Aurecon Hatch
ABN 21 646 421 651
152 Wharf Street
Spring Hill Queensland 4004
Australia

T: +61 7 3166 7700
F: +61 7 3166 6555
E: ahbne@aureconhatch.com
W: aureconhatch.com

Request for Project Change
Wiggins Island Coal Terminal
WICET Pty Ltd

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C	13-Apr-2012	CG Review	TS/KH	NG/GK	APA	MA
O	23-May-2012	Final	TS/KH	NG/GK	APA	MA

Contents

Executive summary

Introduction

Wiggins Island Coal Export Terminal Pty Ltd (WICET) is proposing changes to the expansion phases of the Wiggins Island Coal Export Terminal (the Project) in the Port of Gladstone.

The proposed changes affect only the expansion phases of the Terminal, which are:

1) WICET Expansion Phase 1 (WEXP1): Construction of a stockyard (Stockyard Area B) with the development of a new stacker-reclaimer yard on the section of Reclamation Area B to the southwest of Golding Point, utilising available port land. Stockyard Area B is within an area that has been designated as a coal terminal stockyard area in the State approved Land Use Agreement, and the WICET Terminal Master Plan and Framework Deed

2) WICET Expansion Phase 2 (WEXP2): Revision of the expansion phase stockyard coal handling equipment on the eastern half of Golding point from bridge stackers, dozers and underground reclaim conveyors to more conventional stacker-reclaimer systems. The Stage 1 bridge stacker and dozer reclaimer will remain on the western half of Golding Point

The proposed configuration changes have resulted primarily from:

1) Expansion Shipper's blending requirements being less complex than those considered in deriving the original Terminal configuration

2) Clarity around the planned timing of the expansion phases to meet the expansion Shipper's requirements

The changes are in response to the needs of WICET's potential expansion Shippers and will offer improved capital efficiency, lower operating costs and consequently greater marketability of the Shipper's products.

This Change Request details the extent that the proposed changes to the Project's expansion phases, WEXP1 and WEXP2, vary from the Project approved under the Environmental Impact Statement and discusses potential impacts that may result from the changes. This request also updates the impacts of the entire Project, in line with the current legislation.

The Project as approved under the EIS nominated the three major stages of the coal terminal development and approximate construction timings to be:

- Stage 1 – 25 Mtpa (2007 to 2010)
- Stage 2 – 50 Mtpa (2013 to 2015)
- Stage 3 – Ultimate Capacity (2018 to 2020)

As part of the changes in response to WICET's potential expansion Shippers, and the WEXP1 and WEXP2 expansion phases, the new incremental capacity and approximate construction timings are:

- Stage 1 – 27 Mtpa (2011-2014)
- WEXP1 – 59 Mtpa (2013-2016)
- WEXP2 – 84 Mtpa (2014-2017)

The Project is located approximately 12 km northwest of the city of Gladstone and approximately 525 km north of Brisbane, Queensland. It is situated west of the existing RG Tanna Coal Terminal (across the Calliope River) and has been approved by Commonwealth, State and Local Governments with three (3) unloading streams, three (3) loading streams,

six (6) berths, 6.3 million cubic metres of dredging (excluding over-dredging) and an ultimate Terminal throughput capacity of 84 million tonnes per annum.

WICET is not seeking change to these key Project parameters, which are approved under the Environmental Impact Statement (EIS) and Supplementary Environmental Impact Statement (SEIS). Furthermore, the proposed changes associated with WEXP1 and WEXP2 are contained within the Project footprint approved under the EIS and SEIS. The proposed changes do not result in additional dredging, additional vegetation clearing, or additional shipping.

Legal Framework

An Environmental Impact Statement for the Project was prepared by Connell Hatch (now Aurecon Hatch) on behalf of Central Queensland Ports Authority (now Gladstone Ports Corporation), the initial proponent, under the State-Federal bilateral agreement. In November 2006, the Environmental Impact Statement was published and submitted to the Coordinator-General. A Supplementary Environmental Impact Statement was prepared in 2007 to address the issues raised during the public consultation period and the subsequent Project changes.

In January 2008, the Wiggins Island Coal Terminal Project Coordinator-General's Report evaluating the EIS pursuant to section 35 of the *State Development and Public Works Organisation Act 1971* was released. In April 2008, the Project was given 'controlled action' approval under the *Environment Protection and Biodiversity Conservation Act 1999*.

In October 2008, WICET and its parent, WICET Holdings Pty Ltd, were granted Preferred Proponent status by the Queensland Government to develop the Terminal. The arrangement set in place resulted in WICET financing and developing the terminal, with GPC to operate the Terminal and Queensland Rail responsible for the rail components of the approved project. In September 2011, the EPBC approval was transferred to WICET and Queensland Rail.

This request for project change has been prepared in accordance with Division 3A of the *State Development and Public Works Organisation Act* 1971 by Aurecon Hatch on behalf of Wiggins Island Coal Export Terminal Pty Ltd to address the proposed changes of WEXP1 and WEXP2.

The Coordinator-General evaluates the Change Request, prepares a report evaluating the project change and decides whether the changes to the Project should be approved (containing conditions and recommendations if required) or refused. The Coordinator-General's Report is given to the proponent.

The potential impacts of WEXP1 and WEXP2 are within the scope of the Commonwealth 'controlled action' approval and will not result in a change to the potential impacts on matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC 2005/2374). This was confirmed in writing by the Department of Sustainability, Environment, Water, Population and Communities on 14 September 2011.

The majority of planning and environmental approvals have been obtained for the construction footprint of the ultimate 84 million tonnes per annum Project. Additional approvals for WEXP1 and WEXP2 will be obtained prior to their respective construction phases commencing.

Need for the Project

Global demand for coal has increased considerably in the past decade. It is the fastest growing fuel source of electricity due to its low cost, abundance and safe extraction and use, relative to alternative fossil fuels and is a fundamental ingredient in steelmaking. This demand is expected to remain strong with industrial development and population growth, particularly in emerging economies. The Bowen Basin (Blackwater/Moura region) and Surat Basin (Wandoan region) are expected to produce high quality metallurgical and thermal coals into the foreseeable future from the substantial reserves. The region is currently among the lowest cost producers of high quality metallurgical and thermal coals in the world, which are sold into many sectors of the international markets.

The expansion phases of WICET are key to the opening of the Surat Basin coal reserves and provide the export link to the recently approved Surat Basin Rail Project and the Wandoan Coal Project as well as to many other brownfield and greenfield mine developments.

The coal resources of Queensland are extensive and exceed the domestic needs of Australia in the foreseeable future. During the 2009/10 financial year, the Queensland coal industry exported a total of 183 million tonnes of coal, an increase of 14.9% from the previous year. The Port of Gladstone exported approximately 60 million tonnes of this coal.

Existing Capacity Constraints

The existing facilities within the Port of Gladstone (RG Tanna Coal Terminal and Barney Point Coal Terminal) are constrained in their ability to be expanded through a combination of congestion of the existing rail system, limited land for storage of coal at the terminals, the ability to expand their shiploading facilities, and environmental and social constraints, particularly at Barney Point where both noise and dust are of concern for the residential community.

RG Tanna Coal Terminal has a nominal export capacity of 70 million tonnes per annum, while the Barney Point Coal Terminal has a nominal capacity of 8 million tonnes per annum.

No Action Option

The inability to ship the volume of coal in demand would have significant financial implications for Australia and Queensland. Inaction to meet the demands of industry would curtail further proposed investment in the coal industry. The inability to address the expansion user's operating requirements would significantly affect the timing and efficiency of the Terminal's ability to provide export capacity to meet industry demand, also impeding proposed investment in the coal industry, including delays in the development of the Surat Basin coal reserves and associated rail infrastructure.

The export of additional coal through the Terminal as a result of the WEXP1 and WEXP2 Project will provide additional export revenue for Australia and increased State revenue. In addition, the proposal has significant employment opportunities at the local, regional and State level across all spectrums of the workforce.

Mine/Customer Requirements

Opportunities remain for further resource development in Central Queensland. The Surat Basin also has further potential for open-cut coal mines and has attracted international interest as a major source of high-volatile thermal coal.

The Wiggins Island Coal Export Terminal Pty Ltd consortium currently includes 8 coal companies with contracted capacity for Stage 1 totalling 27 million tonnes per annum. There is continuing strong demand for coal export capacity through the Port of Gladstone, including from the Surat Basin. Support for the Project was further strengthened from mid 2010, when WICET received expressions of interest from 22 coal companies (representing over 170

Mtpa) for additional (post Stage 1) export capacity through the Wiggins Island Coal Export Terminal for shipments in 2015 and 2016.

Stage 1 of the Project commenced construction in October 2011 and is expected to be operational from 2014.

The construction of WICET Stage 1 was originally due for completion in 2010. Due to the delay in commencement of construction of Stage 1, the eastern portion of Golding point is currently being utilised as a laydown area, and is not available for construction of the Stage 2 (Golding Point), required to satisfy 2015 capacity requirements. As a result, there is a requirement for concurrent construction of Stage 1, WEXP1 and WEXP2, in order to achieve user's export requirements.

Coal companies have funded the feasibility studies for the first and second expansion phases of the Terminal. The technical feasibility study for the first expansion phase (WEXP1) is now complete and commencement of detailed engineering is imminent. The technical feasibility study for the second expansion phase (WEXP2) is nearing completion.

Project Description

Approved Components

The Project scope, as previously approved, included the construction of six berths – four coal berths and two berths for other products. The approved nominal ultimate coal export capacity of the Project is 84 million tonnes per annum, which utilised the following primary components:

- Three rail dump stations and three overland conveyors
- Coal stockyard, and materials handling systems on Golding Point with automated travelling bridge stackers, with coal to be reclaimed to the shiploading stream from the stockpiles using dozers and stockpile dischargers (Drawing HQ98-SK-M-084, Appendix 1)
- Three outloading conveyors serving three shiploaders across the four coal berths (Drawing HQ98-SK-M-086, Appendix 1)
- Internal power distribution, control systems and communications
- Substations, workshops, administration, security, amenities and lighting for the coal Terminal
- Marine facilities including jetty, wharf and dolphins
- Berth pockets, departure/arrival channel and swing basin dredged to navigable depths (Drawing HQ98-SK-W-550, Appendix 1)
- Site water management and drainage infrastructure for the coal Terminal
- Site roads, services and infrastructure (Drawing HQ98-SK-C-495, Appendix 1)
- Landscaping and fencing

Stage 1 of the Project is being constructed on the basis of the Project description contained in the Supplementary Environmental Impact Statement.

Proposed Changes

The proposed changes to the Project described in the approved Environmental Impact Statement and Supplementary Environmental Impact Statement include:

- Development of a stacker-reclaimer stockyard (Stockyard Area B) on Reclamation Area B, including a new settlement pond at the western end of Reclamation Area B and a new operational stormwater outfall to the Anabranch
- Development of a stacker-reclaimer yard on the eastern half of Golding Point in lieu of the previously approved bridge stacker / dozer reclaim yard in this area. The western half of Golding Point will continue to be developed as a bridge stacker / dozer reclaim yard as per the approved EIS and SEIS

A general arrangement of WICET including Stage 1, WEXP1 and WEXP2 is provided in Drawing 0000-M-DT-0102 in Appendix 1.

The proposed changes to the Project do not result in:

- An increase in the Project footprint
- Additional dredging
- Change to the dredging methodology and disposal / reclamation areas
- Additional terrestrial vegetation clearing
- Additional marine piling within seagrass meadows
- An increase in the ultimate Terminal throughput
- Additional ship movements

Summary of proposed changes

A tabulated summary of the full Change Request findings is included in Table 1. The table indicates whether there is significant change from the conclusions derived in the approved Environmental Impact Statement and Supplementary Environmental Impact Statement.

The degree of change was determined using the potential impact findings derived from the Project, as approved under the Environmental Impact Statement process. These findings were compared with the potential impacts of the proposed changes associated with WEXP1 and WEXP2.

Potential impacts predicted to be unchanged, or a negligible change, from the approved Project were categorised as 'No Change' in Table 1. While the potential impacts predicted for WEXP1 and WEXP2 that result in a sufficiently material change were categorised as a 'Change' in Table 1.

Key findings are as follows:

- A minor increase in noise levels at two sensitive receptors during neutral weather conditions, and at 19 receptors in 'worst case' temperature inversion conditions is anticipated
- Key commitments proposed by WICET in respect of these findings include:
  - Investigation of mitigating measures should detailed design result in unacceptably high noise levels at sensitive receivers
  - Augmentation of WICET's Community Relations Plan to specifically address Change Request findings. WICET is committed to engaging with the community with regard to noise levels
- Air quality (particulate matter) impacts generated during construction and operation of WEXP1 and WEXP2 are expected to be similar to those assessed in the EIS and SEIS
- Additional stormwater settlement pond volume (including one new pond at the western end of Stockyard Area B and extension to the main Stage 1 south stormwater pond) will be required for capture of stormwater and maintenance of approved water quality discharge limits
- The changed Project remains consistent with existing Land Use agreements and the overall Gladstone land use context. Notwithstanding this, the development of Stockyard Area B as a coal terminal stockpile area is a change to the approved EIS / SEIS. WICET is committed to the amelioration of visual amenity through provision of visual screens (comprising landscape bunds and vegetation) around the perimeter of the new Stockyard Area B
- The Project changes will result in a reduction of cumulative lighting impacts on residents and motorists in the area as the stacker-reclaimer stockyards require very little artificial lighting compared with the approved bridge stacker / dozer reclaim stockyards
- The appearance of the wider WICET site will be changed with the use of Reclamation Area B (Stockyard B) for WEXP1. The appearance of WEXP1 and WEXP2 is not new to the Gladstone landscape, and will be consistent with that of the approved Project,

existing infrastructure and the Port of Gladstone, as well as the continued industrial focus of the region and the city of Gladstone

- On account of a reduction of the bulldozer fleet, diesel consumption during operation has reduced by 3.67 million litres per year. This is equivalent to a 14.68 kiloton annual CO2-e reduction

Table 1 Summary of key findings in Request for Change

Chapter	Change	No Change	Details
4 Topography, geology and soils	✓		Reference: Section 4 A revised Acid Sulfate Soil Management Plan is currently being developed to incorporate the management of potential risks from WEXP1 dredging (Berths 2 and 3). ASS sampling of Berth Pockets 2 and 3 did not identify ASS New settlement ponds will involve excavation of previously deposited dredged materials and the new outfall will require excavation of some soils, and associated Acid Sulfate Soil risks
5 Land use and project approvals	✓		Reference: Section 5 WEXP1 and WEXP2 comply with the State and Local Government land use and transport planning Policies, Strategies and Guidelines WEXP1 and WEXP2 will have minimal impact on adjoining existing and future land uses due to the industrial and port nature of the area Additional statutory approvals will be required, including a Material Change of Use and various Operational Works (Bulk Earthworks, Tidal Works and the Disturbance of Marine Plants)
6 Transport	✓		Reference: Section 6 No additional shipping movements, or impacts from shipping are expected as the overall Terminal capacity will remain the same as the approved Project It is intended that the Gladstone-Mount Larcom Road overpass will be constructed during the early works of WEXP1 Construction traffic is expected to impact on traffic in the wider area for a longer duration than that predicted in the WICT EIS and SEIS. This is largely due to an increase in construction intensity, with WICET Stage 1 and WEXP1 and WEXP2 occurring concurrently A detailed traffic management plan was prepared and approved by the Department of Transport and Main Roads as part of the WICET Stage 1 works. This plan will be implemented for future stages and updated as required

