Project Introduction

1. PROJECT INTRODUCTION

1.1. Introduction

This Environment Impact Statement (EIS) assesses the environmental, social and economic impacts associated with the construction and operation of the proposed Bulk Commodities Export Facility (henceforth known as BCEF or 'the Project') at Port Bonython by Spencer Gulf Port Link (SGPL). The BCEF will export up to 50 million tonnes of iron ore per annum with an estimated capital value $663 million.

The Project consists of:

- A 17.5km railway spur from the existing Whyalla to Port Augusta rail line
- A 6.1km rail loop at the facility end of the rail spur
- An onshore bulk ore handling and storage facility
- A 3km long jetty with deep water access.

Identified iron ore resources have the potential to provide significant benefit to the South Australian and national economy, but the State currently lacks the infrastructure to take this resource to the global market. Construction of transport, handling and shipping infrastructure will unlock South Australia's potential as a key player in the global iron ore market.

The South Australian Government has selected Port Bonython as the most suitable location for a new shipping terminal based on its location within an existing deep water harbour, land availability, access to existing rail infrastructure and proximity to iron ore mining projects in the region. After a competitive tendering process by the State Government, SGPL secured development rights for the site to plan, build and operate the new common user Port Bonython BCEF.

The proposal was declared a Major Development under the provisions of Section 46 of the Development Act 1993 in March 2012, and it was determined that an appropriate form of assessment was required by the Development Assessment Commission (DAC). This EIS has been prepared in response to Development Assessment Guidelines issued by DAC in August 2012.

1.2. Proponent

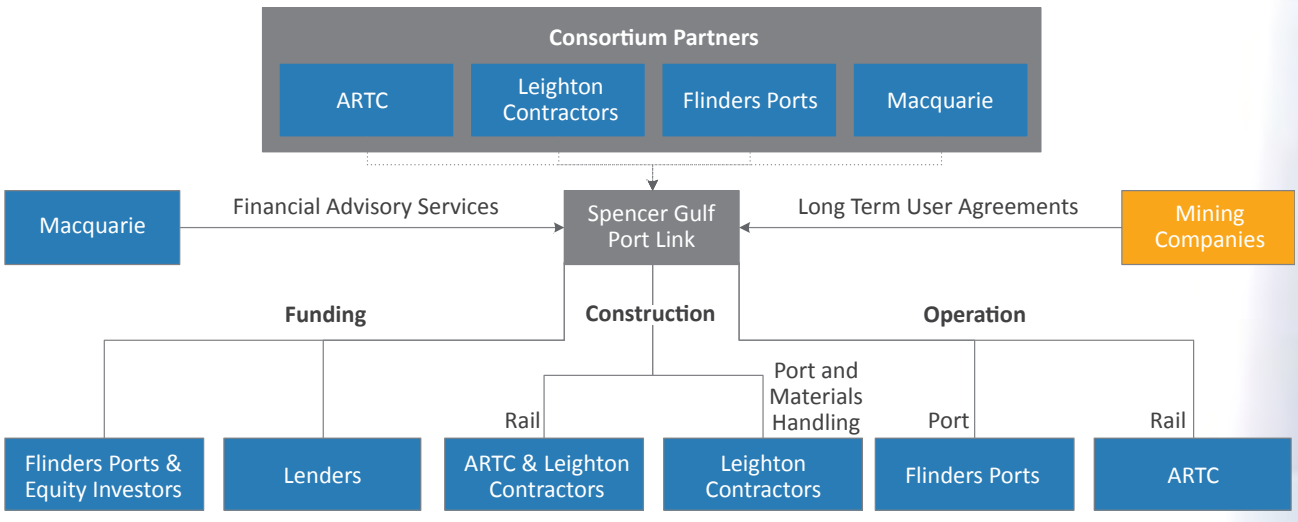
The proponent for the BCEF is SGPL, which is made up of the following organisations, with input provided as required from independent advisors:

- Flinders Ports Holding
- Leighton Contractors
- Macquarie Capital
- Australian Rail Track Corporation.

