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1.1 OVERVIEW

1.1.1 PROJECT OVERVIEW

The Galilee Coal Project (Northern Export Facility) (also known as the China First Project), (hereafter referred to as the project) comprises a new coal mine located in the Galilee Basin, Queensland, approximately 30 km to the north of Alpha; a new rail line connecting the mine to coal terminal facilities; and use of coal terminal facilities in the Abbot Point State Development Area (APSDA) and port loading facilities at the Port of Abbot Point.

It should be noted that the description of the stockpiling and export elements of the project provided in the Initial Advice Statement of October 2008, proposed either use of the Multi-Cargo Facility (MCF) or a jetty berth design similar to that currently in use at Abbot Point. Since then, as a result of the outcomes of detailed engineering studies by Waratah Coal and the opportunity for Waratah Coal to minimise environmental impacts and exploit economic opportunities by sharing facilities in multi-user infrastructure arrangements, the jetty berth design has been removed as an option for the project, and use of facilities within the proposed Terminal 4-7 (T4-7), Multi-User Corridor (MUC) and MCF remains the sole option for the stockpiling and port export elements of the project.

The project will utilise future coal stockpiling and port loading facilities to be developed by North Queensland Bulk Ports Corporation (NQBP) within planned infrastructure at the APSDA and the Port of Abbot Point. Waratah Coal intends to utilise facilities for coal stockpiling at the proposed T4-7 within the APSDA. This project is currently undergoing initial design and is the subject of an Expression of Interest (EOI) (closing on 1 August 2011) from entities wishing to participate in the development of the T4-7. Waratah Coal is seeking preferred respondent status in this project which would award the right to develop a site at the T4-7 location; to develop conveyers within the MUC between the T4-7 and the MCF; and use of two berths at the MCF. The T4-T7 project is yet to undergo a formal environmental assessment process; which will be overseen by NQBP. This process will be commenced when preferred respondents and design parameters are finalised - expected to commence in early 2012. It is anticipated that once NQBP has completed their assessments, Waratah Coal may need to undertake additional approvals processes and/or accept resultant conditions of operations from NQPBs via lease requirements and a framework agreement.

The proposed MCF will be a new multi trade port facility adjacent to the existing Abbot Point Coal Terminal berths. Awarding of a stockpiling tranche in the T4-T7 would allow Waratah Coal use of two berths within the MCF. The MCF Environmental Impact Statement process is well underway, and Federal Government approval is expected in 2011. However, the MCF EIS does not include undertaking the following activities and development of the following structures:

- Wharf structures;
- Ship loading and unloading infrastructure and associated facilities of private port users as well as operation of these facilities; and
- Conveyors, pipelines etc. servicing the MCF

It is anticipated that once NQBP has received their approval, Waratah Coal will need to undertake additional approvals processes to facilitate the above activities and development.

Given that the coal terminal and port infrastructure are largely the subject of current and future assessments by NQBP, this EIS does not consider the potential impacts of these projects. However, an overview of existing environment within the APSDA and the Port of Abbot Port, as well as the probable coal terminal design and infrastructure requirements is provided in Chapter 2 of this Volume.

Should any component of the T4-7, MUC or MCF not progress, Waratah Coal would need to seek alternatives for coal stockpiling and ship loading. This could include investigation of a stand-alone jetty and stockpiling facilities. Should this be required, this would be the subject of a separate future EIS process and referral to the Commonwealth Government.

This Chapter briefly reviews:

1. Changes to Waratah Coal's original IAS design elements to take advantage of co-location opportunities provided by the Terminal 4-7 Project;
2. The suite of studies undertaken in the APSDA.

This Chapter serves two purposes, namely to:

1. Satisfy a Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) request to clearly identify what (and how) design elements have changed from the original project description submitted in the IAS and referral documentation;
2. Provide an overview for Chapter 2 of this volume which broadly describes the existing environment of the APSDA and potential impacts that Waratah Coal's activities may have on the environment. It is important to note that a true indication of impacts cannot be assessed until the EISs for these projects are finalised.

1.1.2 PROJECT CHANGES

As a result of seeking co-location within the APSDA, Waratah Coal has made the following variations to the project at are described in Table 1.

These proposed changes see Waratah Coal seeking to use future-built infrastructure to enable the coordinated and efficient supply of coal to the export market while decreasing the overall environmental footprint and impact of its operations at Abbott Point.