Chapter	Change	No Change	Details
7 Climate, climate change and sustainability	✓		Reference: Section 7 The changed Project presents a reduction of diesel consumption of 3.67 ML of diesel per year from the Approved Project. This is equivalent to a 14.68 kiloton annual CO2-e reduction Reporting under the *National Greenhouse and Energy Reporting Act 2007* is now required for energy consumption during the construction phase and greenhouse gas emissions of the operational phase of the Project The Project may be subject to the Carbon Price Mechanism and may therefore be financially liable for each tonne of CO_2-e emitted
8 Hydrology and hydraulics		✓	Reference: Section 8 It is expected that the proposed Project changes associated with WEXP1 and WEXP2 will not have any additional impacts to hydrology/hydraulics of the area to those addressed in the WICT EIS and SEIS
9 Water quality		✓	Reference: Section 9 Dredging remains consistent with the approved WICT EIS and all dredging activities will comply with approved DMP(s) Any potential water quality impacts from the proposed changes are considered minor and represent minimal to no change to the potential impacts addressed in the WICT EIS process
10 Groundwater		✓	Reference: Section 10 The addition of WEXP1 and WEXP2 to the WICET design proposed post WICT EIS and SEIS are not expected to result in significant impacts to groundwater resources within the area
11 Coastal environment		✓	Reference: Section 11 There is no change to the approved dredging, as included in the WICT EIS and SEIS
12 Air quality		✓	Reference: Section 12 Air quality impacts generated during construction and operation of WEXP1 and WEXP2 are expected to be similar to those assessed in the EIS and SEIS
13 Waste		✓	Reference: Section 13 A modest increase in waste (of that originally predicted in the EIS and SEIS) will be generated during construction. This is largely due to the expansion phases requiring a slight increase in construction intensity compared with that estimated in the EIS and SEIS
14 Noise and vibration	✓		Reference: Section 14 A minor increase in noise levels at two sensitive receptors during neutral weather conditions, and at 19 receptors in 'worst case' temperature inversion conditions is anticipated

Chapter	Change	No Change	Details
15 Terrestrial flora and fauna		✓	Reference: Section 15 No additional clearing (ie outside of the project footprint) is proposed as part of the WEXP1 and WEXP2 changes Potential impacts on the terrestrial ecology as a result of the WEXP1/WEPX2 changes will be limited to indirect impacts only, and are not expected to be significant
16 Aquatic ecology		✓	Reference: Section 16 Any potential aquatic ecology impacts from the proposed WEXP1 and WEXP2 changes are considered minor and represent minimal to no change to the potential impacts addressed in the WICT EIS process
17 Cultural heritage		✓	Reference: Section 17 The proposed changes will be wholly contained within the Project footprint approved under the EIS; therefore there are no additional cultural heritage requirements
18 Social	✓		Reference: Section 18 The estimated peak workforce for the changed Project is 1,100 employees inclusive of construction labour, engineering and management staff. This compares with 1,450 employees assessed during the EIS and SEIS, assuming Stage, 1, 2 and 3 (as defined in the EIS) were undertaken concurrently. The peak is expected to occur during WEXP1 construction as Stage 1 is completed and commences operation. Given the WEXP1 construction workforce is planned to ramp up as Stage 1 construction ramps down, it is expected that the 1,100 peak workforce will be sustained for a longer period than originally anticipated in the EIS and SEIS The impacts arising from increased workforce requirements and concurrent projects include a shortage of necessary skills, a decrease in accommodation availability and increased pressure on social infrastructure in the surrounding community Provision of rooms from WICET's allocation within the Maroon Group Accommodation Facility will cater for the majority of non-Gladstone based workers required for the Project
19 Health and safety	✓		Reference: Section 19 There is an elimination of hazard from mobile equipment (dozer) interaction with the bridge stacker, as this equipment will be replaced with stacker/reclaimers in the changed Project A minor increase in noise levels at two sensitive receptors during neutral weather conditions, and at 19 receptors in 'worst case' temperature inversion conditions is anticipated

Chapter	Change	No Change	Details
20 Economics	✓		Reference: Section 20 The Gross State Product and the total coal export earnings are expected to rise due to the increase in the marketability of coal. The projected earnings will be achieved earlier than originally anticipated
21 Hazard and risk		✓	Reference: Section 21 The construction and operation of WEXP1 and WEXP2 is not expected to significantly increase the hazards and risks that were approved for the construction and operation of the WICET Project
22 Visual amenity and landscape character		✓	Reference: Section 22 The appearance of the wider WICET site will be changed with the use of Reclamation Area B (Stockyard B) for WEXP1 and the change to the stacker-reclaimer yard on the eastern half of Golding Point for WEXP2 However, the appearance of WEXP1 and WEXP2 is not new to the Gladstone landscape, and will be consistent with that of the approved Project, existing infrastructure and the Port of Gladstone, as well as the continued industrial focus of the region and the city of Gladstone WICET is committed to the amelioration of visual amenity through provision of visual screens (comprising landscape bunds and vegetation) around the perimeter of the new Stockyard Area B

Conclusion

With the effective implementation of the Coal Terminal Management Plans during detailed design, construction and operation, this Change Request addressing the proposed modifications to the expansion phases WEXP1 and WEXP2 of the Wiggins Island Coal Export Terminal Expansion Phase 1 has identified no significant environmental impacts. All identified potential environmental impacts are able to be managed during design, construction and operation to acceptable levels, consistent with the original approvals and conditions.

This report has recognised that the proposed changes will result in a marginally increased impact on intertidal areas and marine plants with local and regional values due to the additional stormwater outfall to the Anabranch. In consultation with relevant agencies, a range of mitigation strategies will be developed to maintain the overall ecological values of Port Curtis. Cumulative impacts including a shortage of necessary skills, accommodation availability and increased pressure on social infrastructure will be mitigated through the allocation of rooms at the Maroon Group Accommodation Facility and the ongoing collaboration with concurrent projects in Gladstone.

WEXP1 and WEXP2 are expected to provide significant economic benefits for Gladstone and Queensland through the coal export industry and associated provision of government royalties, and will facilitate the opening up of the Surat Basin.

1. Introduction

1.1 Background

The Wiggins Island Coal Export Terminal Pty Ltd (WICET) is proposing changes to their greenfield coal terminal, the Wiggins Island Coal Export Terminal (the Project), in response to user requirements for proposed Terminal expansions. The changes do not affect the approved throughput of 84 Mtpa.

The Project is located approximately 12 km northwest of the city of Gladstone and approximately 525 km north of Brisbane, Queensland. It is situated west of the existing RG Tanna Coal Terminal (across the Calliope River) and has been preliminarily approved with an ultimate capacity of 84 million tonnes per annum (Mtpa). Figure 1.1 shows the location of the coal terminal.

An Environmental Impact Statement (EIS) for the Project was prepared by Connell Hatch (now Aurecon Hatch) on behalf of Central Queensland Ports Authority (CQPA), now Gladstone Ports Corporation (GPC), the initial proponent, under the State-Federal bilateral agreement. In November 2006, the EIS was published and submitted to the Coordinator-General. The EIS was subject to public consultation, which occurred from 13 November 2006 to 8 January 2007. During this period, 28 agency and stakeholder/community submissions were received. A Supplementary EIS (SEIS) was prepared in 2007 to address the issues raised during the EIS consultation period and the subsequent Project changes.

In January 2008, the Wiggins Island Coal Terminal Project Coordinator-General's Report evaluating the EIS pursuant to section 35 of the *State Development and Public Works Organisation Act 1971* was released. In April 2008, the Project was given approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2005/2374).

In October 2008, WICET and its parent, WICET Holdings Pty Ltd, were granted Preferred Proponent status by the Queensland Government to develop the Terminal. The arrangement set in place resulted in WICET financing and developing the terminal, with GPC to operate the Terminal and Queensland Rail responsible for the rail components of the approved project. In September 2011, the EPBC approval was transferred to WICET and Queensland Rail.

In accordance with Division 3A of the SDPWO Act, a request for project change has been prepared by Aurecon Hatch on behalf of WICET to address the proposed changes to the Project, known as WICET Expansion Phase 1 (WEXP1) and WICET Expansion Phase 2 (WEXP2). This Change Request details the extent that WEXP1 and WEXP2 varies from the approved Project and discusses additional impacts that may result from the changes. Additional mitigation and management measures are also included to avoid/reduce these impacts.

The Change Request is divided into the following sections:

- Executive Summary
- 1 Introduction (this section)
- 2 Project need
- 3 Project Description
- 4 Topography, Geology and Soils
- 5 Land Use
- 6 Transport
- 7 Climate, Climate Change and Sustainability
- 8 Hydrology and Hydraulics
- 9 Water Quality
- 10 Groundwater
- 11 Coastal Environment

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Legend

- Project Area
- Cadastre
- Port of Gladstone Limits
- Major Roads
- Rail

Source:
Cadastre: DERM, October 2011

Date: 24/08/2011 Version: 1

Map by: by: PIC P:\GIS\Projects\H337300_WICET_Change_Report\MEXP1_036.mxd 24/08/2011 10:43

A1 scale: 1:90,000

0 2 4 6 8Kilometers

Job No: H337300-B10-B330

Coordinate system: GDA_1994_MGA_Zone_56

Wiggins Island Coal Export Terminal - EIS Change Request

Figure 1.1 Locality Plan

- 12 Air Quality
- 13 Waste
- 14 Noise and Vibration
- 15 Terrestrial Flora and Fauna
- 16 Aquatic Ecology
- 17 Cultural Heritage
- 18 Social
- 19 Health and Safety
- 20 Economics
- 21 Hazard and Risk
- 22 Visual Amenity and Landscape Character
- 23 Coal Terminal Environmental Management Plan
- 24 Abbreviations
- 25 References

1.2 Project proponent

In October 2008, WICET was appointed by the Queensland Government as the preferred proponent to finance and build the Project. The Framework Deed with the State and GPC was executed in December 2009 and outlined the role of WICET as owner, developer and lessee of the Terminal, with GPC as the operator of the Terminal. The WICET consortium currently includes 8 coal companies who have contracted capacity in Stage 1:

- Aquila Resources
- Bandanna Energy
- Caledon Resources
- Cockatoo Coal
- Northern Energy Corporation
- Wesfarmers Curragh
- Yancoal
- Xstrata Coal

The contact details of WICET are as follows:

Wiggins Island Coal Export Terminal Pty Ltd
Email: info@wicet.com.au

Gladstone Office

Level 1, 72 Goondoon Street
GLADSTONE QLD 4680
Ph: +61 7 4973 1400

Project Office

Level 16, 313 Adelaide Street
GPO Box 1879
BRISBANE QLD 4001
Ph: +61 7 3210 5300

1.3 Project description

1.3.1 Description of approved Project

The Project, as described in the SEIS and approved under the EIS process, included the construction of six berths – four berths for the coal Terminal and two for other non-coal related activities. The ultimate capacity of the four berth coal Terminal is 84 Mtpa, based on

a nominal capacity of 70 Mtpa with a throughput variation of up to 20%. The Project has been approved to ultimately contain the following primary components:

- Three rail dump stations and three inloading conveyors
- Coal stockyards and materials handling systems with automated travelling bridge stackers (situated on Golding Point) with coal reclaimed to the shiploading stream from the stockpiles using dozers and stockpile dischargers
- Three outloading conveyors serving three shiploaders across the four berths
- Internal power distribution, control systems and communications
- Substations, workshops, administration, security, amenities and lighting for coal terminal and rail yard
- Marine facilities including jetty, wharf and dolphins
- Berth pockets, departure/arrival channel and swing basin dredged to navigable depths
- Site water management and drainage infrastructure for the coal Terminal
- Site roads, services and infrastructure
- Landscaping and fencing

Other infrastructure approved to support the Project includes the following major components:

- Reclamation of areas north and south of Gladstone-Mount Larcom Road (formerly Hanson Road), including modifications to Reclamation Areas B and C
- A wharf/barge ramp facility on Golding Point, adjacent to the Calliope River and east of the stockyard
- Gladstone-Mount Larcom Road will be raised over the inloading conveyors with access provided to the coal Terminal
- Water supply and sewerage infrastructure, telecommunications and power supplies to service the coal Terminal
- Relocation/protection of existing services/utilities (eg gas pipelines, Ergon cables/equipment etc)

The detailed engineering design is largely complete for Stage 1 of the Project. WICET has obtained a range of Development Permits and/or submitted Development Applications in relation to the necessary planning and environmental approvals for the Project. Stage 1 of the Project comprises reclamation and dredging works, coal stockyard, one rail dump station, one conveyor, the jetty, one berth and associated infrastructure. Stage 1 construction works commenced in October 2011 and are proceeding on the basis of the SEIS. Stage 1 is expected to be operational in 2014.

The Project as approved under the EIS nominated the three major stages of the coal terminal development and approximate construction timings to be:

- Stage 1 – 25 Mtpa (2007 to 2010);
- Stage 2 – 50 Mtpa (2013 to 2015); and
- Stage 3 – Ultimate Capacity (2018 to 2020).

1.3.2 WICET Expansions

As a response to a change in the expansion user's operating requirements, expansion planning of the Project identified and assessed modified configurations for the Terminal. WEXP1 and WEXP2 contain several variations to the overall Project and are designed to take into account unanticipated changes to the coal industry in Gladstone including different operating requirements of WEXP1 and WEXP2 users compared to the users of Stage 1, resulting in less outbound blending than previously required. The eastern half of Golding Point is required to be used for laydown area during the construction of Stage 1, limiting site availability of the eastern portion of Golding Point for development in time to meet industry demand. Figure 1.2 shows an overlay of the approved project as per the EIS and the proposed project changes.


Port Curtis
Wharf Substructures For Other Products Berths 5 and 6
Coal Terminal Berths 1 to 4
Jetty
Mud Island
Wiggins Island
Potential Coal Terminal Switchyard
Construction Access Barge Ramp Facility
Stockyard Area A
Stockyard Area B
Golding Point
Reclamation Area B
Substation
Coal Terminal
Terminal Acesss Road
Reclamation Area C
Anabranch
Overland Conveyors
Gladstone Power Station
Callemondah Rail Yard
Gladstone Airport
Round Hill Lookout
Auckland Point Lookout
Gladstone Marina
Spinnaker Park
Auckland Inlet
Hanson Road
Gladstone
Dawson Highway
Calliope River
Receival Area
Legend
Source:
Project Footprint

The WICET expansion phase incremental capacity and approximate construction timings are:

- Stage 1 – 27 Mtpa (2011-2014)
- WEXP1 – 59 Mtpa (2013-2016)
- WEXP2 – 84 Mtpa (2014-2017)

This Change Request does not seek approval to increase ultimate capacity of 84 Mtpa. All the proposed project components are to occur within the Project footprint which includes areas approved under the EIS and areas subsequently approved for WICET Stage 1, such as the Gladstone-Mount Larcom Road overpass and the new outfall to the Calliope River Anabranch. Dredging, vegetation clearing and shipping all remain unchanged from that proposed in the approved Project.