Flinders Ports are managing the Project's planning and approvals phase on behalf of SGPL.

The consortium structure is shown in Figure 1.2a.

Figure 1.2a: Spencer Gulf Port Link Consortium



1.2.1. Environmental Track Record

Flinders Ports, who will operate the BCEF, have a long and successful history of compliance with its environmental obligations. They manage a number of ports (Port Adelaide, Port Lincoln, Port Pirie, Thevenard, Wallaroo, Port Giles and Klein Point) and associated shipping activities in South Australia with a high level of compliance and control of any environmental incidents. An ISO 14001 Environmental Management System is in place which addresses environmental management issues including ballast water management, emergency response plans, loading and unloading of ships, stormwater management, oil spill response and waste controls.

1.3. Project Background

1.3.1. Background

In May 2008 the Government of South Australia, through the Department for Transport, Energy and Infrastructure (DTEI, now known as the Department of Planning, Transport and Infrastructure (DPTI)) invited Expressions of Interest (EOI) from interested parties for the construction and operation of a suitable port located at Port Bonython for the export of bulk minerals and commodities.

This EOI was a response by the State to the needs expressed by the South Australian resource and energy industry for the identification, construction and operation of a harbour for the export of bulk minerals and commodities. This harbour facility will assist in the export of bulk commodities from a variety of mines and other sources in the Upper Spencer Gulf region in a cost effective manner as well as possibly support further expansion of mining in the state. The Port Bonython BCEF represented the most suitable for the expansion of the mining and resources industry over the long term (SA Minister for Infrastructure, Patrick Conlon, media release, 2008).

Port Bonython was selected as a suitable location for the development of a deep water bulk commodities export facility due to its proximity to deep water, interstate rail, mineral resources and sufficient workforce.

In June of 2008, SGPL submitted its response to the EOI and in October 2008 was advised by the South Australian Government that it had been chosen to move to Phase two of the EOI process.

On 1 March 2012, the Minister for Planning made a declaration in the Government Gazette for the Port Bonython BCEF proposal to be assessed as a Major Development under the provisions of Section 46 of the *Development Act 1993*.

The assessment of the proposal and consideration of the potential implications of the Project resulted in a determination that it will be subject to the processes and procedures of an EIS.

1.4. Project Objectives

The State identified the following objectives for the Project:

- Facilitate the construction and operation of a suitable harbour at Port Bonython driven by user needs without cost to the State
- Ensure that the mining and resources industry is committed to and supports the Project
- Maximise returns from the resources sector to the South Australian economy through greater accessibility to markets at reduced costs
- Ensure fair access to facilities by third party users.

The primary objectives of SGPL for the Port Bonython BCEF are to:

- Construct and operate the BCEF in a manner that is environmentally and socially responsible
- Maximise the volume of iron ore exported
- Facilitate the development and expansion of users of the BCEF.

1.5. EIS Objectives

The objectives of this EIS are as follows:

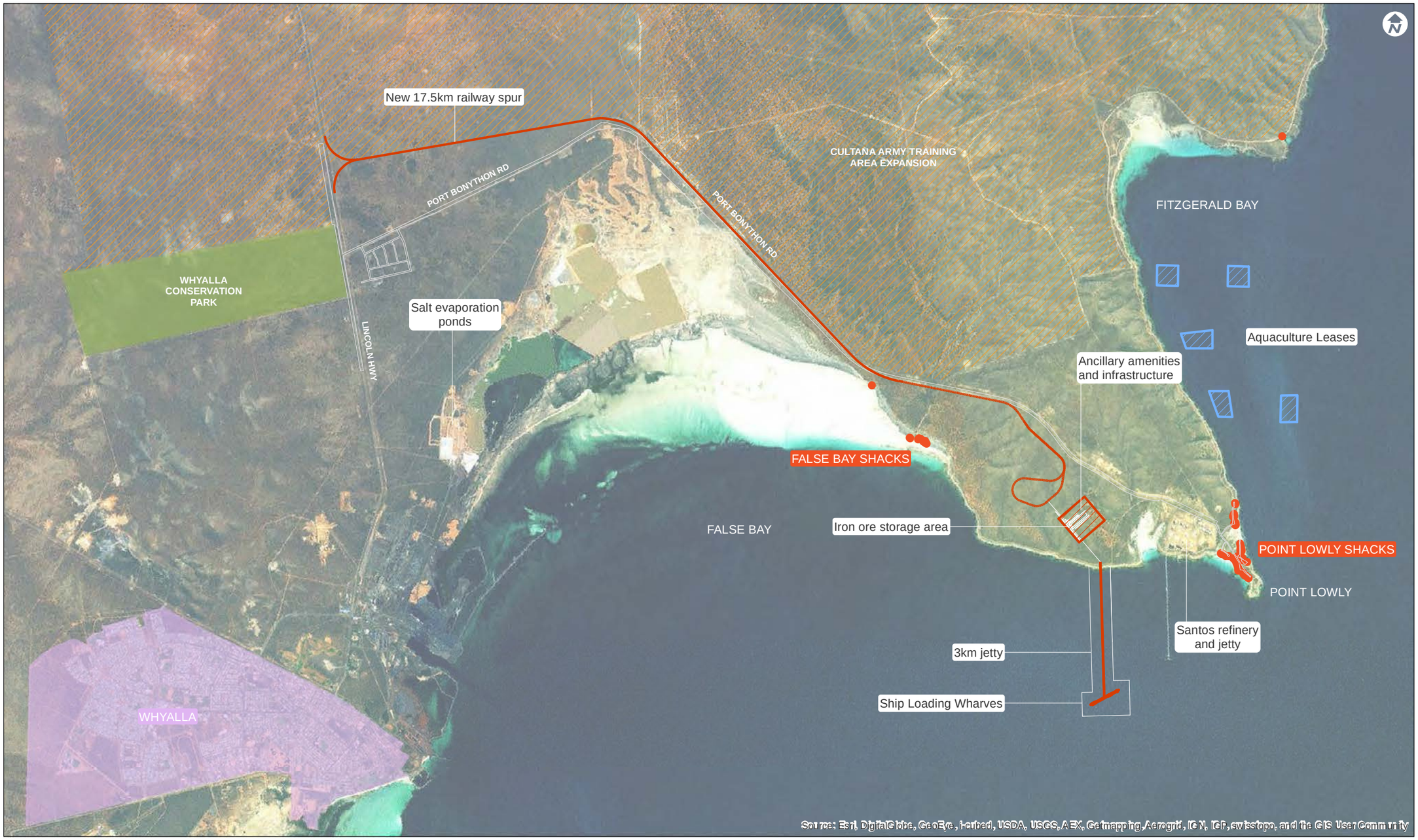
- To identify and assess potential direct and indirect environmental, social and economic impacts upon the surrounding physical and human environments during the construction and operational phase of the Project
- To recommend mitigation measures to avoid or minimise any significant impacts identified to acceptable levels
- To identify potential residual impacts and design an appropriate management and monitoring program for the construction and operational phases of the proposed development.

1.6. Project Overview

The Project covers the design, procurement, construction and commissioning of the common user port infrastructure, inbound transport links to enable port users to access the port, ore storage facilities, expanded rail and port capacity to increase iron ore export capacity up to 50 Mega Tonnes Per Annum (Mtpa) and the ownership and operation of the common user port infrastructure.

A concept plan has been prepared, and is illustrated in **Figure 1.6a**. Further detailed design shall be carried out, however it is not anticipated that the footprint of the Project will change significantly; this EIS is based upon the concept design. The layout has been optimised to minimise disturbance to identified areas of environmental and/or cultural significance.