1.1.3 STUDIES UNDERTAKEN WITHIN THE APSDA

An extensive range of studies have been undertaken within the APSDA including;

- Technical studies by Waratah Coal to support the original EIS (see Volume 5 Appendix 6-7, 9, 12-15 and 18-24 of this EIS)
- Abbot Point Coal Terminal, Stage 3 Expansion, Environmental Impact Statement (WBM, 2006)
- Abbot Point State Development Area Multi-user Infrastructure Corridor Study (Parsons Brinckerhoff, November 2010)
- Abbot Point Coal Terminal Inland Coal Terminal Site Selection Study (Aurecon Hatch, March 2011)
- Abbot Point MCF EIS (North Queensland Bulk Ports, Nov 2010)
- Land and Infrastructure Planning Study for the Central Portion of the Abbot Point State Development Area, Queensland Government (Parsons Brinckerhoff , 2010)

These studies have been reviewed to develop a broad understanding of the location of existing and future infrastructure in and near the APSDA and to derive the potential impacts to the environment which may result from Waratah Coal's activities. The broad findings of these studies are described further in Chapter 2 of this Volume.

Table 1. Proposed changes at the Port of Abbot Point

EIS COMPONENTS	ORIGINAL EIS	PROPOSED CHANGE AS AT JUNE 2011
Stand-alone Jetty	Jetty infrastructure proposed if MCF does not proceed.	Jetty deleted.
Multi Cargo Facility	Use of MCF is preferred option.	Nil. Berths guaranteed to 'preferred developers' of the proposed T4-7 Coal Stockyards.
Coal Stockyards	Located adjacent to Multi-user corridor.	Waratah will submit an EOI to become a 'preferred developer' at the proposed T4-7 Coal Stockyards
Multi-User Infrastructure Corridor	Use of Multi-User Infrastructure Corridor is preferred option.	Nil.
Rail Alignment within SDA	Located adjacent to Multi-user corridor.	Located adjacent to the proposed T4-7 Coal Stockyards

1.1.4 COMMON USER INFRASTRUCTURE

As previously described, Waratah Coal will now utilise the MCF, Multi-user corridor and T4-7 coal stockyards at Abbot Point. These are described in the sections below.

1.1.4.1 Multi User Corridor

The Department of Infrastructure and Planning (DIP) has undertaken a background investigation on the location of a multi user infrastructure corridor within the APSDA. The multi user infrastructure corridor will link the northern part of the industrial precinct to the proposed Multi Cargo Facility (MCF) by a conveyor system. This conveyor will be required to transport various known and possible materials to or from the northern part of the industry precinct in the APSDA to the proposed MCF.

Assessments by DIP determined that the infrastructure corridor shown in revision 3 (refer Figure 1) is to be the final alignment for the multi-user corridor, and will be the alignment referred to throughout this EIS. It is recognised that future investigations and/or modeling may provide evidence that could result in further refinement of the alignment of this corridor. Waratah Coal proposes to use this multi user transport corridor to facilitate the transportation of coal to the MCF.

1.1.4.2 Multi-user Cargo Facility

North Queensland Bulk Ports Corporation proposes to develop a MCF which will provide a sheltered harbour capable of handling multiple cargos for both import and export. The MCF will be situated on around 320 hectares of reclaimed land and all outloading from the proposed coal terminal and other industries within the APSDA will pass through the proposed MCF. The facility will accommodate 12 shipping berths, a tug harbor, dredged access channel, swing basin and berth pockets. Eight of the berths located within the MCF will be allocated for the T4-7 development (two berths per 30 Mtpa). NQBP has proposed the lease of these four berths to T4-7 Terminal Owners. Waratah Coal will seek to obtain two berths at the MCF as part of their coal terminal development. As a terminal owner Waratah Coal will be responsible for obtaining relevant approvals, construction management, maintenance, operation, upgrade, replacement and rehabilitation of all infrastructure above deck level within the MCF.

The MCF development will include supporting road infrastructure with the construction of a haul road and port access road linking the proposed development to the APSDA which is to be planned and developed by NQBP.

Should the MCF project not proceed NQBP may examine alternative offshore infrastructure for the T4-7 project, in the event of this occurring Waratah will adapt to any changes proposed and will make the appropriate planning assessments.

1.1.4.3 Terminal 4-7

The Port of Abbot Point is currently undergoing expansion known as the X50, T2 and T3 projects to increase the capacity of coal storage and transportation within the APSDA. Since the initial development of these projects there have been additional requests for increased coal capacity through the Port of Abbot Point. This has led to the identification of additional coal terminal locations within the APSDA. In association with the State Government, NQBP has developed plans to facilitate the development of four additional separate tranches, each 30mtpa, of coal terminal capacity. These four tranches are termed the T4, T5, T6 and T7 projects (T4-7).