WICET Expansion Phase 1 (WEXP1)

WEXP1 extends Stage 1 of the Project by developing a new stacker reclaimer yard on Reclamation Area B, (Stockyard Area B), to increase the throughput capacity utilising available port land. The following components are included WEXP1:

- Extension of the Stage 1 dump station to accommodate a second rail receival loop
- Three stockpile rows in Stockyard Area B
- Three stacker reclaimers operating in Stockyard Area B
- Addition of overland conveyor, inloading transfer conveyor, yard conveyors, reclaim transfer conveyors, surge bin conveyor, surge bin, jetty conveyor and wharf conveyor
- One additional shiploader and two additional berths (Berths 2 and 3)
- A new settlement pond at the south-western end of the Reclamation Area B (Stockyard Area B) and a new stormwater outfall to the Anabranch. The stormwater pond will require excavation of previously disposed dredge spoil from Stage 1 activities and subsequent re-use onsite
- Extension of the settlement pond on the southern part of Golding Point

WICET Expansion Phase 2 (WEXP2)

WEXP2 involves the development of a stacker-reclaimer yard on the eastern half of Golding Point in lieu of bridge stackers/dozer reclaimers that were previously approved for the Project.

The following components are included in WEXP2

- Extension on the dump station to accommodate a third rail receival loop
- Three additional stockpile rows on the eastern half of Golding Point
- Three stacker reclaimers operating in Stockyard Area A (Golding Point)
- Addition of overland conveyor, inloading transfer conveyors, yard conveyors, surge bin conveyor, surge bin and sample plant complex, jetty conveyor and wharf conveyor
- One additional shiploader and one additional berth (Berth 4)

WEXP2 will be developed in lieu of the approved bridge stacker/dozer reclaim yard in this area, with the Stage 1 bridge stacker with dozer reclaimer remaining on the western half of Golding Point.

Confirmation of User's Operation Requirements

The project description provided herein for WEXP1 and WEXP2 is current at the time of reporting, however it should be noted that the precise equipment arrangement remains subject to final confirmation of the user's operating requirements and the subsequent detailed design process. For example, should the final user requirements show a need for additional product blending, an additional stacker-reclaimer could be required. It is proposed that the assessment of equipment changes be undertaken as part of operational works

approvals. This may include additional modeling to assess any change to the dust and noise impacts.

1.3.3 Studies completed

Environmental and engineering studies and surveys undertaken to develop WEXP1 and WEXP2 and prepare the Change Request include:

Engineering

- Concept engineering and master planning
- Technical feasibility studies
- Geotechnical investigations

Environmental

- Air quality assessment and modelling
- Noise and vibration assessment and modelling
- Social impact assessment

1.3.4 Areas of investigation

- Project area/footprint – the area required for the Project construction and operation
- Study area – the larger area of influence relevant to consider the broader potential impacts of the Project

1.4 Project scope

Stage 1 of the Project is expected to be operational by 2014 and provides for the contracted capacity of 27 Mtpa. This stage will require reclamation, dredging works and the construction of one coal stockyard, one dump station, one conveyor, the jetty, one wharf/berth and associated infrastructure.

Construction of WEXP1 is anticipated to commence in mid 2012 and is expected to increase contracted capacity to approximately 59 – 60 Mtpa. WEXP2 is being planned to ship first coal in 2016, or as soon as possible thereafter.

1.5 The Change Request

1.5.1 Project status

The potential impacts of WEXP1 and WEXP2 are within the scope of the Australian Government 'controlled action' approval and will not result in a change to the potential impacts on matters of national environmental significance (NES) under the EPBC Act (EPBC 2005/2374). This was confirmed by the Department of Sustainability, Environment, Water, Population and Communities on 14 September 2011 (refer Appendix 1).

The Change Request is required under Division 3A of the SDPWO Act to assess the potential additional impacts of WEXP1 and WEXP2 as the changes no longer comply with the Project description originally approved by the Coordinator-General under the EIS process.

1.5.2 Objectives of the request for change report

The purpose of the Change Request is to provide information on the existing environment, social and economic situations and on the nature and extent of potential impacts that may arise from construction and operation of the changed Project. This process has assisted in the WEXP1 and WEXP2 concept engineering and master planning to avoid or minimise potential impacts where practicable and develop appropriate mitigation measures for impacts which are unavoidable.

In particular, the report provides:

- An understanding of WEXP1 and WEXP2 components and the variations from the approved Project
- The existing environment that WEXP1 and WEXP2 may potentially impact upon, including the environment in the project footprint and the broader study area
- The potential impacts that may occur as a result of WEXP1 and WEXP2 and the measures to be taken to avoid or mitigate potential impacts
- A framework for decision makers to consider the environmental aspects of WEXP1 and WEXP2 compared with the legislative and policy provisions in order to make an informed decision on whether WEXP1 and WEXP2 should proceed in the proposed form
- A source of information for interested parties to gain an understanding of WEXP1 and WEXP2, including the need for the Project, the alternatives, the environment it would affect, the impacts that may occur and the measures to be taken to avoid or reduce these impacts

1.5.3 Submissions

As per Section 35G of the SDPWO Act, it is the responsibility of the Coordinator-General to decide whether WICET is required to publicly notify of changes to the approved Project, the method of which is decided by the Coordinator-General.

1.6 Study team

The Change Request has been prepared by Aurecon Hatch with support from specialist sub-consultants. These consultants include Katestone, who prepared a report on air quality (refer Chapter 12) and SLR Consulting, who prepared a report on noise and vibration (refer Chapter 14).

1.7 Summary of Environmental Legislative Requirements

There are a number of State environmental legislative requirements to be addressed prior to the construction of WEXP1 and WEXP2. These are in addition to the approvals currently obtained or being obtained for Stage 1 construction and operational activities. A summary of approvals likely to be required and/or amended for WEXP1 and WEXP2 are displayed in Table 1.1. Further information regarding the regulatory framework and likely approvals for WEXP1 and WEXP2 are discussed in detail in Chapter 5.

Table 1.1 Summary of likely approvals required for WEXP1 and WEXP2

Legislation	Administering Authority	Trigger	WEXP1/WEXP2 Response
State Development and Public Works Organisation Act 1971	Coordinator-General	The Coordinator-General to assess the proposed change to a project after completion of the Coordinator-General's Report	Application for a 'Project Change' required (subject of this application)
Environmental Protection Act 1994 *Sustainable Planning Act 2009*	Department of Environment & Heritage Protection (DEHP)	Development Permit for MCU and Registration Certificates required for Construction and Operational Environmentally Relevant Activities (ERAs)	ERAs relating to Extractive Activities (ERA 16) and Bulk Material Handling (ERA 50) may require amendment/new approvals to include volumes associated with WEXP1 and WEXP2

Legislation	Administering Authority	Trigger	WEXP1/WEXP2 Response
Sustainable Planning Act 2009 *Coastal Protection and Management Act 1995* *Fisheries Act 1994*	Gladstone Ports Corporation/ DEHP / Department of Agriculture, Fisheries and Forestry (DAFF)	Development Permits for Operational Works that are Tidal Works and the Removal, Destruction or Damage to Marine Plants	Likely additional new and/or amendments to existing Development Permits to accommodate new conveyors and operational stormwater outfall
Sustainable Planning Act 2009	GRC	Development Permit for Operational Works (Bulk Earthworks)	Amendment of the existing Operational Works (Bulk Earthworks) approval required for works that remain within GRC's jurisdiction
Transport Infrastructure Act 1994	Gladstone Ports Corporation	Undertaking Port Assessable Development	Port Development Approval for works on Strategic Port Land

2. Project need and alternatives

This chapter describes the need of the proposed WICET Expansion Phase 1 (WEXP1) and WICET Expansion Phase 2 (WEXP2) and highlights any alternatives that have previously been considered. The need and alternatives for the original terminal were outlined in the WICT EIS and SEIS. This Change Request aims to provide an updated assessment to address potential changes to the Project which were assessed in the Coordinator-General's (CG) Report (January 2008) and the Australian Government controlled action approval (April 2008).

2.1 Proposed Changes to the Project

The proposed changes to the Project include:

- WEXP1: the development of a new stacker-reclaimer yard on Reclamation Area B to utilise available port land, including a new settlement pond at the western end of Reclamation Area B, and a new operational stormwater outfall to the Anabranch
- WEXP2: the development of a stacker-reclaimer yard on the eastern half of Golding Point in lieu of the approved bridge stacker/dozer reclaim yard in this area, with the Stage 1 bridge stacker and dozer reclaimer remaining on the western half of Golding Point

No changes to dredging, vegetation clearing or shipping are proposed to those outlined in the EIS and SEIS.

The Project has been approved by the Australian Federal and State Governments with an ultimate export capacity of 84 Mtpa. WEXP1 and WEXP2 will allow the Terminal to meet current coal export demands and allow for changes in the expansion user's operating requirements, while utilising available port land. WICET and GPC have determined that there is sufficient customer interest to initiate WEXP1 and WEXP2.

2.2 Project Justification

This chapter describes the need for the proposed expansion, which includes the current needs that the proposed WEXP1 and WEXP2 will fulfil, and the economic and social benefits.

Global demand for coal has increased considerably in the past decade. It is the fastest growing source of electricity due to its low cost, abundance and safe extraction and use, relative to alternative fossil fuels. This demand is expected to remain strong with industrial development and population growth, particularly in emerging countries. Therefore there is sufficient sustainable demand to trigger the expansion of the Terminal in the Port of Gladstone.

Queensland's Bowen Basin produces high quality coking coal, pulverised coal injection coal and thermal coal that is exported to Japan, Korea, Taiwan, China, India, Europe and Brazil. The region represents a significant driver for the State and national economy. Continuing improvements in mining techniques are occurring at existing coal mines, as well as the development of new mines in the area.

Furthermore, development of coal mines within the Surat Basin (to the south of the Bowen Basin) will act as a further driver of the State and national economy. The basin has been estimated as containing up to approximately 6.3 billion tonnes of coal reserves which is proposed to be mined and exported via a new rail network resulting in additional demand on the Port of Gladstone.

2.2.1 Existing Capacity Constraints

The existing coal terminals within the Port of Gladstone include the RG Tanna Coal Terminal (RGTCT) and Barney Point Coal Terminal (BPCT). These terminals are constrained in their

ability to be expanded through a combination of congestion of the existing rail system, limited land for storage of coal at the terminals, the inability to expand their shiploading facilities and environmental and social constraints, particularly at BPCT where both noise and dust are of concern for the residential community.

The RGTCT has a nominal export capacity of 70 Mtpa, while the BPCT has a nominal capacity of 8 Mtpa.

The RGTCT has reached its most cost effective development capacity as the inloading capacity of the terminal is constrained both in the ability to construct a fourth rail receival facility and to gain rail access through the rail yards at Callemondah. The shiploading capacity is constrained due to the inability to add a fourth shiploading stream or construct a fifth berth. The RGTCT has a maximum vessel capacity of 220,000 dead weight tonnes (DWT).

The BPCT has a limited capacity due to the constraint on the area available for stockpiling at the terminal. Environmental considerations also limit the ability to expand this terminal capacity beyond 8 Mtpa. Customer contracts have been established for this tonnage. The wharf of BPCT is also constrained as the maximum vessel capacity is 90,000 DWT (fully loaded) or 150,000 DWT (part loaded).

2.2.2 Export Coal Markets

Australia has more than 39.2 Gt of identified black coal reserves, enough to last well over 200 years at current rates of production. Economic resources occur in most Australian States, but are particularly abundant in Queensland and New South Wales, which account for 56% and 40% of Australia's black coal production respectively.

Most black coal in Queensland comes from the Bowen Basin, extending south from Collinsville to Blackwater and Moura, and at Newlands, Blair Athol and near Brisbane. Other large deposits include the Surat Basin in Central Queensland and the Galilee Basin in northern Queensland.

Black coal remains Queensland's largest commodity export, worth more than AUD$24.5 billion in the year to 30 June 2010 (or over $AUD2 billion per month).

In the year to 30 June 2010, black coal represented around 15% of Australia's total commodity exports. In the year to 30 June 2010, the Queensland coal industry recorded a total of 275.2 Mt of raw coal mined, from which 205.7 Mt of saleable coal was produced, an increase of 7.8% from the previous year. Coal exports totalled 183 Mt in the 2009/10 financial year, an increase of 14.9% from the previous year.

At the end of 2010 there were 54 coal mines in Queensland. The proportion of underground to open cut mines has changed markedly over the past 10 years, comprising 41 open cut and 13 underground mines. The Queensland coal industry also directly employed a workforce of 17,388 employees in 2010.

Total world trade in hard coal in the year ending 30 June 2010 was 955 Mt – comprising 684 Mt of thermal (steaming) coal (72%) and 271 Mt of metallurgical (coking) coal (28%). Australia is the world's largest coal exporter with exports of 298 Mt in the year ending 30 June 2010, or 31% of the world. In terms of thermal and metallurgical coal markets, Australia's share in the year ending 30 June 2010 represented 21% and 57%, respectively of total world trade.

As the world's largest coal exporter, Australia supplies markets in more than 30 countries around the world. Major markets are Japan and other Asian economies, which account for over 88% of Australian coal exports. Significant tonnages are also exported to Europe (7.9%) and Brazil (1.5%).

The International Energy Agency (UK) projects that the world will need almost 60% more energy in 2030 than in 2002 with fossil fuels (predominantly coal) still to meet most of its needs. Coal is the most widely used energy source in electricity generation and is an essential input to most steel production. Coal reserves are abundant and widely distributed around the world, providing an accessible and affordable energy source. Authoritative studies, such as the International Energy Agency's "World Energy Outlook" show that coal use is set to increase over the next 20 years as the world meets its growing energy needs. For many developing countries, affordable energy from coal is vital for building internationally competitive industries, and providing basic household services such as lighting, cooking and refrigeration. Unlike oil and gas, coal is easily obtained from a large range of suppliers operating in a competitive market.

Over the past few years, China has reversed its position from a net exporter of hard coking coal to a net importer, while at the same time China's exports of coke to the steel industry have been subject to fluctuation. The global steel industry has responded by planning significant additions to future domestic coke production capacity to replace Chinese coke imports. This is expected to increase global seaborne demand for hard coking coal from producers such as Australia.

Mining of black coal is one of Australia's most important industries, creating significant employment in regional Australia, fuel for low-cost electricity generation and steelmaking, and vital export income.

Australia is ideally positioned in terms of readily accessible reserves and quality to meet the current under supply and future demand increases. The proposed WEXP1 and WEXP2 will provide WICET with a strategic link in the coal supply chain ensuring reliability and continuity of supply of coal to the export market.

2.2.3 Mine/Customer Requirements

Motivated by the significant growth in steel production in China and India, and long-standing demand for energy producing (thermal) coal, the ongoing demand for good quality coal is forecast to remain robust. The Bowen Basin (Blackwater region) and Surat Basin (Wandoan region) are expected to produce good quality coal into the foreseeable future with substantial reserves of good quality coal product. The region is currently among the lowest cost producers of high metallurgical and thermal coal in the world.