Figure 1.6a: Project concept plan



Port Bonython EIS
Spencer Gulf Port Link

Figure 1.6a - Concept Plan

Legend

- Shacks
- Aquaculture Leases
- Cultana Army Training Area Expansion
- Whyalla
- Whyalla Conservation Park

ARUP

Spencer Gulf Port Link

1:75,000 (at A3)

0 1 2 4

Kilometers

Map Projection: Transverse Mercator
Horizontal Datum: Geographic Datum of Australia
Grid: Map Grid of Australia 1994, Zone 53

Figure 1.6a: Project concept plan

The Project includes:

- A new 17.5km railway spur from the existing Whyalla to Port Augusta rail line
- A 6.1km rail loop
- The train receiving and bottom dump facility
- Enclosed iron ore storage areas
- Ancillary amenities and infrastructure required to support the proposed iron ore receival, storage and export operations
- A nominal 3km jetty to 20m of water depth; constructed with a purpose built cantilever traveller off the water
- Two 250m ship loading wharves
- Two 4000 tonne/hour luffing ship loaders.

Material will be conveyed to the various ore handling components on fully enclosed conveyors.

The Project site has been deliberately located to avoid the need for dredging or blasting activity.

Once operational, Cape-size vessels capable of carrying up to 180,000 tonnes of iron ore (or occasionally smaller Panamax vessels capable of carrying up to 100,000 tonnes of iron ore) will transport the ore from the Spencer Gulf port to market.

1.6.1. Project Location

The Project is proposed to be located off Port Bonython Road, Port Bonython on the Eyre Peninsula, South Australia, as illustrated in **Figure 1.6a**. The Project site remains undeveloped, but has been impacted in the past by grazing, off-road vehicle use, weeds and feral animals (refer to **Chapter 7, Terrestrial Ecology** for further details).

The rail spur crosses a pastoral lease which contains native vegetation. The bulk handling and storage site is on Crown Land which consists of native vegetation with varying states of disturbance. It is bounded by the Point Bonython Road to the north and the existing Santos hydrocarbon Fractionation and Export Facility to the east. The jetty and wharf extend into Spencer Gulf parallel to the existing Santos jetty, between False Bay to the west and Point Lowly to the east.

The main land uses in the vicinity of the Project site are shown in **Figure 1.6a**, and include:

- Industrial development, namely the Santos Hydrocarbon Fractionation Plant Facility
- Existing Port Bonython Jetty owned by Government and utilised by Santos
- Pastoral leases
- The Cultana Army training Expansion Area (CEA) to the north
- Aquaculture farms are established in Fitzgerald Bay (currently not operational)
- Recreation, including aesthetic enjoyment, diving, boating, fishing, camping and some privately owned coastal homes.

For a detailed description of the physical environment of the Project and surrounding land uses, refer to **Chapter 2, Project Description**.

1.6.2. Project Timing

Construction of the Port Bonython BCEF is expected to take three years and, once environmental approvals are in place, may commence in 2015 with export operations possibly commencing in 2018, subject to financial close.

Initially, sufficient infrastructure will be provided to support a 25Mtpa export capacity, with only one ship loading wharf constructed. When market conditions are optimal, infrastructure to enable the full 50Mtpa export capacity will be constructed; this EIS addresses the full 50Mtpa scenario.

More detail is provided in **Chapter 2, Project Description**.

1.7. Need for the Proposal

An Economic Assessment of the proposal has been undertaken by Price Waterhouse Coopers (PwC), and is included in **Appendix D.1**. A summary of this analysis is provided below.

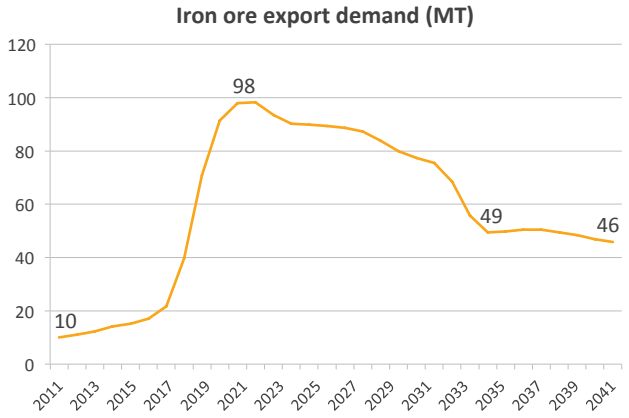
The SA Government has identified a need to construct an iron ore bulk export facility to enable SA to commercially export its existing iron ore resources. There is currently a lack of port and transport infrastructure, which if not constructed could potentially result in the loss of up to $24 billion in direct export revenue (PwC, 2013). The lack of capacity in bulk export facilities (refer to **Section 1.8** for further details) and inefficiencies in the mine to export supply chain are eroding productivity and preventing some mine development.