A preliminary study was commissioned by DIP and conducted by Kellogg Brown and Root (KBR) to identify and evaluate potential options for the location of the T4-7 development within the APSDA. This study evaluated eleven potential sites within the APSDA and one site located outside of the APSDA. The study then identified three preferred sites and recommended that further work be undertaken into the feasibility of each of these sites.

DIP refers to the three potential sites identified by KBR as Site A, Site B and Site C (refer Figure 2). Aurecon Hatch was then engaged by NQBP to undertake a site selection study on the three sites to determine a preferred location for the T4-7 terminal and to provide an estimate of capital cost. The findings were detailed in the report, Abbot Point Coal Terminal Inland Coal Terminal Site Selection Study, March 2011, (Ref H600090).

This assessment concluded that Site B is the preferred site for development of the T4-7 project within the APSDA. This decision was made primarily due to the overall key differential costs between the sites with the

Figure 1. Proposed location of coal terminal infrastructure at the APSDA

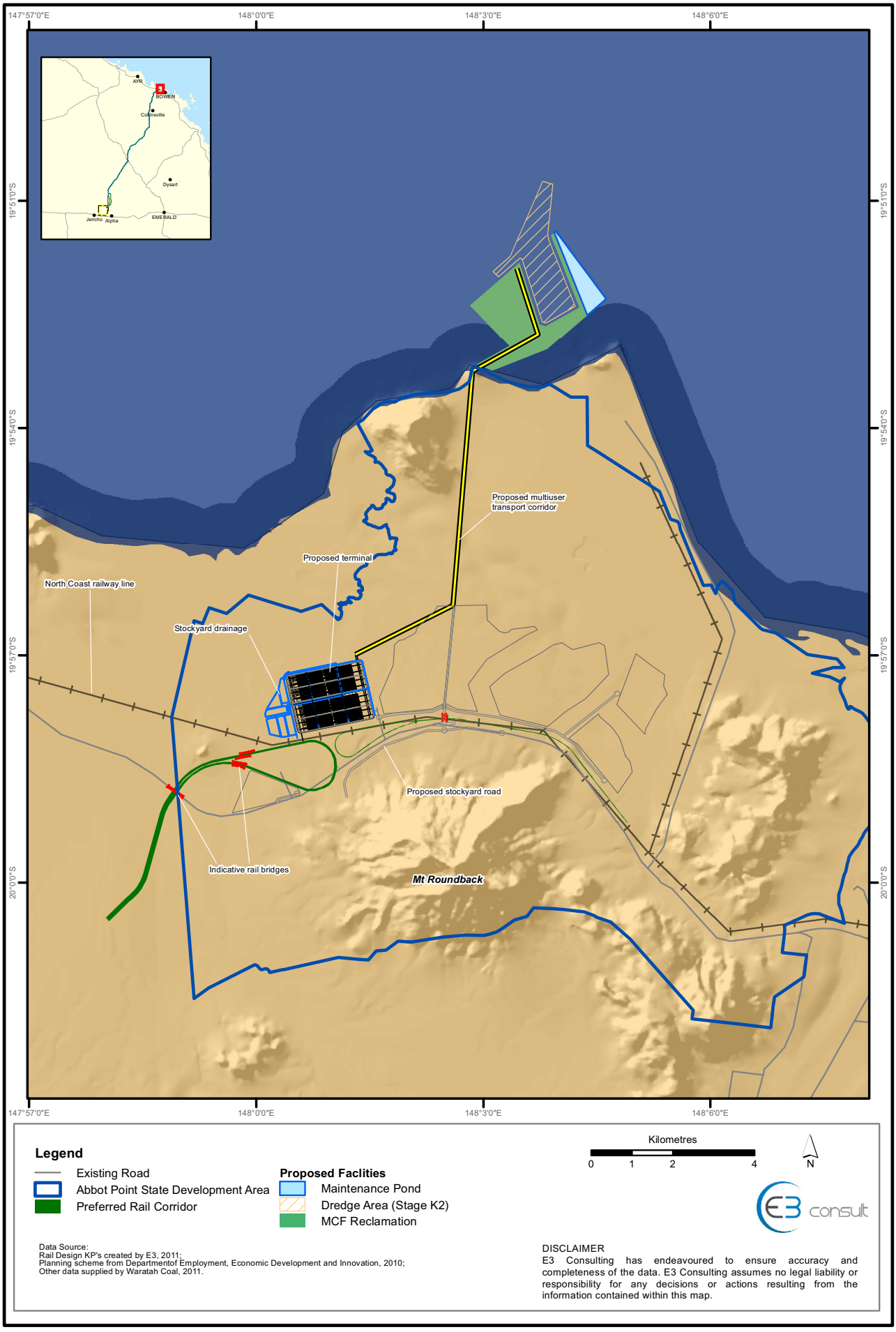
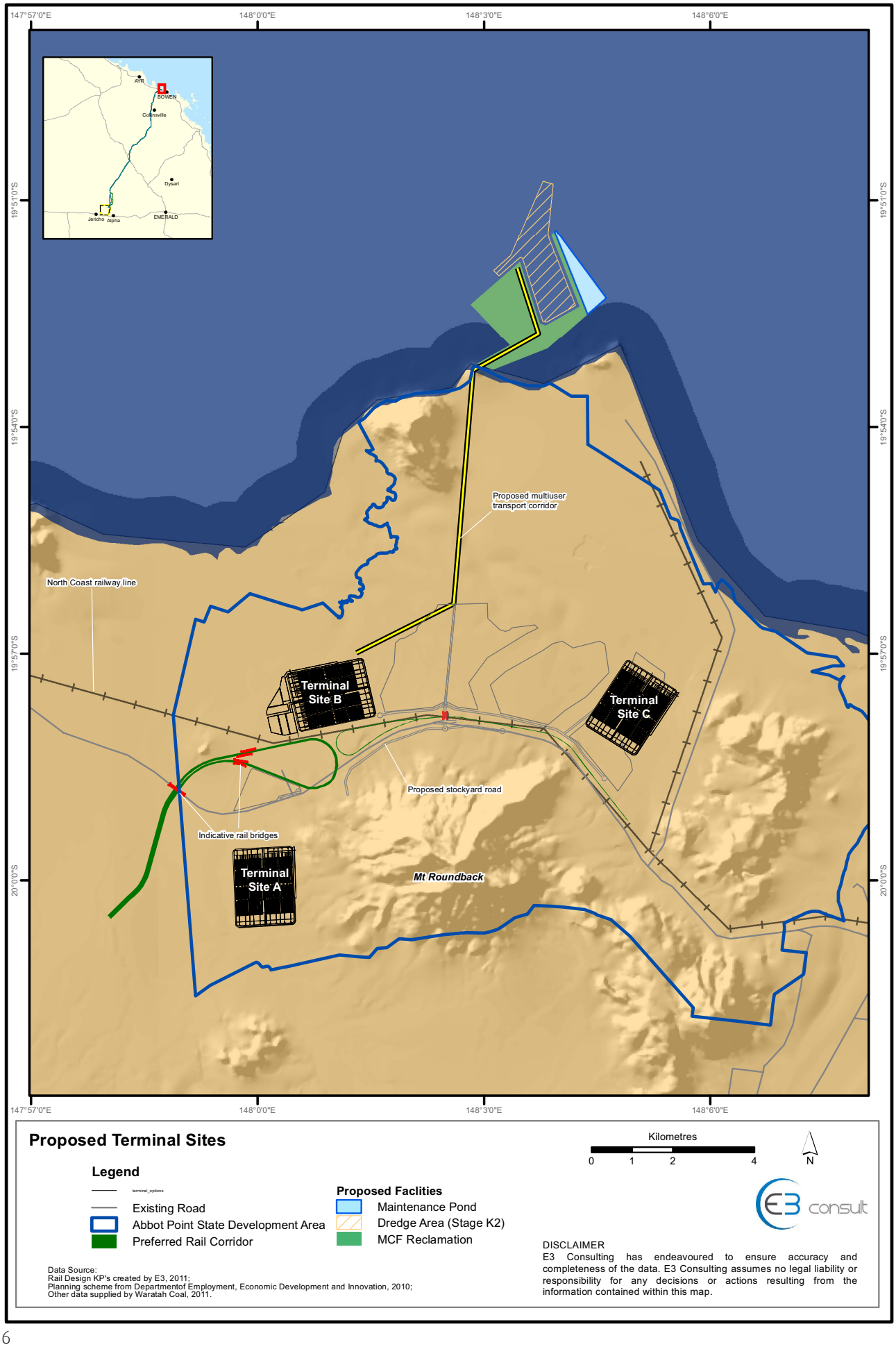


Figure 2. Preferred Coal Terminal Locations Investigated by NQBP



capital costs of Site B approximately $326 M lower than Site A and $126 M lower than Site C. The differences in cost were principally due to conveying lengths with Site A having a conveying distance of 15 km, Site C 10 km and Site B only 8 km.