Queensland is the world's largest exporter of seaborne coal. During the 2009/10 financial year Queensland produced 275.2 Mt of saleable coal – an increase of 7.8% over the previous financial year.

Opportunities remain for further resource development in the central and south west Bowen Basin within the Reids Dome Beds, which are known to contain vast, and as yet, undeveloped resources of high quality thermal and metallurgical coals. Recent exploration in the southern Bowen Basin has focused on thermal and semi-soft coals. This has led to several new mines being developed, and has located other significant coal resource areas for possible future development.

A significant and expanding world market exists for Bowen Basin coal due to its low sulphur and nitrogen levels and that it produces low carbon dioxide emissions. WEXP1 and WEXP2 are key to the opening of the Surat Basin coal reserves and provide the export link to the recently approved Surat Basin Rail Project.

All of Queensland's export coal is transported to port via the coal rail network operated by QR Network. The Port of Gladstone is critical to this logistics supply chain servicing QR National's Blackwater and Moura Systems and Surat Basin Rail.

The Queensland economy places a heavy reliance on revenue derived from coal industry royalties ensuring the support of the Queensland State Government.

2.3 Project Alternatives

There are a limited number of options available to accommodate the increased coal export requirements. WICET Stage 1 is currently under construction, which makes alternatives less feasible. Options are discussed below.

2.3.1 Utilising Alternate Coal Terminals

This option would involve securing export capacity of other Queensland coal terminals rather than expanding the capacity of the WICET Terminal. Coal terminals through which additional coal could be directed include:

- Hay Point Coal Terminal (this terminal is privately owned by the BHP Billiton Mitsubishi Alliance (BMA) to export BMA coal)
- Abbot Point Coal Terminal
- Dalrymple Bay Coal Terminal
- RG Tanna Coal Terminal
- Barney Point Coal Terminal
- Port of Brisbane Coal Terminal

The first three of these coal terminals are in the process of expanding their facilities to meet the current demands of their existing customers and to meet the demands of proposed mines. There are also major logistic/operational issues associated with the integration of the Central Queensland coal supply chains, which are currently subject to feasibility and market conditions. It is therefore considered unlikely that sufficient capacity to satisfy total demand could be secured at any of these terminals. Similarly, the ability to access these ports would be significantly more expensive due to the extensive haulage distances and cost.

The Moura Rail System and Surat Basin Rail only have potential to feed into RGTCR and BPCT. The capacity of existing coal terminals within the Port of Gladstone, RGTCT and BPCT, are constrained by rail congestion, limited land availability and environmental and social constraints. It is not feasible to expand these facilities beyond their current capacity to meet future coal export demand.

The Port of Brisbane Coal Terminal is limited in the size of vessel that may be handled at the port with the maximum vessel size of up to 90,000 DWT. This terminal is further constrained by the ability to provide for increased rail access through Brisbane to the facility on Fisherman's Island at the mouth of the Brisbane River.

The Balaclava Island Coal Terminal (BICET) (Xstrata Coal), Fitzroy Coal Terminal (Mitchell Group) and Dudgeon Point Coal Terminal are currently at preliminary design stage and EIS preparation.

2.3.2 Development of a New Terminal

The controlling factors for the development of a new coal terminal in the Port of Gladstone are:

- Ability to safely handle Cape Class vessels (up to 220,000 DWT)
- Ability to link to the existing rail infrastructure
- Sufficient land for the storage of coal at the port together with associated rail infrastructure

The current WICET Project location was selected based on these controlling factors listed below.

An alternative site considered during the initial scoping study was located at Hamilton Point on Curtis Island. However, while Hamilton Point met the requirement for access by Cape Class vessels and available land space, the ability to provide rail access for the required tonnages cannot be easily achieved. The rail corridor would be required to cross the mining

lease for the shale oil deposits and cross The Narrows between the mainland and Curtis Island.

Other opportunities for greenfield coal terminals outside of Gladstone have been identified in the past by other proponents. The new coal developments driving the development of this terminal are located in the southern Bowen Basin and Surat Basin. As such coal terminal options near Mackay are not practical due to the significant rail haulage required.

Tenement to Terminal Ltd (3TL) has made an agreement with Australian and Chinese coal companies MetroCoal and SinoCoal Resources to fund a new coal terminal at the port of Gladstone, with an estimated annual capacity of 30 Mtpa. It is proposed to be located to the north of WICET, in the intertidal region south of Fisherman's Landing. This further highlights the demand for coal export capacity in Gladstone Port.

Other options closer to the coal mine developments have been previously identified but all require significant infrastructure and have not been considered further.

The demand for growth is spread across the region with the ability to draw on existing rail infrastructure connecting to the Port of Gladstone. Alternative port sites require the provision of new rail infrastructure with a limited ability to cover the total market growth.

Port sites to the south of Gladstone may address the potential growth in the Surat Basin, however in addition to the dedicated infrastructure linking to the coast, issues will be encountered with providing a protected berth with minimal environmental impact. Among these sites are Coonarr Beach and Deepwater.

These alternative sites require offshore berthing provision with subsequent exposure to open sea conditions. These sites also require development in environmentally sensitive areas in the northern end of Hervey Bay and adjacent to Deepwater National Park.

2.3.3 No Action Option

The inability to ship the volume of coal in demand would have significant financial implications for Australia and Queensland. Further, inaction to meet the demands of industry would curtail further proposed investment in the coal industry. The inability to address the post Stage 1 user's operating requirements would significantly affect the export capacity of the Terminal, also impeding proposed investment in the coal industry.

The export of additional coal through the Terminal as a result of WEXP1 and WEXP2 will provide additional export revenue for Australia and increased State revenue.

In addition, the proposal has significant employment opportunities at the local, regional and State level across all spectrums of the workforce.

2.3.4 Summary of Alternatives

The alternatives to WEXP1 and WEXP2 have been summarised in Table 2.1.

Table 2.1 WEXP1 and WEXP2 alternatives summary

Option	Location	Issue
Alternate coal terminal	Hay Point Coal Terminal	• Privately owned (access by other coal shippers is an issue) • Capacity constraints on rail and terminal • Long rail haulage from southern Bowen Basin and Surat Basin mines • Expensive rail haulage • High cost of expanding the port beyond current proposals • Impacts on matters of national environmental significance (NES) likely to be similar to WEXP1/WEXP2
Alternate coal terminal	Abbot Point Coal Terminal	• Capacity constraints on rail and terminal • Long rail haulage from southern Bowen Basin and Surat Basin mines • Expensive rail haulage • Impacts on matters of NES likely to be similar to WEXP1/WEXP2
Alternate coal terminal	Dalrymple Bay Coal Terminal	• Capacity constraints on rail and terminal • Long rail haulage from southern Bowen Basin and Surat Basin mines • Expensive rail haulage • Currently expanding capacity to the maximum with all capacity allocated • Impacts on matters of NES likely to be similar to WEXP1/WEXP2
Alternate coal terminal	RG Tanna Coal Terminal	• Limited capacity to expand rail and coal terminal • Impacts on matters of NES likely to be similar to WEXP1/WEXP2
Alternate coal terminal	Barney Point Coal Terminal	• Limited capacity to expand rail and coal terminal • Located within the town of Gladstone (ie close to sensitive receivers) • Some expansion possible but at very high cost • Limited to Panamax class vessels • Impacts on matters of NES likely to be similar to WEXP1/WEXP2
Alternate coal terminal	Brisbane Coal Terminal	• Limited capacity to expand rail and coal terminal • Some expansion possible but at very high cost • Limited to Panamax class vessels • Impacts on matters of NES likely to be similar to WEXP1/WEXP2

Option	Location	Issue
Development of new coal terminal	Hamilton Point, Curtis Island (Gladstone)	• Requires significant extra rail infrastructure and bridge across The Narrows from mainland to Curtis Island • Will take longer to develop than WEXP1/WEXP2 • Expensive relative to WEXP1/WEXP2 • Option likely to have similar potential impacts on NES matters to WEXP1/WEXP2 • Potential incompatible land use with several LNG facilities operating on Curtis Island
Development of new coal terminal	Outside of Gladstone	• Significant infrastructure investment required • Environmental issues and potential impacts on NES matters uncertain • Likely to involve long timeframes to develop (ie land acquisition, infrastructure establishment)
Do nothing (no change)	Not applicable	• Damage Australia's reputation as reliable exporter of coal • Loss of export revenue and employment • Approved terminal unable to process post Stage 1 user's coal due to different operating requirements • Significant impact on the state and national economy by stalling the growth of the Surat Basin

3. Project description

3.1 Background

The Project was previously described in the WICT EIS, published in November 2006, and the WICT SEIS, published in July 2007 (refer Appendix 1). The Project was assessed by the Coordinator-General in January 2008 under the SDPWO Act and by the Commonwealth in April 2008 under the EPBC Act. Stage 1 of the Project is currently proceeding according to the SEIS and approval conditions, and is expected to be operational by 2014. Construction of Stage 1 works commenced in October 2011.

While not all aspects of the Project are proposed to vary from those approved under the WICT EIS, the Project Description in its entirety has been presented in this Chapter. This is to avoid potential ambiguity and to allow this Change Request to be a stand-alone document.

3.1.1 Proposed Changes

This Change Request relates to the proposed modifications to the approved Project for the first and second expansion phases (WEXP1 and WEXP2) of the Project. WEXP1 and WEXP2 are required to service the increased demand for coal exports from the region and the change in the operating requirements of the expansion users. Construction for WEXP1 and WEXP2 is anticipated to commence in mid 2012.

As outlined in the SEIS, the approved Project has an ultimate capacity of 84 Mtpa and involves the construction of six berths, including four coal berths and two for other industrial proponents, the operation of three rail dump stations, three inloading conveyors and three outloading conveyors and shiploaders. Stage 1 of the Project comprises reclamation and dredging works, coal stockyard, one rail dump station, one overland conveyor, one jetty, one wharf/shiploader and associated infrastructure. Stage 1 is proceeding on the basis of the SEIS.

The proposed changes to the Terminal are required to address changes to the expansion users operating requirements.

The proposed changes to the Project include:

- WEXP1 (replacing Stage 2 in the approved Project): the development of a new stacker-reclaimer yard on Reclamation Area B (Stockyard Area B) to utilise available port land, including a new settlement pond at the western end of Reclamation Area B, and a new operational stormwater outfall to the Anabranch
- WEXP2 (replacing Stage 3 of the approved Project): the development of a stacker-reclaimer yard on the eastern half of Golding Point in lieu of the approved bridge stacker/dozer reclaim yard in this area, with the Stage 1 bridge stacker/dozer reclaim yard remaining on the western half of Golding Point

These changes are considered to be relatively minor considering that this Request for Project Change will not exceed the ultimate capacity of 84 Mtpa, approved by Commonwealth and State Government, and will utilise the approved ultimate inloading and outloading systems and coal berths. No changes to rail infrastructure, dredging, vegetation clearing or shipping detailed within the WICT SEIS are proposed.

Figure 3.1 (adapted from Drawing 0000-M-DR-0102, Appendix 1) illustrates an aerial view of the proposed WICET layout indicating both the Golding Point stockyard (Stockyard Area A) and Reclamation Area B stockyard (Stockyard Area B). Drawings HQ98-SK-M-084, HQ98-SK-M-086 and HQ98-SK-C-496 (Appendix 1) present the concept design, as included in the EIS/SEIS.

WEXP1 summary

The major change from the SEIS Stage 2 arrangement to WEXP1 is the development of Reclamation Area B as a new stacker reclaimer stockyard, Stockyard Area B. The Stockyard Area B capacity is a nominal 30-35 Mtpa. This change also requires a new settlement pond at the south western end of Stockyard Area B and a new stormwater outfall to the Anabranch. The settlement pond will require excavation of previously disposed dredge spoil from Stage 1 activities and subsequent re-use onsite.

WEXP2 summary

The eastern half of Stockyard Area A, located on Golding Point, will utilise stacker reclaimers, in lieu of the previously approved bridge stacker/dozer reclaimer yard. This will allow the Terminal to achieve the approved ultimate export capacity of 84 Mtpa.

3.1.2 Predicted impacts

All the proposed components are to occur within the Project footprint which includes areas approved under the EIS and areas subsequently approved for WICET Stage 1, such as the Gladstone-Mount Larcom Road overpass and the new outfall to the Calliope River Anabranch.

WEXP1 and WEXP2 are expected to result in only minor changes to the predicted impacts contained in the EIS and the SEIS for the Project. However, the source location of potential impacts has now changed from those described in the SEIS. These potential impacts include dust, noise and vibration, lighting and visual amenity, which have been discussed further in Chapters 12, 14 and 22 respectively.

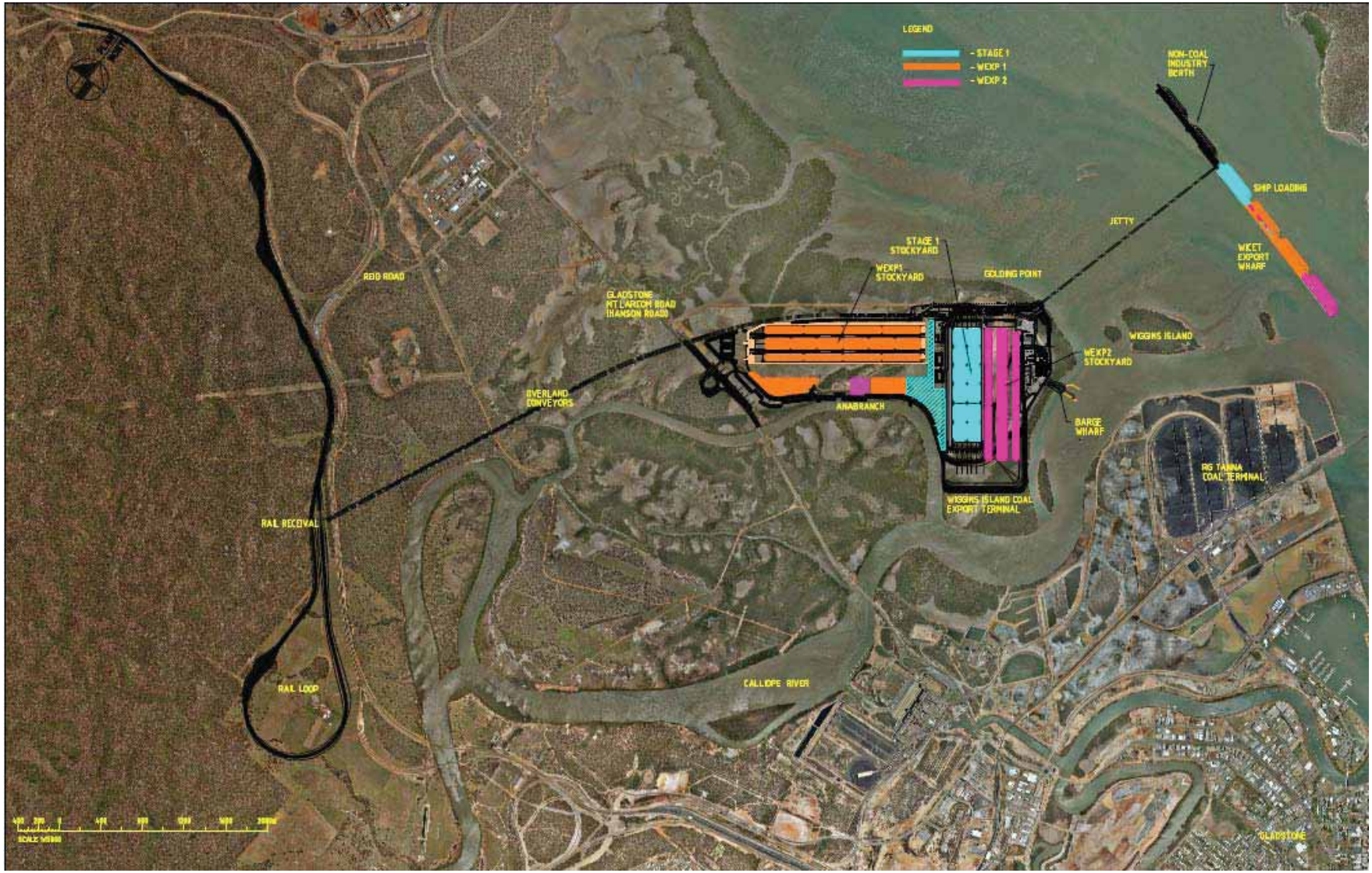

Figure 3.1 Aerial view of the Gladstone region with existing RG Tanna facility and proposed WICET facility

3.2 Overview of the Project

The Project scope, as described in the SEIS, includes the construction of six berths – four coal berths and two non-coal berths for other products. The approved nominal ultimate capacity of the Project is 84 Mtpa. Figure 3.2 shows the location of the Terminal and the Project area with Stage 1, WEXP1 and WEXP2 Infrastructure. Drawings HQ98-SK-M-084, HQ98-SK-M-086 and HQ98-SK-C-496 (Appendix 1) present the concept design, as included in the EIS/SEIS.