SA is emerging to become the second major iron ore producing state/territory in Australia, with an estimated 10MT of production in 2011 (two percent of Australia's overall production) (Geoscience Australia, 2013). The lack of infrastructure capacity limits the ability to expand production. As a result of SA's identified iron ore reserves (over five percent of Australia's reserves) potential SA iron ore export demand is forecast to increase to nearly 100MT by 2021, growing at more than 25 percent per annum or a total of approximately 1835MT over the next 30 years (refer to **Figure 1.7a**). The proposed BCEF provides the opportunity for these exports to be taken to market.

There are currently only two iron ore producers/exporters operating in SA (DMITRE, 2013):

- Arrium (formerly One Steel) – Middleback Ranges, Peculiar Knob and Iron Chieftan,
- IMX – Cairn Hill

Figure 1.7a: Potential SA iron ore export demand based on a probability weighted distribution of SA's identified iron ore reserves and resources: 2013 to 2042 (MT).



Note: Also includes expected demand from Hawson, which is located on the NSW/SA border. (PwC, 2012)

Figure 1.7b: Operating iron ore mines, development projects and occurrences in SA (DMITRE, 2013, in PwC, 2013 (Appendix D.1)).

In addition to these current producers, there are a number of iron ore resources currently in development or that could potentially be developed, as illustrated in **Figure 1.7b**.

The economic analysis (PwC, 2013) concluded that there will be future demand for SA iron ore from China and the rest of Asia (particularly India) and there are sufficient iron ore volumes to justify a Cape-size Facility at Port Bonython. Many SA deposits have relatively high logistics costs to market, but those costs are minimised by locating facilities at Port Bonython which has a number of financial advantages over other potential locations (Refer to **Section 1.8**).

In terms of economic benefit, the proposed BCEF could potentially result in:

- Additional SA Gross Regional Product (GRP) of $9.7 billion (Present Value (PV)) over 30 years of operation, largely driven by increased exports ($9.1 billion, PV), investment ($1.2 billion, PV) and household consumption ($1.1 billion, PV)
- Additional Australian GDP of $8.5 billion over 30 years of operation of the Project, largely driven by increased household consumption ($6.7 billion, PV), investment ($1.7 billion, PV) and exports ($1.3 billion, PV). Differences relative to the SA estimates reflect redistribution of resources such as labour and capital from other states/ territories in Australia.

The Project will also assist in addressing regional unemployment issues in Whyalla, which has been identified as a Priority Employment Area by the Australian Government. The Project is estimated to result in an additional 270 jobs (full time equivalent (FTE)) during construction and more the 40 direct jobs during operation of the port. These potential employment figures relate to the 25Mtpa option. Should the full 50Mtpa option be constructed further employment is anticipated. In addition to this, the stimulus provided by the capital expenditure, operating expenditure and export revenue associated with the Project could deliver up to 600 jobs (FTE) for the local economies in the region.

1.8. Project Alternatives

The proposed action is in direct response to the Government of South Australia, through DTEI (now DPTI) issuing an invitation in June 2008 for parties interested in the construction and operation of a port/harbour export facility at Port Bonython for the export of bulk minerals and commodities.

The purpose of this EIS is therefore not to explore alternative port locations as the location has already been chosen through the Expression of Interest Process; nevertheless a summary of various options is provided in order to demonstrate the appropriateness of the chosen location.