Waratah coal proposes to situate its coal terminal within Site B, the preferred location determined by NQBP.

1.1.4.4 Supporting Infrastructure

Apart from the major infrastructure facilities described above, supporting infrastructure such as that listed below will be required. It is anticipated that many of these aspects of the development will require co-operation and/or sharing with adjacent coal terminals.

- Power and communications;
- Access roads and corridors;
- Conveyor systems;
- Stormwater management, water supply, service and conveyor corridors;
- Rail unloading pits; and
- Access to the MCF.

Where appropriate, Waratah Coal will seek to engage in co-operation / sharing arrangements with other coal terminal leases or will develop critical infrastructure in its own right. Waratah Coal will work with other entities within the T4-7 to determine the most appropriate plan for the installation and ongoing maintenance of supporting infrastructure.

1.2 PROBABLE COAL TERMINAL DESIGN AND INFRASTRUCTURE REQUIREMENTS

1.2.1 INFRASTRUCTURE DESIGN

NQBP will set minimum design and environmental requirements for all infrastructure on site based on the environmental studies already undertaken and best practice design standards. Compliance with these requirements will form part of the lease conditions for individual proponents.

Waratah's proposed coal terminal will be capable of receiving, handling and reclaiming 40 Mtpa of coal set for export to China. Coal will be transported to the terminal by bottom dumping rail wagons, discharged into a dump station, and transported to the stockpiles via a conveyor system and a stacker/reclaimer. Coal reclaimed from the stockpiles is then placed on conveyors located within a Multi-user Transport Corridor and transported a Multi-Purpose Cargo Facility (MCF) for loading onto bulk carriers.

1.2.2 COAL TERMINAL INFRASTRUCTURE ELEMENTS

1.2.2.1 Rail

NQBP has acknowledged that rail infrastructure requirements from the mine to the coal terminal (in loader) are the responsibility of the terminal owners to arrange separately, including seeking approval from the Coordinator General. Any rail infrastructure proposed will be required to demonstrate consistency with the Development Scheme for the APSDA, with regards to its objectives and purpose of the land use precincts.

Furthermore DIP has specified that the coal terminal will be serviced by both a standard gauge and narrow gauge railway. In addition, DIP has specified that the standard gauge railway will enter the APSDA via a 3.5 km wide corridor located along the western boundary of the APSDA. DIP determined that the preferred alignment for the standard gauge railway will enter the ASPDA crossing Splitters Creek and crossing under the Bruce Highway. The alignment will form a loop also (known as the rail balloon loop) adjacent to the southern boundary of the coal terminal (T4-7).

In addition NQBP determine that the preferred alignment for the narrow gauge railway will be situated between the North Coast Railway and the Bruce Highway.

A materials handling facility will be located on the rail balloon loop for both the standard gauge railway and narrow gauge railway, facilitating the unloading of coal.

1.2.2.2 Inloading

The materials handling facility built by Waratah Coal will provide two streams of transport capable of receiving and handling 40 Mtpa of coal, a conventional operating mode and bypass mode. In conventional operating mode coal is receive from the trains via a dual three cell rotary dumper unloading facility and directed to the stockpiles via a ground level inloading transfer conveyor (refer Plate 1 and Figure 3).

The dual three cell rotary dumper unloading facility will have a rated capacity of 7,200 Tonnes Per Hour and will empty coal below to the conveyor through a receival system consisting of two hoppers and discharge shutes

at a rate of 30 cycles/hr. At peak operating speeds, each three-car dumper will take two minutes to operate, resulting in a full train being emptied within two hours and 40 minutes.

A bypass system will also be installed which will enable coal to be directed straight to the outloading conveyor and on to ship loaders when appropriate. This system will also be located within the inloading system and will consist of two shuttle conveyors and include a combination of ground mounted and elevated structures.

1.2.2.3 Unloading shed

The unloading facility is a shed containing a reinforced concrete chamber and housing all necessary equipment used including the car dumper cells, hoppers and discharge shute connecting to the inloading conveyor. Other devices including wagon vibrators, wagon wheel wash system, overhead travelling crane, dust suppression and ventilation systems are also contained within the shed.