3.2.1 Regional Context

The Project is situated on the Port of Gladstone, approximately 525 km north of Brisbane and just south of the Tropic of Capricorn.

3.2.2 Local Context

The Project is located to the west and directly across the Calliope River from the existing RG Tanna Coal Terminal (RGTCT). The Project area is constrained to the south and east by the Anabranch, an estuary of the Calliope River, and by Gladstone Port to the north and west of Golding Point. Stockyard Area A is located on Golding Point, while the proposed Stockyard Area B is situated on the reclamation area to the west of Golding Point. The jetty runs in a northerly direction, to the west of the two outer islands (Wiggins Island and Mud Island). Berth 1, the initial berth to be constructed during Stage 1, is located approximately 2 km west of RGTCT. Additional coal berths will advance in an easterly direction advancing downstream from the jetty head.

3.2.3 Stage 1

Stage 1 of the Project is proceeding on the basis of the SEIS and is expected to be operational by 2014. Components of Stage 1 include a single dump station that receives coal by rail. A single overland conveyor transfers the coal to a stockyard on the western side of Golding Point. The stockyard contains two stockpile rows, serviced by a bridge stacker and dozer reclaim system with on ground storage totalling a nominal 1.7 Mt. Two reclaim conveyors transfer the coal to a surge bin (1,200 t) via a surge bin conveyor. A jetty/wharf conveyor transfers the coal to a shiploader, servicing a single berth, Berth 1. The jetty alignment intersects the wharf at the junction of the coal berths and the non-coal berths and allows the separation of coal from other bulk materials across the berth. This eliminates potential cross contamination of coal with other bulk materials. The nominal capacity of Stage 1 is 27 Mtpa.

The WICT SEIS contains further details on Project works associated with the Stage 1 construction (refer Appendix 1). Concept design drawings from the EIS/SEIS are also included in Appendix 1.

3.2.4 WEXP1 (approved components)

The WEXP1 Project scope comprises the elements below. Project details are current at the time of reporting, however these are subject to detailed design and user requirements. Referenced drawings are included in Appendix 3.

Unloading

- Dumpstation RR2 and tunnel with a continuous unloading rate of 8,500 tonnes per hour (tph)
- Belt feeder RR2-BF1 with a tramp metal removal magnet
- Overland unloading conveyor OC2
- Transfer tower TT15, TT17 and TT18 and transfer conveyor TC4

Legend

- Project Area
- Project Infrastructu

Source:
Project Footprint: Aurecon Hatch, July 201

Reclamation Area B (Stockyard Area B) and onshore loading

- Yard conveyors YC5, YC6 and YC7 (refer Drawing 2B281-M-DR-001 for the General Arrangement of the Reclamation Area B Stockyard including the locations of the Yard conveyors)
- Stacker-reclaimers SR1, SR2 and SR3 (refer Drawing 2B281-M-DR-001 for the location of the Stacker – reclaimer systems in Reclamation Area B and Drawing 2B281-M-DR-0002 for the Stacker – reclaimer cross-sections)
- Stockyard comprising three stockpile rows and a nominal 2.0 Mt storage
- Transfer towers TT21, TT22 and TT23 and reclaim transfer conveyors RC9 and RC10
- Surge bin loading conveyor SB2 including tramp metal removal magnet and modification to existing surge bin conveyor SB1
- Surge bin No.2 (2,000 tonne capacity) and belt feeders SB2-BF1 and BF2
- Sample station No.2

Offshore loading

- Dredging of Berths 2 and 3 (and associated departure channel) totalling approximately 1,040,000 m^3 of material to be disposed onshore within the Reclamation Areas B and C
- Approach jetty modifications including an extension of the Stage 1 single roadway to a two-way roadway
- Jetty conveyor JC2 with a nominal conveyor capacity of 10,500 tph
- Extension of wharf and dolphins to service berths 2 and 3
- Wharf conveyor WC2 (with a nominal capacity of 10,500 tonnes per hour (tph)) and extension to existing wharf conveyor WC1
- Shiploader SL2 with a nominal capacity of 10,500 tph servicing all 3 berths and a shiploader boom conveyor with nominal capacity of 10,800 tph
- Transfer tower TT12 and modification to existing transfer tower TT11

Bulk earthworks

- Dredge spoil bunds are proposed to be raised by up to 1.4 m
- Bulk earthworks
- Site roads and drainage including internal access roads and stormwater and recycled water drainage systems
- Settling ponds for stormwater and supply dams
- Ground improvement of dredge spoil and underlying soft clays in Reclamation Area B to enable the bund raise and stockyard construction

Infrastructure and services

- Water supply and distribution including dust suppression (raw, fire, process and potable)
- Fire systems
- Environmental monitoring facilities
- Lighting
- Communications
- Security
- Power supply and site distribution system
- Control system

3.2.5 WEXP2

The WEXP2 Project scope comprises the following elements. Project details are current at the time of reporting, however these are subject to detailed design and user requirements.

Unloading

- Dumpstation RR3 and tunnel with a continuous unloading rate of 8,500 tph

- Belt feeder RR3-BF1 with a tramp metal removal magnet
- Overland unloading conveyor OC3
- Modifications to the Golding Point transfer tower TT1, new transfer towers, TT2, TT9, TT10A and TT10B, and transfer conveyors TC1, TC2, TC6, and TC7

Stockyard A (eastern half of Golding Point) and onshore loading

- Yard conveyors YC10, YC11 and YC12 (refer Drawing 2A251-M-DR-0001 for the General Arrangement Stockyard)
- Stacker-reclaimers SR5, SR6 and SR7 (refer Drawing 2A251-M-DR-0002 for the Stacker – reclaimer cross-sections)
- Stockyard comprising 3 stockpile rows and a nominal 1.8 Mt storage
- Transfer towers TT7 and TT8
- Surge bin loading conveyor SB3 including tramp metal removal magnet and modification to existing surge bin conveyor SB1
- Surge bin No.3 (2,000 tonne capacity) and belt feeders SB3-BF1 and BF2
- Sample station No.3

Offshore loading

- Dredging of Berth 4 (and associated departure channel) totalling approximately 1,044,000 m^3 of material to be disposed onshore within the Reclamation Area C and Southern end of Golding Point
- Approach jetty modifications
- Jetty conveyor JC3 with a nominal conveyor capacity of 10,500 tph
- Extension of wharf and dolphins to service Berth 4
- Wharf conveyor WC3 and extension to existing wharf conveyor WC2 with a nominal capacity of 10,500 tph
- Shiploader SL3 with a nominal capacity of 10,500 tph servicing berths 3 and 4 and a shiploader boom conveyor with nominal capacity of 10,800 tph
- Transfer tower TT13

Bulk earthworks

- Dredge spoil bunds in Golding Point
- Bulk earthworks
- Site roads and drainage including internal access roads and stormwater and recycled water drainage systems
- Settling ponds for stormwater and supply dams
- Ground improvement of dredge spoil and underlying soft clays on Golding Point to enable the stockyard construction

Infrastructure and services

- Water supply and distribution including dust suppression (raw, fire, process and potable)
- Fire systems
- Environmental monitoring facilities
- Lighting
- Communications
- Security
- Power supply and site distribution system
- Control system

3.2.6 Project Cost, Staging and Timing

WEXP1 and WEXP2 are proposed to extend the Stage 1 works of the Project to allow the Terminal to achieve the approved ultimate export capacity of 84 Mtpa. This expansion will

utilise dump stations, overland conveyors, surge bins and conveyors, shiploaders and extra berths. Stockyard Area B (WEXP1) will be developed on Reclamation Area B and will contain three stockpile rows serviced by three stacker-reclaimers with a nominal on ground storage capacity of 2.0 Mt. A new stormwater settlement pond on the southern end of the Stockyard Area B and a new stormwater outfall to the Anabranch will be required. The Stage 1 stormwater pond at the northern end of Stockyard Area B will require extension in both WEXP1 and WEXP2.

Stockyard Area A (WEXP2) will also be extended to the eastern half of Golding Point with a stacker reclaimer yard, which will have a nominal on ground storage capacity of 1.8 Mt.

Table 3.1 indicates the components required for WEXP1 and WEXP2, compared with those in Stage 1.

Table 3.1 Staging of Project Infrastructure

	Stage 1	WEXP1/WEXP2	Total (Stage 1 and WEXP/WEXP2)	Predicted During the EIS
Nominal Capacity (Mtpa)	27	57	84	84
Dump stations	1	2	3	3
Overland Conveyors	1	2	3	3
Inloading transfer conveyors	0	5	5	3
Bridge Stackers	1	0	1	4
Stacker Reclaimers	0	6	6	0
Product storage (Mt)	1.7	3.7	5.5	4.8
Yard conveyors	3 (1 stacking 2 reclaiming)	6 (stacker-reclaimers)	9	12 (4 stacking, 8 reclaiming)
Surge bin complexes	1 (1,200 t)	2 (2,000 t each)	3 (5,200 t)	3
Jetty Conveyors	1	2	3	3
Wharf Conveyors	1	2	3	3
Shiploaders	1	2	3	3
Berths*	1	3	4	4

Note *the two non-coal berths have been excluded from this table

Current indications are that WEXP1 and WEXP2 are expected to be fully operational by Q4 2016 to meet current demand pressures for the export of coal. Early works construction for WEXP1 is expected to commence in Q2 2012, while construction for the major site activities is expected to commence in Q1 2013.

3.2.7 Construction and Operation Workforce

Table 3.2 summarises anticipated peak construction workforce and operations personnel for Stage 1 of the Project and WEXP1/WEXP2.

Table 3.2 Approximate Peak Workforce Numbers for Construction and Operation

	Stage 1	WEXP1/WEXP2	Predicted in EIS
Construction	800	1,100	1,450*
Operation	120	187**	300

***Peak site workforce for construction phases, assuming Stage, 1, 2 and 3 (as defined in the EIS) were undertaken concurrently.**

****Operation workforce for entire Terminal at the conclusion of WEXP2**

WEXP1 and WEXP2 are likely to have similar workforce requirements to Stage 1 and will follow the Stage 1 development by approximately 18 months. The peak workforce for WEXP1 and WEXP2 (in conjunction with Stage 1) is estimated to reach 1,100 workers, with the majority of the construction workforce transitioning from Stage 1.

In the absence of other projects occurring concurrently, the WEXP1 and WEXP2 workforce could be accommodated within the Gladstone region. The response to the case of concurrent projects is discussed in Chapter 18.

Transport of the workforce to site is expected to be by car and multi-passenger transport, as discussed in further detail in Chapter 6.

3.2.8 Environmental Controls

Details of environmental design features and proposed mitigation measures are discussed in detail in each of the respective impact assessment sections of the Change Request. A summary is also provided in the WICET Environmental Management Plan (EMP) (refer Chapter 23).

3.3 Description of WEXP1 and WEXP2 project changes

This section describes WEXP1 and WEXP2 in detail, including the materials handling plant from train unloading to shipping. It also describes the Terminal infrastructure and facilities. The components of WEXP1 and WEXP2 have been divided into two parts – changed and approved components. Changed components include those which have changed significantly or have been introduced since the EIS approval of the Project. Approved components are those which have remained unchanged since EIS approval, yet remain relevant to WEXP1 and WEXP2.

3.3.1 Changed Components

Stockyard Area A (WEXP2)

The extension of Stockyard Area A to the eastern half of Golding Point was approved under the EIS/SEIS utilising a bridge stacker and dozer reclaim. WEXP2 proposes to change the yard type of the eastern half of Stockyard Area A to utilise stacker-reclaimers due to the changes in the expansion users' operating requirements. The one bridge stacker and the dozer reclaim conveyors on the western half of Stockyard Area A, from WICET Stage 1, will remain in operation. The extension of Stockyard Area A will otherwise continue as per the Project approved under the EIS/SEIS.

The extension to Stockyard Area A is proposed to contain three stockpile rows serviced by three stacker-reclaimers with a product storage capacity of approximately 1.8 Mt. It would be graded toward both the southern and northern ends of Golding Point.

Drawing 2A251-M-DR-0001 shows the general arrangement of the extension to Stockyard Area A, and Drawing 2A251-M-DR-0002 illustrates a typical section through the extension to Stockyard Area A (refer Appendix 3).

Stockyard Area B (WEXP1)

The proposed development of a new stacker-reclaimer yard, Stockyard Area B, on Reclamation Area B is a change to the Project, designed for a nominal throughput of 30-35 Mtpa.

Reclamation Area B has previously been approved for the disposal of dredge spoil, predominantly for mixtures containing larger gravel percentages. Dredging works are planned to occur during 2012 prior to the commencement of construction for WEXP1. Upon completion of dredge spoil disposal and bulk earthworks, Reclamation Area B will be bulk filled and graded towards each end of the stockyard.

Stockyard Area B is proposed to contain three stockpile rows, serviced by three stacker reclaimers, with a nominal on ground storage of 2.0 Mt. This equates to approximately 6% of the expected WEXP1 yearly throughput. There will be a crest in the middle of the stockyard to allow drainage to either end of the stockpile rows into the two adjacent stormwater storage ponds, which would eliminate the ponding of water. The maximum stockpile height has been set at 18 m and the overall length of each stockpile row is nominally 1,250 m. The Stage 1 stormwater storage pond has been reconfigured to maximise the length of the stockpiles.

