
QR National	QR National is the largest rail freight haulage business in Australia by tonnes hauled. It is the largest transporter of coal in Australia and the world's largest rail transporter of coal from mine to port for export markets.
QWQG	Queensland Water Quality Guidelines
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
Rollingstock	All the vehicles that move on a railway, including both powered and unpowered vehicles.
RRC	Rockhampton Regional Council
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
tph	Tonnes per hour
TSP	Total Suspended Particles
USL	Unallocated State Land
UKC	Underkeel Clearance (in regards to shipping)
VMA	*Vegetation Management Act 1999*
WICET	Wiggins Island Coal Export Terminal Project
WQOs	Water Quality Objectives

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 author has relied heavily on the accuracy and completeness of this information as it existed at the time of writing.

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Fitzroy Terminal

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