Additional infrastructure includes a sample station, allowing monitoring and analysis of incoming coal quality and a dynamic rail track scale for weighing loaded and unloaded wagons entering or leaving the car dumper facility. Adjacent to the car dumper shed will be an area allocated for the operation facilities, including a substation control room and general workers facilities.

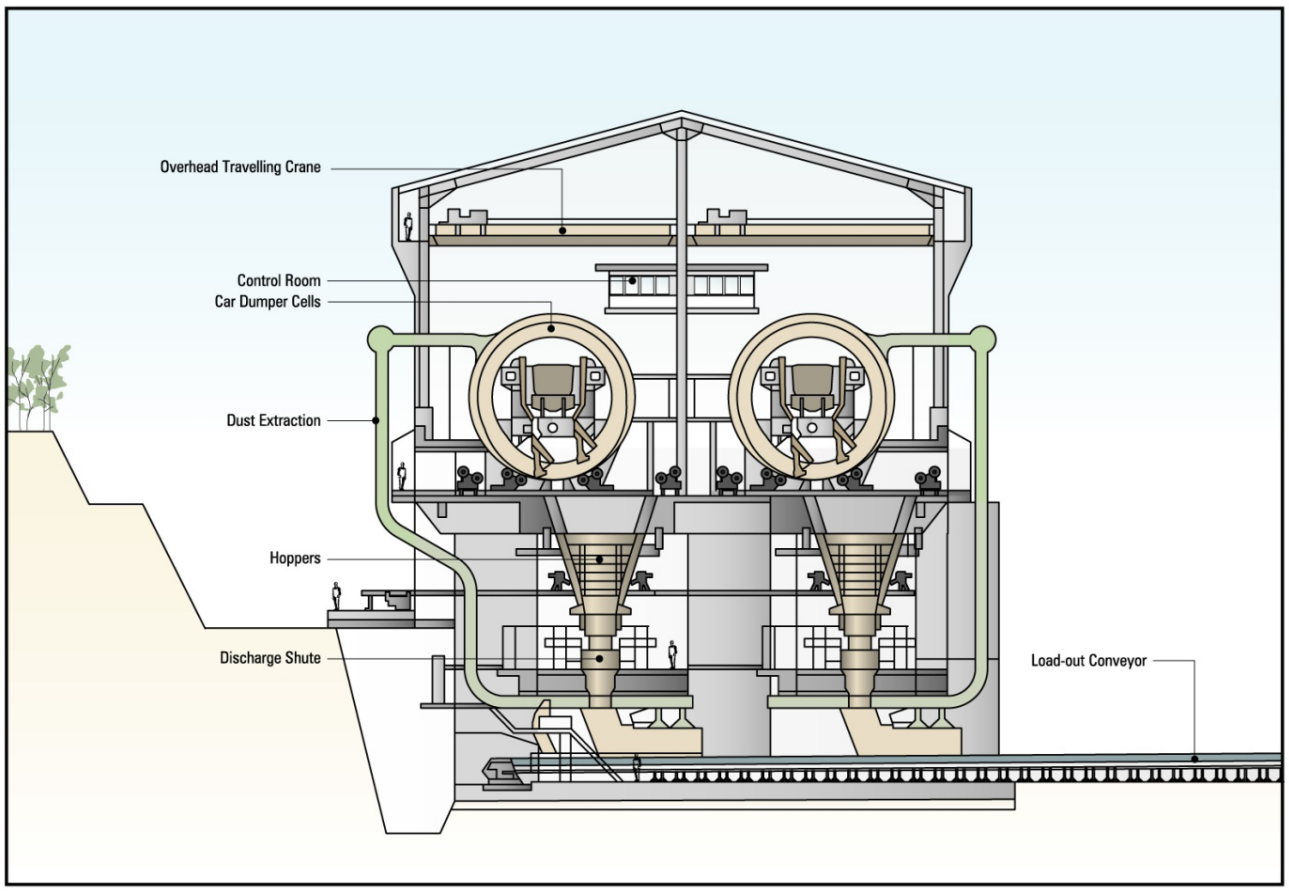
1.2.2.4 Stockyard

The stockyard layout will consist of two parallel stockpiles, which are divided up into a further six piles. Each stockpile will have an approximate footprint of 11.4 ha (2,000 m long, 57 m wide) and an approximate stack height of 17 m. Capacity for the stockyard has been set at 5% of the yearly throughput, equivalent to nominally 2.0 Mtpa capacity.