Maintenance areas and vehicle access will be located on the north and south sides of Stockyard Area B. An additional recycled water pond and raw water pond will be located south-west of Stockyard Area B.

The normal stacking rate of the stacker-reclaimers is 8,500 tph. The target reclaim rate (200 sec) is 10,500 tph and the instantaneous peak reclaim rate (3 sec) is 12,600 tph.

Each stacker-reclaimer will reclaim coal from the stockpiles and transfer coal to its corresponding yard conveyor. It is subsequently transferred onto a surge bin loading conveyor via the reclaim conveyors at the northern end of the yard.

Drawing 2B251-M-DR-0001 shows the general arrangement of the stockyard and the travel limits of each stacker reclaimer, and Drawing 2B281-M-DR-0002 illustrates a typical section through Stockyard Area B (WEXP1) (refer Appendix 3).

Stormwater Storage Pond

An additional sediment basin and stormwater storage pond is required for WEXP1 and is to be situated on the southern end of the proposed Stockyard Area B. Two sediment basins and two stormwater storage ponds, located on the northern part of Golding Point and on the southern side of Golding Point, have previously been designed for Stage 1. The latter of these stormwater storage ponds is also proposed to be extended during WEXP1 and WEXP2 to increase stormwater storage capacity as the stockyards are developed. The stormwater storage ponds will be designed for a minimum combined capacity for a 10 year average recurrence interval (ARI), 24 hour duration storm event.

Drainage from the proposed Stockyard Area B will be graded towards each end of the stockpile rows to feed into the sediment basins. The runoff will filter through rock filter wall material into the stormwater storage pond. The water will be recycled onsite and used as process water as required.

It is proposed to add an operational stormwater outfall to the Anabranch from the additional stormwater pond at the southern end of Stockyard Area B. The outfall will be used for controlled releases to avoid the stormwater storage ponds overflowing during significant rainfall events.

The additional stormwater storage pond and the proposed stormwater storage pond extension will require excavation of previously disposed dredge spoil from Stage 1 activities and subsequent re-disposal in Reclamation Area C.

The layout plan of Stockyard Area B, including the arrangement of the stormwater storage pond, is illustrated in Drawing 2B251-M-DR-0001 (refer Appendix 3).

Facilities and Infrastructure

Expansion to the following Stage 1 permanent buildings and facilities will be required to accommodate WEXP1 and WEXP2:

- Administration building
- Operations amenities
- Central stores building and compound
- External staff carpark (extra 90 spaces)
- Maintenance building, workshop and yard

With the exception of the maintenance and stores buildings which are likely to be larger to accommodate servicing of the stacker-reclaimers, these expansions are not materially different to those envisaged for Stages 2 and 3 under the approved EIS/SEIS.

3.3.2 Approved Components

The Project components below, included in WEXP1 and WEXP2, do not vary significantly from the Project approved under the EIS. They have been included in this Change Request to provide a complete overview of WICET Stage1, WEXP1 and WEXP2.

Site Access

Site access to the Terminal remains predominately unchanged from the Project approved under the EIS with the Terminal access road entering the facility off Gladstone-Mount Larcom Road between the Anabranch and the overland conveyors. The Terminal access road runs for 4 km along the south-east side of the proposed Stockyard Area B to provide public access to the Anabranch and the security gate at the administration area. While this road will be open to public access it is anticipated that traffic will be limited to vehicles associated with the operation of the Terminal, such as deliveries, maintenance, staff and visitor vehicles. Design speeds will vary from 60 to 80 km/h depending on site conditions.

The site facilities (ie administration area, car parking, site security etc) have been located on the north-east side of Golding Point to reduce the impact of windborne stockyard spray mist on workers and facilities (refer Drawing 2562-C-DR-0001 in Appendix 3).

For port security and workplace health and safety reasons, the number of entry points into secure areas have been minimised with entry restricted to those who require specific access. The point of entry into the secure area of the facilities and port will be located adjacent to the Terminal facilities on the north-east side of Golding Point resulting in controlled access to the Terminal and wharf.

Controlled access to the operation of the Terminal is restricted for the following:

- Emergency services
- Customs and port operations services
- Construction crews and construction equipment
- Operating and maintenance personnel and associated equipment
- Designated non WICET workers (eg samplers, inloading operations etc)

Access to all areas of the Terminal will be limited through provision of security barriers and fences, automatically controlled access methods and surveillance to prevent unauthorised activity from occurring on the site at any point. Internal access within the Terminal will be restricted to authorised vehicles only. Design speeds on the internal access roads will typically be restricted to 40 km/h.

Access to the dump stations will be provided from Reid Road for all heavy vehicles. Access from the Terminal to the dump station for light vehicles will be provided alongside the overland conveyor under Gladstone-Mount Larcom Road to Reid Road. Overland conveyor access will be via sealed roads with design speeds of 60 km/h and maintenance roads will be unsealed with design speeds of 40 km/h.

Dump Station

The Project was approved under the EIS with the ultimate facility utilising three bottom dump coal train receival stations (dump stations). Stage 1 is proceeding with a single dump station as per the SEIS. The second and third dump stations will be constructed for WEXP1 and WEXP2. There are no changes to the operation of the dump stations, with the process described in the SEIS summarised below.

The second and third dump stations will be extensions of the Stage 1 multi-level structure, extending approximately 11.5 m below ground level. An operator control room will be provided overlooking the dump operation. The facility above the rail level will be fully enclosed except at each end where the trains pass through. Amenities will be provided for the dump station operators.

The second and third dump stations will have a nominal feed rate of 8,500 tph. Received coal will feed onto the second and third overland conveyors for transport to the stockyards. The feed rate will be optimised at all times to maintain maximum throughput.

It is intended that coal will arrive wet from the mines and between 1.5 to 2% additional moisture will be added at each dump station through water sprays, as required. Mechanical dust extraction and bag filters will be installed at the dump station.

Inloading Conveyors

From the dump station, coal will be fed onto overland conveyors, which will climb from the bottom of the dump station via a tunnel under the North Coast Rail Line and Reid Road. Once clear of the tunnel, the conveyor will continue overland between the approved Gladstone Pacific Nickel Limited (GPN) site and the Calliope River. It will then pass under Gladstone-Mount Larcom Road and rise into a transfer tower in order to change direction.

A transfer conveyor will accept coal from the second overland conveyor at the southern end of Stockyard Area B and will then transfer onto any of the three yard conveyors, in Stockyard Area B. The third overland conveyor will continue to Stockyard Area A. A string of three transfer conveyors will accept coal from the third overland conveyor and will then transfer on to any of the three yard conveyors. Dust suppression sprays will be installed at all the transfer towers.

Outloading Conveyors

From the stockyards, reclaim conveyors (WEXP1) will feed onto either the existing surge bin conveyor or the additional second and third (WEXP2) surge bin conveyors. These conveyors will ultimately feed onto their corresponding jetty conveyor, via a surge bin. The reclaim and surge bin conveyors for WEXP1 and WEXP2 will operate at 10,500 tph, while the Stage 1 surge bin conveyor has a feed rate of 6,900 tph.

Surge Bin

The Project was approved under the EIS with the ultimate facility utilising three surge bins. Stage 1 is proceeding with a single 1,200 t surge bin. The second and third surge bins will be constructed for WEXP1 and WEXP2. Surge bins have been incorporated to allow the product to be profiled prior to transit over the marine environment and to reduce the potential for product spillage.

The capacity of the second and third surge bins will be 2,000 t and will be designed to discharge via twin belt feeders. The surge bin will be fully enclosed with a mechanical dust extraction and bag filter.

Jetty and Jetty Conveyors

The jetty is being constructed as a component of Stage 1 and will be approximately 1.8 km in length. It has a skeletal steel framed substructure (piles and headstock) with pre-cast concrete deck units for the roadways, with spacing not less than 20 m between jetty bents. Steel conveyor galleries will support the conveyors and will span between jetty bents. The ultimate facility of the Project was approved under the EIS utilising three jetty (coal) conveyors, with a single 8,250 tph jetty conveyor in Stage 1.

The second and third jetty conveyors to be constructed in WEXP1 and WEXP2 will operate at 10,500 tph (compared with an 8,250 tph feed rate for the Stage 1 jetty conveyor) and will be enclosed on three sides – the roof, bottom and one side.

Berths and Conveyors

The ultimate facility of the Project has four coal berths. Stage 1 is proceeding with a single coal berth as per the SEIS. Berths 2, 3 and 4 will be constructed in WEXP1 and WEXP2. There are no changes to the operation of the berths and corresponding conveyors, with the process described in the SEIS summarised below.

Each jetty conveyor will feed directly onto its corresponding berth conveyor which feeds its corresponding shiploader. The second and third berth conveyors will have a feed rate of 10,500 tph, compared with an 8,250 tph feed rate for the Stage 1 berth conveyor.

Shiploader

The ultimate facility of the Project approved under the EIS utilised three shiploaders. Stage 1 is proceeding with a single shiploader as per the SEIS. The second and third shiploaders will be constructed for WEXP1 and WEXP2 and will operate at 10,500 tph compared with 8,500 tph for the Stage 1 shiploader. There are no changes to the functionality of the shiploaders, with the process summarised below.

The shiploaders will be long travelling and luffing type and will be suitable for loading ships up to and including Cape Class vessels length over all (LOA) 320 m (220,000 dead weight tonne (DWT), 55 m beam). The minimum vessel size to be loaded is 40,000 DWT.

Power Supply and Reticulation

As described in the SEIS, a 132/66 kV substation will be provided by Ergon Energy and constructed in Stage 1. The substation will be located on the north-eastern corner of Stockyard Area A, as determined by Ergon Energy. There will be two secure 66 kV power supply routes from the Ergon substation into the Project main substation, which will run beside the overland conveyors, north of the proposed Stockyard Area B.

General Lighting

The general requirements for Project lighting is unchanged for WEXP1 and WEXP2 and includes:

- Outdoor lighting to be on ‘lumitrol’ control, with manual adjustment and override
- Minimal permanent access lighting to be installed on machines, transfer towers etc, with additional lighting on motion sensor control
- Emergency lighting will be installed in tunnels and other enclosed spaces

There will be no lighting along the Terminal access road, as per GPC’s request. The overland conveyor access and maintenance road will have lighting at intersections and route

lighting for the full length, as required by the Department of Transport and Main Roads (DTMR).

Stockpile Lighting

Stockpile lighting solution for Stage 1 will incorporate the following requirements:

- Minimum lighting levels will follow the recommendations of the International Commission on Illumination Technical Report, CIE (Commission Internationale de l'Eclairage) 129, 'Guide for Lighting Exterior Work Areas'. Lighting levels will be designed for end of life lamp output, a minimum of 20% lamp failure and once yearly cleaning
- Lighting levels will be computer modelled for various stockpile shapes and designed to minimise any possible shadows. Consideration will also be given to minimise glare to reclaim bulldozer operators
- Flood lighting towers around the perimeter of the Stage 1 stockpiles will include a system for safely lifting and lowering light fittings during high winds
- Stockpile lighting control will include two switching levels, one to achieve minimum safe access lighting levels during non-reclamation operational periods and the other at 100% for reclamation operations

The WEXP1 and WEXP2 stockpiles do not need the level of floodlighting that is required for the Stage 1 dozer operation as they utilise largely automated stacker reclaimer machines.

Communications

The Project's communication systems, which remain unchanged for WEXP1 and WEXP2, will provide voice communication between the dump station operators, the shiploader operators, the train drivers, maintenance and operations staff and the Terminal operations manager.

Alarm notification to emergency services will be implemented according to their requirements.

Telephone, fax and internet and email services will be provided to the offices and workshops as required.

Control Systems and Automation

Control systems and automation for WEXP1 and WEXP2 remains unchanged from those approved under the EIS for the Project.

The control system will be a highly automated fault tolerant system. The system will minimise the number of personnel needed to operate the plant.

The control system will be standardised on components, software and protocols across the site, using current software and hardware that is maintainable and supportable in the medium term.

Programmable logical controller (PLC) systems and control system hardware will be current design, sole sourced from a proven supplier with ongoing support in Australia. The chosen system shall be designed and selected to provide a fully integrated, homogeneous control solution to meet the requirements of the Terminal. It will be able to support a proven software control program matched to the selected site communication system, and with proven operational support and programming capability in Australia.

In principle, the control system will operate with a main control room for operators. Control and monitoring of inloading systems and stacking and outloading systems, including reclaiming and shiploading, will be from the main control room.

The level of automation at the Terminal will be maximised in order to limit the reliance on operator skills to maximise throughput and minimise risk of spillage. Areas where considerable automation is likely to be achieved include the following:

- Dump station:
  - Wagon vibrator for wagon discharge
  - Feeder control to maximise throughput
  - Train speed feedback to train driver
- Stacking:
  - Bridge stacker positioning and stacking pattern
  - Bridge stacker skew control system
  - Stacker reclaimer positioning and stacking pattern
- Stockyard Water Sprays:
  - Weather station control of stockyard sprays and misting systems to optimise water use and dust suppression
- Reclaim:
  - Reclaim feeder control to maintain blending accuracy
  - Stacker reclaimer positioning and reclaim method and rate
- Surge Bin Outload:
  - Feeder control to maintain desired outloading rate
- Moisture Content:
  - Moisture analysis and water addition throughout coal handling stream

Site Water Services

Site water services for WEXP1 and WEXP2 are unchanged from the Project approved under the EIS/SEIS and will include the following:

- Potable water supplied from the Stage 1 water treatment plant (expanded for WEXP1 and WEXP2) and stored in tanks at temporary and permanent cribs and ablutions to facilitate WEXP1 and WEXP2
- Raw water and recycled (non-potable) water supplied and distributed from the Gladstone Area Water Board (GAWB) raw water reticulation network
- Sewage disposal is required and is to be treated onsite and used for irrigation. WEXP1 and WEXP2 will utilise the sewage treatment plant from Stage 1

Fire Protection and Emergency Systems

Fire protection and emergency systems will comply with Australian Standards, local regulations and Insurance Company requirements. They will be incorporated in the site water supply reticulation system, but still maintain a fail-safe fire fighting capability.

The firewater for WEXP1 and WEXP2 will be the fire/process water supplied by Stage 1, with additional new firewater pumps and tanks located at the southern end of Stockyard Area B. A fire sprinkler system will be utilised for the dump stations, transfer towers, stacker reclaimer machines, surge bins and conveyors. The substations will be protected with gaseous fire suppression system due to the lack of accessibility. Fire hose reels and fire extinguishers will be located at various points around the site. Fire detectors and alarm systems will be fitted to provide a prompt, reliable and continual detection of developing fire hazards.