The stockyard will be equipped with two stackers and two reclaimers which will travel on rail tracks when operating. Stackers will have an estimate boom length of 47 m, travel on track rail gauge of 8 m and operate at a rated stacking capacity of 7200 TPH. Reclaimers will have an estimated boom length of 58 m and will move on rail gauge of 14 m, with a rated reclaiming capacity of 8,000 TPH. An outer ring road will be located around the stockpile providing vehicular access.

Plate 1. Dual three wagon car dumper unloading facility

Figure 3. Schematic of the proposed dual three wagon car dumper unloading facility



1.2.2.5 Outloading

Coal is reclaimed from each stockpile via a bucket-wheel reclaimer and feed to stockyard conveyors which include a combination of ground mounted and elevated structures. An outloading shuttle system will feed coal into either of the two overland belt conveyors, which discharge the coal into a surge bin located on the shore line adjacent to the MCF springing point. The overland belt conveyors have a belt width of 2,200 mm and approximate operating speed of 5 m/s and will transfer product at 10,000 TPH.

1.2.2.6 Temporary Construction Accommodation

NQBP has specified that the establishment of location, construction and necessary statutory approval for temporary work camp including any arrangement with land owners will be the sole responsibility of Waratah.

The construction phase of the coal terminal will require accommodation to support an estimated workforce of up to 2,000 persons during peak periods. Whilst local employment is preferred the specialised nature of many of the construction tasks will potentially see a significant number of workers sourced from outside of the Bowen area on a Fly In Fly Out (FIFO) basis. This is not unusual for large specialised construction projects throughout Australia.

Due to both the high demands on the housing market in the Bowen area, together with the shortage of available land, it's expected that the availability of suitable dwellings will be limited and that the majority of the workforce will need to be housed in temporary facilities for the duration of their engagement within the construction phase. This is expected to be further compounded by future planned large-scale projects also requiring accommodation, such as the Stage 3 Abbot Point Expansion of MCF construction, Goonyella to Abbot Point Coal Project and the Water for Bowen Project.

Waratah Coal intends to accommodate the majority of their workers in one or more temporary purpose built construction villages to ensure that negative impacts to local housing and tourism in Bowen are minimal. Worker camps will be planned in accordance with Whitsundays Regional Council (WRC) and DIP regional planning strategies, with preference for existing sites that already have established social services and recreational infrastructure.

This will include consideration of suitable sites on the outskirts of Bowen (such as the showgrounds) and the existing workers camp at Merinda. It is understood that DIP is also considering appropriate locations for new construction camp facilities within the APSDA, dependant on a flood study currently in progress, which would also be taken into consideration. It is anticipated that locating the construction camps near Bowen will provide direct benefits flowing from the workforce to its economy. Accommodation camps located at Collinsville or further, are not considered suitable due to the lengthy travel distances.

Prior to the construction of any camps, Waratah Coal will consult with local communities and businesses to ensure any negative impacts can be minimised, as well as to develop strategies for local contractors and employees residing at the camps to support local business, clubs and events. Development approvals and Permits for building the camps will be obtained in accordance with legislative requirements.

Waratah Coal will implement a suitable Traffic Management Plan (TMP) around the camps, with workers typically moved between the village and the APSDA via a communal bus service to reduce both the number of vehicles on regional roads and potential for accidents. Where necessary, Waratah Coal will also upgrade intersections and access routes into potential camps in line with DTMR requirements.

Depending on the selected sites for an accommodation village, Waratah Coal is prepared to upgrade existing sewage treatment facilities, or build new facilities where appropriate, with the ownership to be transferred to the relevant Council upon decommissioning, providing additional infrastructure for growth in the areas.

The construction camps are expected to operate for three years during the construction phase, after which the lands will revert as close as possible to its previous use, but with expected improvements to infrastructure.

The operational workforce is expected to be predominantly housed in Bowen and other local centres.