Facilities and Infrastructure

Onshore Facilities

The majority of the administration and service building required for the coal terminal are part of the Stage 1 activities and include the following:

- Administration building and corporate centre
- Central control room

- Operations amenities
- Site security office and gate
- Maritime security office and gate
- Central stores building and compound
- Conveyor belt yard
- Maintenance building, workshop and yard
- Central fuel storage facility
- Sample station building
- Internal and external vehicle washdown facilities
- External staff carpark (90 spaces)
- External visitors carpark
- Internal carparking facilities for site vehicles
- Central dozer service facility

Expansion to the following Stage 1 permanent buildings and facilities will be required to accommodate WEXP1 and WEXP2:

- Administration building
- Operations amenities
- Central stores building and compound
- External staff carpark (extra 90 spaces)
- Maintenance building, workshop and yard

With the exception of the maintenance and stores buildings which are likely to be larger to accommodate servicing of the stacker-reclaimers, these expansions are not materially different to those envisaged for Stages 2 and 3 under the approved EIS/SEIS.

Site access roads will be sealed between administration and workshop buildings near the Terminal entrance. All other onshore roads will be unsealed gravel pavement except on main routes inside the Terminal which are to be confirmed.

Offshore Facilities

Offshore facilities will include:

- Customs office
- Ablutions to be provided at a number of locations along berths

Barge Ramp/Construction Access Wharf

A barge ramp/construction access wharf provided primarily for construction access to the offshore facilities, has been approved as part of the Project and will be constructed in Stage 1. It is to be located to the north-east of Golding Point to provide access to the Calliope River. This facility will be utilised for the ongoing development of the Project marine facilities and for future industrial development within this section of the port.

Site Water Management and Treatment

The following water management criteria will be adopted for all stages of development including WEXP1 and WEXP2:

- Open, self-cleaning style drainage for aiding maintenance
- Cleanout pits to be self-draining where possible to facilitate dry clean out
- Cross drains to allow ease of cleanout
- A minimum pond size will be required (ie runoff from 24 hour, 10 year ARI storm event)
- Treated water reuse and capture stormwater to be considered for selected process and treated domestic wastewater for irrigation purposes
- Treatment to comprise cleanout pits at transfers (drain by gravity where possible), major sedimentation basins upstream of the reuse pond and/or final polishing pond/s

- Utilise gravity as much as possible in design of drains (use elevation of Golding Point and Reclamation Area B)
- Only very large rainfall events will necessitate overflow discharge into the Calliope River Anabranch from the coal terminal

The addition of proposed Stockyard Area B in WEXP1 requires the construction of a new stormwater storage pond (including the new stormwater outfall to the Anabranch) on the southern end of the stockyard and the extension of the Stage 1 stormwater storage pond south of Stockyard Area A. WEXP2 will require a further extension to this Stage 1 pond to accommodate additional runoff from the expanded Stockyard Area A on Golding Point.

Security

Site security requirements remain unchanged for WEXP1 and WEXP2 and will incorporate:

- Whole site fenced with electrically or manually operated gates
- Camera surveillance where required
- Wharf secure area which complies with the Department of Transport and Regional Services (DOTARS) security requirements for a port facility. All personnel on the wharf will need to hold an MSIC card
- Single point controlled access to the whole site, including the stockyard and wharf. Additional manual (normally locked) access points for maintenance or construction purposes as required
- Keyless access system using swipe ID cards in select locations

3.4 Description of Road Infrastructure

The Terminal access road provides 'non-secure' public access to the security gate at the administration area. It is to be constructed during Stage 1 activities and will be approximately 4 km long, running along the south-east side of the proposed Stockyard Area B. A tie-in of the Gladstone-Mount Larcom Road overpass to the Terminal access road will be required in WEXP1.

Internal perimeter roads on the WEXP1 and WEXP2 stockyards will be two coat bitumen spray sealed in alignment with Stage 1 internal roads. A 4 m wide single lane pavement is proposed for WEXP1 and WEXP2 internal roads (3 m lane, 0.5 m shoulders). Passing bays are proposed at intervals of 300 m along both perimeter roads to assist vehicle flow. Design speeds will typically be restricted to a maximum of 40 km/h.

The Beales Creek Bridge, to be constructed during Stage 1 activities, is proposed to be duplicated and triplicated to the south during WEXP1 and WEXP2 respectively to allow the overland conveyors and vehicle traffic to traverse across Beales Creek. The bridge will be 40 m long comprising two spans of 20 m with 40° skew.

Primary access between the stockyard and rail receival (approximately 5.2 km) will be via a sealed road on the western side of the first overland conveyor (Stage 1) with a design speed limit of 60 km/h. Maintenance roads for minor vehicle access will be provided between the overland conveyors and to the east of the third overland conveyor and be unsealed with a design speed limit of 40 km/h. The design speeds of these roads will drop to 15 km/h under Gladstone-Mount Larcom Road and over Beales Creek Bridge.

Entry to and exit from the conveyor access roads will only be possible at either end of the overland conveyor, with no allowance for exiting or changing roads along the way. The access beneath Gladstone-Mount Larcom Road is provided via an underpass bridge structure, sized to fit a conveyor and single lane road suitable for light vehicles only (ie hauling not permitted). The bridge work is to be completed in Stage 1. At the rail receival end, the access roads will pass over the top of the conveyor tunnels (which pass under Reid Road and the North Coast Railway) and connect to the proposed Reid Road upgrade from

the north. Design speeds along the overland conveyor access roads will be restricted to a maximum of 60 km/h, and the road will only be accessible by authorised terminal vehicles.

3.5 Construction

Construction of WEXP1 and WEXP2 is proposed to commence subsequent to Stage 1 with early civil works commencing in mid 2012. The construction works involve onshore and offshore works as well as the implementation of services including, but not limited to water supply, sewerage and telecommunications.

3.5.1 Onshore Construction

It is intended that the temporary facilities from Stage 1 will be utilised by WEXP1 and WEXP2 as they become available. These facilities include:

- Carparks
- Site facilities
- Security fences and gatehouses
- Sewerage
- Vehicle wheel wash
- Fuelling facilities
- Raw water supply infrastructure
- Sewerage treatment works
- Concrete slab for waste transfer facilities
- Water treatment works and potable water reticulation

The construction required for WEXP1 and WEXP2 onshore works will include:

- Disposal of dredge spoil within Reclamation Areas B and C from offshore dredging works for the additional berths
- Bulk earthworks on Reclamation Area B for the proposed Stockyard Area B, which will include excavation, filling, compaction and ground improvement works
- Excavation of previously disposed dredge spoil for construction of stormwater storage ponds in Stockyard Area B
- Major in ground concrete elements, including the dump station and overland conveyor tunnels
- Footings for conveyor galley trestles, transfer towers, surge bins, bund rails and other structures. These will be either piled or high level concrete footings. Nearly all high level footings will be above acid sulfate soils (ASS), however there will be some areas where ASS may be encountered and this will be managed

Civil works will require dump trucks, cranes, dozers, excavators, compactors, water carts, concrete trucks, and articulated trucks. Due to the quantity of concrete required in Stage 1, there is potential for a concrete batching plant to be established on site.

Steelwork for conveyors will be fabricated off site, transported to site and erected. Limited steel fabrication is proposed on site. Erection will involve the use of cranes of various sizes.

Mechanical and electrical equipment will be generally delivered by road, with the exception of pre-assembled elements (eg stacker-reclaimers) which may be delivered by barge.

The origin of materials delivered to site will be subject to contractor and supplier availability. Notwithstanding this, likely delivery origins have been assumed in the assessment of road impacts.

Onshore construction also includes the supply and installation of concrete and steel for various civil works components, including:

- Stockyard transverse drains

- Stockyard gantry bund drains
- Coal collection pits
- Pyealy Creek arch culvert
- Beales Creek Bridge
- Rock filter wall edge beams
- Stormwater ponds overflow weirs
- Reclamation Areas B and C tertiary pond outlet drop board structures

Other onshore components requiring steel include:

- Galvanised chain wire mesh in sediment pond rock filter walls
- Grated cage mesh in coal collection pit rock filter screens
- Galvanised top mounted handrails around coal collection pits
- Steel plate for concrete platform in steel piles for Beales Creek Bridge
- Steel walkway for Beales Creek Bridge
- Height clearance gauge structures
- Security gates and turnstiles
- Aluminium drop boards for Reclamation Areas B and C tertiary pond outlets

Land Reclamation

Stage 1 bund crest heights were determined based on the solids levels corresponding to the Berth 1, swing basin and arrival/departure dredging volume, and design decant and freeboard levels as set out in the Stage 1 design criteria.

The Stage 1 bund heights were also determined to be adequate for future dredging campaigns (up to Berth 4). This assumed the pause period between successive campaigns would be sufficient to achieve full primary consolidation of the previously deposited spoil, thus creating the necessary storage volume.

However, current estimated timeframes for the WEXP1 and WEXP2 expansions (Berths 2, 3 and 4) to meet industry demand are unlikely to allow the necessary pause/settlement periods between the successive dredging campaigns. In this event, raising of the Stage 1 bunds may be required to accommodate short term disposal volumes. Overall bund wall heights will not exceed RL8.5 m.

All drainage structures will also be raised as part of any bund raise. A typical section showing an internal and external bund raise is shown in Figure 3.3.

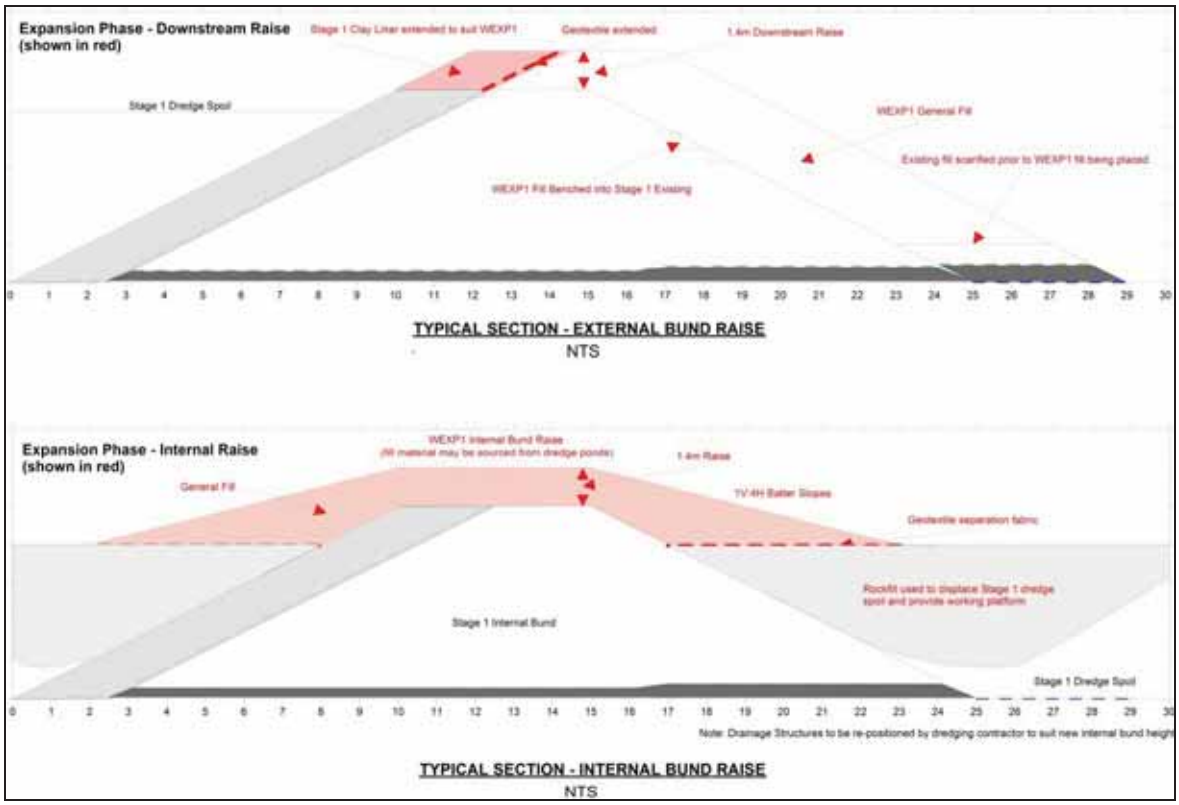

Figure 3.3 Typical Section - Internal and External Bund Raise

Dredge Spoil Disposal

A cutter-suction dredge (CSD) will discharge slurry via a pipeline, with the aid of one or two booster pumps to Reclamation Areas B and C. Typically, heavier material like gravel, sand and clay balls will be deposited into Reclamation Area B, while silt and clay fines will be directly pumped to Reclamation Area C.

The primary pond design allows for mounding up to RL14.15 m with a nominal 1V:10H beach profile. The mound height will maintain a minimum freeboard of 0.5 m with a 1 m decant water depth at the upstream face of the reclamation bund.

To achieve the mound height in the primary pond, the newly dredged sand and gravel materials from the expansion dredging will be discharged on top of or, if required, directly adjacent to the residual mounds produced from the Stage 1 dredging. To facilitate this, excavation and re-profiling of the residual mound, using dry earthmoving equipment would occur during the expansion dredging, as shown in Figure 3.4. These earthworks would continue in the primary pond up until a point where excavation equipment cannot traffic the pond.

Figure 3.4 illustrates the dredge material disposal methodology for Stockyard Area B.

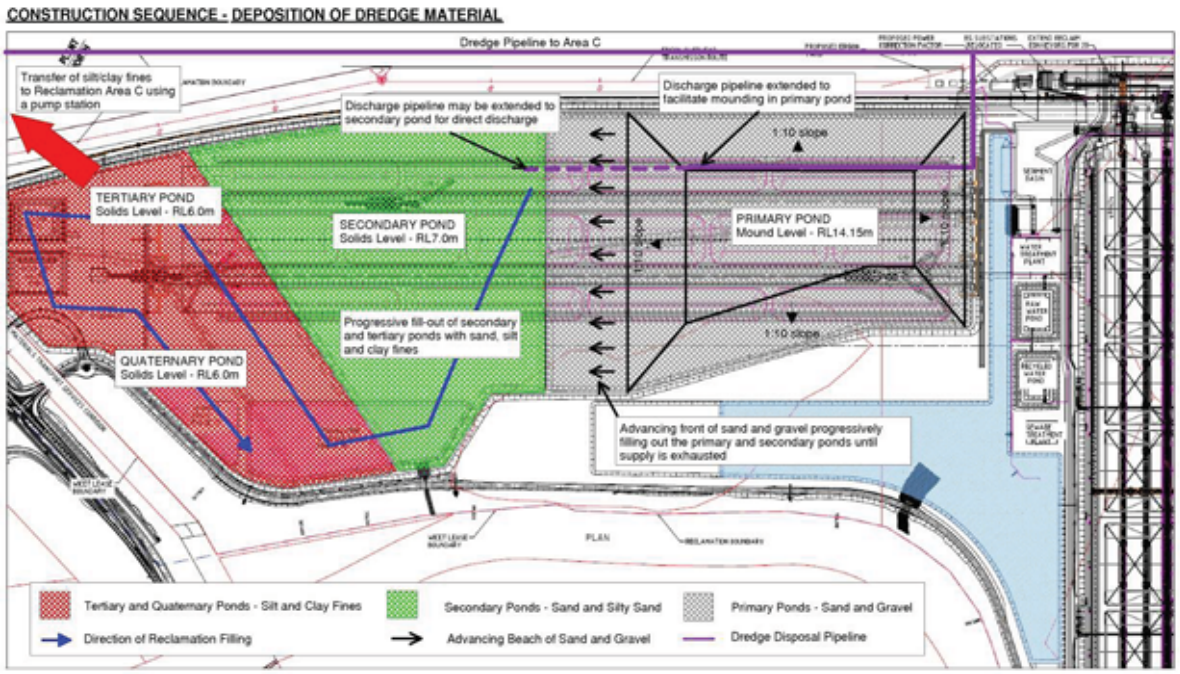

Figure 3.4 Construction Sequence – Deposition of Dredge Material on Stockyard Area B

The mound will be gradually built across the primary pond. Once the design mound height is reached in one location, the discharge pipes will be moved laterally along the bund walls to progressively fill the pond with sand and gravel until the supply is exhausted or dredging is complete. Dry earthmoving equipment will be used throughout the dredging period to facilitate this mounding and advance the discharge pipeline further into the reclamation area. This mound may be increased in height (with appropriate offsets from the bund crest to ensure geotechnical stability) and/or extend into the secondary pond should sufficient sand and gravel be available.

Once spoil disposal commences in the primary pond, the secondary pond of Reclamation Area B will be used initially as an overflow from the primary pond. This pond will be filled with sand, silt and clay, while decanting to the tertiary and quaternary ponds. The dredge pipelines may discharge directly into the secondary ponds during initial fill out by CSD operations and prior to steady state overflow conditions being achieved. Once this pond is full, reclamation will continue directly into the secondary pond until its capacity is reached. The tertiary and quaternary ponds will remain active for the entire dredging campaign.

To maximise the sand and gravel content in Reclamation Area B a small CSD or pump station may be required within the tertiary or quaternary pond to prevent overloading and/or re-dredge excessive accumulation of silt and clay fines. This dredge will pump directly to Reclamation Area C (refer Figure 3.5). The re-dredged fines will require a shorter residence time in Reclamation Area C due to the smaller discharge capacity of the small CSD which results in slightly higher densities of fines at the discharge point.

It is intended that Reclamation Area C be used primarily as a sedimentation pond for the majority of silt and clay fines.

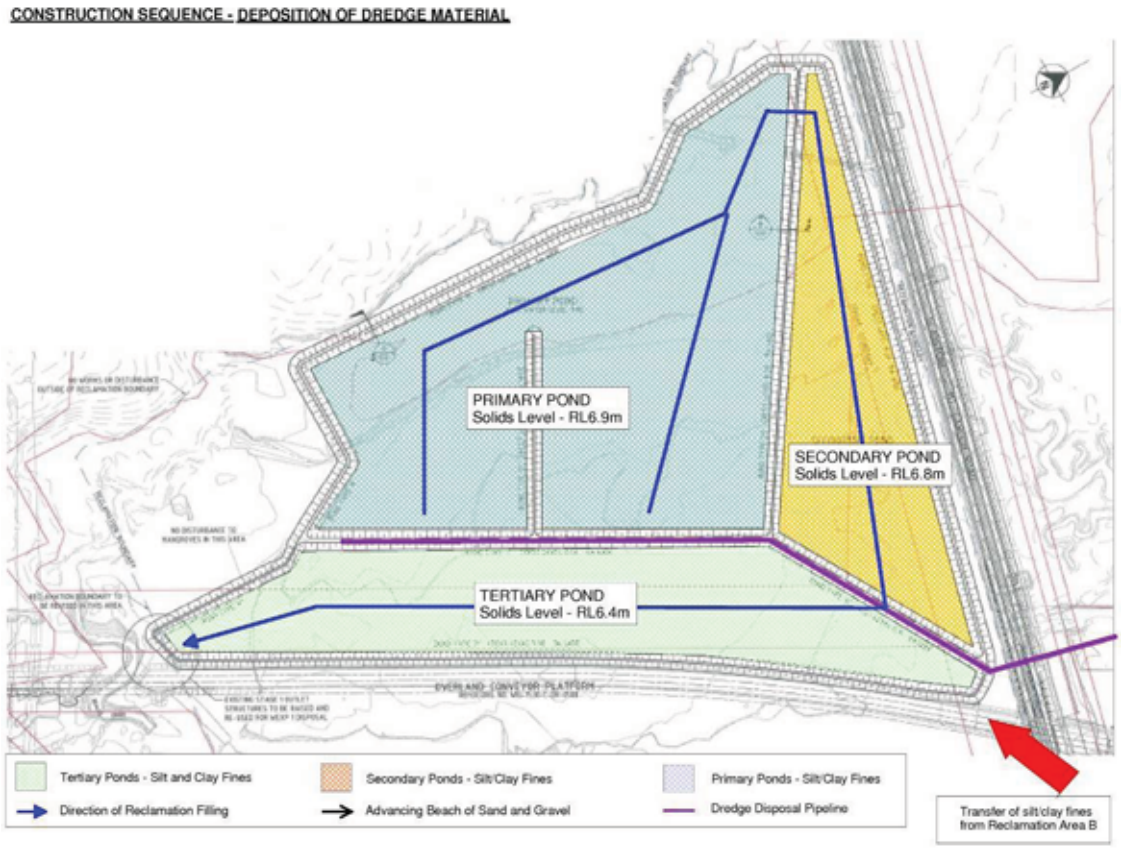

Figure 3.5 WEXP1 Construction Sequence – Deposition of Dredge Material on Reclamation Area C

All transport (slurry decant) water will be trained through the Reclamation Area B tertiary pond and all of the Reclamation Area C ponds. The settling ponds would be at least 3 m deep at the start of deposition and 1 m deep at the end of deposition, and will be used to drop out fines and clayey material in suspension before discharge into the Calliope River.

3.5.2 Offshore Construction

Offshore construction during WEXP1 and WEXP2 will be limited to that required for the additional berths and outloading streams.

It is expected that the shiploader will be constructed completely offsite, shipped to site with a heavy lift ship and lifted onto the wharf. Other alternatives the contractor may adopt include bringing the shiploader to site in two pieces (main frame and boom), or bringing it to site in several large pieces and assembling it on the wharf.

It is expected that the following equipment will be used for the offshore construction:

- Jack-up barges for pile installation
- Large jib crawler cranes at each work front supported on travelling bridge or crane beams
- Dumb barges and tug for supply of materials to the work front
- Tyre-mounted hydraulic cranes for follow-up work fronts (eg decking installation)
- Hydraulic or diesel pile driving hammers
- Welding equipment
- Painting equipment
- Grouting equipment

With the jetty and Berth 1 wharf being constructed in Stage 1, land based access to the construction fronts for the subsequent berths will be available.

The barge ramp facility, located on the eastern side of the Terminal in the mouth of the Calliope River and constructed during Stage 1, will be used to launch all the offshore equipment and materials that are not supplied along the jetty roadway.

Table 3.2 gives an estimate of the materials required for the offshore marine works construction for WEXP1 and WEXP2.

Table 3.2 Marine Works Quantities

	1,200 mm Diameter Steel Piles	Steelwork	Pre-cast Concrete Deck Units
Berth 2 and 3 wharves	10,560 m, 264 piles	8,000 t	2000 deck units
Berth 4 wharf	4,920 m, 123 piles	5,300 t	700 deck units

3.5.3 Dredging and Dredged Material Disposal

There are no planned changes to the dredging as outlined in the approved Project. The proposed dredging activities do not exceed volumes (ie 6.3 Mm^3) outlined in the Project approved under the EIS. All dredging works for the Project will be addressed in Dredge Management Plans (DMPs) to be approved by the Commonwealth and State Governments prior to the commencement of the dredging works.

The dredge spoil deposition strategy as detailed in Section 3.5.1 allows for mounding of sands and gravels in the primary pond at Reclamation Area B. As a result, there is an opportunity to use a portion of the good quality granular dredge spoil as bulk fill for the WEXP1 earthworks programme.

3.5.4 Shipping

No additional shipping during operation is expected as the approved Terminal output remains unchanged. Details on shipping and the potential impacts are discussed in Chapter 6.

3.5.5 Road Use

Details of traffic generated during construction and operation are included in Chapter 6.

3.5.6 Energy

The coal terminal requires electricity and diesel fuel for operation. Diesel fuel will also be required for the operation of the dozers, with an estimated 7.6 ML of diesel fuel required for the construction of WEXP1 and WEXP2. Approximately 133 kL of diesel fuel will be required per year for the operation of WEXP1 and WEXP2 in addition to the 1.4 ML to be utilised for Stage 1. The SEIS estimated an operational consumption for the Ultimate Facility of 5.2 ML of diesel per year. The changed Project presents an estimated reduction of diesel consumption of 3.67 ML per year for the Ultimate Facility.

As a result of the WEXP1 and WEXP2 changes, estimated emissions of CO_2 from electricity and diesel consumption have had reduced by 14.68 kt CO2-e annually for the Ultimate Facility. Annual emissions for the Ultimate Facility as per the approved Project were estimated at 18.87 kt CO2-e, with the changed Project (Stage 1, WEXP1 and WEXP2) resulting in annual emissions of 4.19 kt CO2-e.

The coal terminal also requires a significant power supply to run the materials handling system from inloading through to the shiploaders. The annual electrical energy needs for Stage 1 is 15,230 kWh per annum with WEXP1 and WEXP2 requiring an estimated additional 20,095 and 20,620 kWh per annum respectively (a total of 55,945 kWh per annum). The SEIS estimated that the Ultimate Facility, including the rail infrastructure now being managed by QR National as 5,500,000 kWh.

Equipment will be selected to minimise energy consumption and overall life cycle costs. Further information regarding the energy requirements of WEXP1 and WEXP2 is described in Chapter 7.

3.5.7 Water Supply and Storage

The water supply and storage demands of the proposed changed Project (including Stage 1, WEXP1 and WEXP2) do not vary significantly from the Project approved under the EIS. There are two water demands for the Project, potable water and raw water. These can be defined as follows:

- Raw water – defined as water from the GAWB raw water distribution network. Water is not guaranteed fit for human consumption
- Potable water – water fit for human consumption

Raw water is required to fill water trucks, with above ground hydrants located at the dump stations and around the main site. The hydrants will have a fill rate of 15 L/s and will only be used when recycled sewage effluent is not available.

There will be two vehicle washdown facilities located close to the contractor facilities with daily flows of 50 m^3/s and a peak inflow of 2.3 L/s. Each washdown location will recycle water and discharge effluent to the stormwater storage ponds with an 80% recovery rate.

Other areas which will require raw water include:

- General washdown
- Moisture addition
- Stockpile dust suppression
- Conveyor dust suppression
- Fire systems

The water source for all phases of the development is from the existing GAWB raw water reticulation network, with an existing 375 mm diameter raw water main on the north side of Gladstone-Mount Larcom Road. A branch off this main, approximately 2.5 – 3 km in length, is to service the Terminal. Depending upon the pressure of the existing supply, storage and re-pressuring may be required. Raw water to the dump station will be provided via a long pipeline from the main along the conveyor formation.

Where feasible, water recycling will be implemented to reduce the total load on the raw water supply. The stockpile dust suppression system will be supplied by onsite storage, with raw water used only as a back-up supply. Additionally, most stormwater runoff from the stockyards will be harvested and stored in stormwater storage ponds. For WEXP1, the stormwater storage pond is located to the south of Stockyard Area B.

The estimated cumulative demands for potable water under the approved Project are summarised in Table 3.3. WEXP1 and WEXP2 are not expected to exceed the cumulative demand previously defined for Stages 2 and 3.

Table 3.3 Summary of Estimated Potable Water Demands (cumulative) from SEIS

	Peak Flow Rate (L/s)	Annual Demand (ML)
Stage 1	8	18
Stage 2	16	35
Stage 3	22	51

Onsite treatment of raw water using the Water Treatment Plant (WTP) installed in Stage 1 and expanded in WEXP2, will be used to provide the potable requirements for all phases of

the Project. Raw water and recycled water will be stored onsite in the relevant ponds prior to distribution around the Terminal as required.

The proposed source of potable water for the three dump stations is a connection into the existing water reticulation network serviced by the Reid Road WTP on Reid Road near the corner of Gladstone-Mount Larcom Road. This connection will be established in Stage 1 and includes a new 75 mm OD PE pipeline (approximately 1.5 km in length) along the Reid Road corridor to connect to the existing 150 mm pipeline along Reid Road.

3.5.8 Sewerage

The Project has previously gained a Development Permit for a Material Change of Use of premises for Environmentally Relevant Activity (ERA) 63 Sewage Treatment under the *Sustainable Planning Act 2009*. The Sewage Treatment Plant (STP) is located east of the proposed Stockyard Area B. The STP has been approved for the Project for the plant inflows and effluent irrigation areas described in Table 3.4. WEXP1 and WEXP2 are not expected to exceed the cumulative limits previously defined for Stages 2 and 3 in the Development Permit.

Table 3.4 Approved STP Details for Project (from SEIS)

	Maximum Plant Inflow over any 24 hour Period (kL)	Minimum Effluent Irrigation Area (m^2) (excluding necessary buffer zones)
Stage 1	11	7,500
Stage 2	22	20,000
Stage 3	33	30,000

3.5.9 Stormwater Drainage

As previously described, it is proposed that Reclamation Area B be utilised as a stacker-reclaimer yard, Stockyard Area B. As a result, a new stormwater storage pond will be constructed at the southern end of the stockyard and the stormwater storage pond on the eastern end (constructed in Stage 1) will be extended.

The area under the conveyors and transfer towers will generally be graded towards the stockyards. Stockyard Area B will be graded towards either end of the stockpile rows, to drain into the stormwater storage ponds. Drains will be sized to suit design flows and maintenance requirements. These sizes will be confirmed during detailed design.

Prior to entering the stormwater storage ponds, a major portion of sediment will be removed from the water through the sediment ponds with filter walls.

The stormwater storage ponds will be sized to store runoff from a 10 year ARI storm event with 24 hour duration. The ponds will also be used as a polishing treatment facility to further remove sediment from the runoff. Discharge of excess water from the storage ponds will be through an outlet into the Anabranch.

3.5.10 Telecommunications

Telstra own a fibre optic cable beside Gladstone-Mount Larcom Road. Telecommunications for the Project are being derived from this service.

3.6 Rehabilitation and Decommissioning

There are no changes in rehabilitation and decommissioning compared with the Project approved under the EIS.

Decommissioning from construction phases will involve demobilisation from laydown areas and areas dedicated to the construction offices and workshop areas. Demountable sheds and offices will be removed and if in good order used for other projects.

All areas will be thoroughly cleaned of debris and other containments. If landscaping of these areas is proposed these will be planted out and established with the appropriate vegetation. Decommissioning of the Terminal is unlikely to occur in the foreseeable future, as the minimum design life for the facility is 50 years.

Options that would be considered at decommissioning of the entire facility include:

- Handling of an alternative product through the facility. This would require retrofitting/modification of the entire facility to suit the alternative product
- Dismantle and change land use. The Terminal will be designed to achieve minimal contamination during operations. Decommissioning will involve removal of materials that could lead to contamination when the plant is no longer in operation. Rehabilitation of the site will be consistent with the proposed change in land use

3.7 Waste Management

Chapter 13 of the Change Request contains details on waste management. No changes to the WICET Stage 1 Waste Management Plan (WMP) are planned for the subsequent expansion phases, WEXP1 and WEXP2.