1.2.3 DEMOBILISATION AND REHABILITATION

The long term tenure arrangements between NQBP and Waratah Coal are likely to require that all leased and licensed areas are decommissioned and rehabilitated by Waratah Coal at the end of tenure. Waratah Coal is likely to be bound by the following commitments for the demobilisation and rehabilitation of the coal terminal:

1. At the completion of the construction phase all temporary facilities and work areas not required for the operation of the coal terminal will be decommissioned and rehabilitated. Prior to departure, the supervising contractor will retain a small team of construction equipment to undertake the final rehabilitation works, demobilise temporary facilities and worker construction camps, remove waste materials and repair farm and perimeter fences.
2. Wherever practical, site rehabilitation will be undertaken progressively throughout construction; however the majority of this is expected to be undertaken towards the final stages when the bulk of disturbances have been completed. Temporary sites will be contoured with consideration to existing landforms and drainage systems to re-establish a stable landform and promote regeneration of a self-sustaining ecosystem. Areas prone to erosion will be stabilised, while the surface scarified to support re-vegetation activities. Stockpiled topsoil will be re-spread and seeded with a non-invasive seed mix and / or revegetated with endemic species. More complex erosion control works may be required in places, and these will be developed in consultation with the relevant regulatory agencies.
3. A Weed Management Program will be implemented for all rehabilitated sites and incorporated into the ongoing site management procedures. This will also include monitoring the effectiveness of all rehabilitation works and employing suitable repair and maintenance regimes as required.

1.3 SUGGESTED SHIPPING REQUIREMENTS

The Port of Abbot Point is managed by NQBPC. In 2008-09, the total throughput at the Port of Abbot Point was approximately 14.5 Mtpa, with the port handling 176 ships during the financial year. The average cargo size per ship through the port was 82,065 t.

The Port of Abbot Point limits ship size to 300 m length overall (LOA), or 200 000 deadweight tonnage (DWT). It is possible that a combination of Panamax and Cape class vessels will be used to export the coal. The characteristics of the class of vessels that will be used are shown in **Table 2.** Given the 40 Mtpa planned export capacity, it is estimated that an additional 670

vessel movements per year will occur based on only using Panamax Class vessels **(Plate 2)** and 230 vessel movements per year based on only using Cape Class vessels **(Plate 3)**. Given both classes of vessel will be used, and assuming a 50/50 ratio (which is typical based on 2008 and 2009 shipping data) is it projected that ship movements will increase by an additional 450 vessels annually.

Table 2. Ship Characteristics

SPECIFICATIONS	VESSEL TYPE	
	PANAMAX	CAPE
LOA	235 m	303 m
DWT	60,000	175,000
Beam	34 m	47 m
Laden Draft	12.3m	19.0 m
Displacement	80,000 t	210,000 t

All ships entering the Port of Abbot Point require pilotage support. Approaches to the Port of Abbot Point are from either the north east or north north-west direct from the Inner Route of the Great Barrier Reef. From the north east, the front lead is situated on Abbot Point and the rear lead on Bald Hill, the leading lights in line bearing 225°. From the north north-west the front lead is situated towards the shore end of the jetty 315 m in front of the rear lead on Abbot Point, the leading lights in line bearing 163·6°.

The port waters pilotage support is provided by the Pilotage Services Division of Maritime Safety Queensland (MSQ), a State Government Agency attached to DTMR. Vessels awaiting pilotage are required to anchor within one nautical mile of the Pilot Boarding Place in approximate position Latitude 19°48.12'S, Longitude 148°03.6'E. Tug services are required for berthing and departing at the Port of Abbot Point. This service is currently provided by Svitzer, based out of Bowen.

Plate 2. Typical Panamax class vessel

Plate 3. Typical Cape class vessel

1.4 CONCLUSION

The infrastructure requirements of Waratah Coal at the Abbot Point State Development Area (SDA) have changed since the project was described in the Initial Advice Statement and referral documentation. The changes have arisen due to the opportunity for co-location provided by North Queensland Bulk Ports' (NQBP) proposal to develop new four new terminals (T4-7) within the SDA. Documents made available to date indicate that NQBP will be responsible for overseeing the Environmental Impact Assessment process for Terminal development within the SDA. Therefore an assessment of the environmental impacts of proposed development within the SDA is not included in this EIS.

Two changes to the original IAS design elements have been made as a consequence of the opportunity provided by the T4-7 development; namely the deletion of the Jetty and the relocation of the rail alignment from adjacent to the Multi-user corridor to adjacent to the proposed T4-7 coal stockyards. It is anticipated that these changes will reduce the potential environmental impact of Waratah Coal's operations at Abbot Point.

Minimum design and environmental requirements will be set by NQBP for all infrastructure based on their environmental studies and assessments of best practice standards. Waratah Coal will comply with these requirements.

The infrastructure design within the Terminal, including unloading, stockpile and transport infrastructure, conform to the original IAS although changes may be required following the assessments and conditions set by NQBP. Waratah Coal will comply with these requirements and will redesign the infrastructure if and as necessary.