The options that have been explored are:

- The 'Do Nothing' option
- Use of existing ports including Port Lincoln, Darwin and Adelaide Ports
- Construction of a new port at an alternative location within Spencer Gulf.

This analysis is based on two major studies:

- *An assessment of alternative port locations commissioned by SGPL and undertaken by SKM in 2008*
- The locations examined included sites at and south of Whyalla, Douglas Crag, Backy, Black and Stony Points. In addition to different locations, the assessment at Stony Point considered a number of site options and configurations
- *An Economic Analysis of the proposed BCEF undertaken by PriceWaterhouseCoopers in 2013 on behalf of SGPL* (Refer to **Appendix D.1**)
- This report provides an economic analysis of the direct and indirect contribution of the Project to the regional, South Australian and Australian economies during both construction and operation. It explores the benefits of the Project in relation to other potential Project alternatives, including the use of existing ports (e.g. Darwin, Whyalla, Adelaide, Port Lincoln) or development of new ports (e.g. Lucky Bay, Cape Hardy).

When choosing a commercially and environmentally viable port location, a number of factors should be taken into consideration, including:

- A requirement to handle Cape-size vessels
- Elimination of the requirement for dredging, which substantially limits environmental impacts on water quality and the marine environment
- Minimum periods of closure potentially resultant from currents, tides, high wave events and or adverse weather
- Land availability, tenure and suitable zoning
- Proximity to existing major transportation, particularly open access rail
- Proximity to existing services e.g. employment sources, electricity, water and sewer
- Proximity to iron ore mines
- Integration with surrounding communities and recreational areas
- Capital and operating costs.

The importance of a number of these factors is highlighted in **Sections 1.8.1** and **1.8.2**.

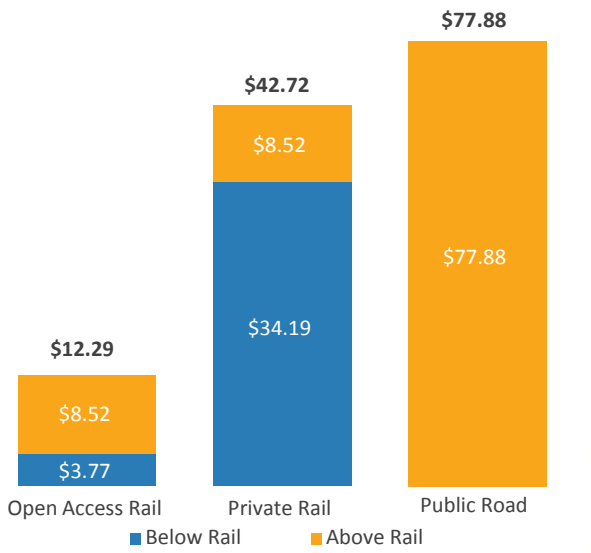
1.8.1. Proximity to Rail

Operating costs and hence commercial viability of iron ore operations are affected by the mode of transport: Open access rail, private rail or public road. Port Bonython is close to existing open access rail, which offers significant logistics cost advantages relative to transport by private rail or road assuming all other things equal. The rail network between Alice Springs, Kalgoorlie and Broken Hill is owned and operated by ARTC on an open access basis.

The Port Bonython Structural Feasibility Analysis (PwC, 2012, summarised in PwC, 2013) identified that mine operating costs to transport iron ore to port are influenced by the mode of transport, which includes open access rail, private rail or road. Assuming a 'typical' SA miner transports 5.3 Mega Tonnes (Mt) over 650km, it was estimated that total logistics costs are $12/tonne ($2012) for open access rail relative to $43/tonne for private rail and $78/tonne for a public road, as shown in **Figure 1.8a**.

The key cost differentiator for rail transport is below rail capital costs (cost of provision of rail infrastructure to operators), estimated to be $4/tonne for open access rail and $34/tonne for private rail. This reflects the fact that fixed costs can be shared more readily under an open access framework than for a dedicated private railway. For example, below rail charges may be regulated by the ARTC (Mainsheet (now PwC, 2009).

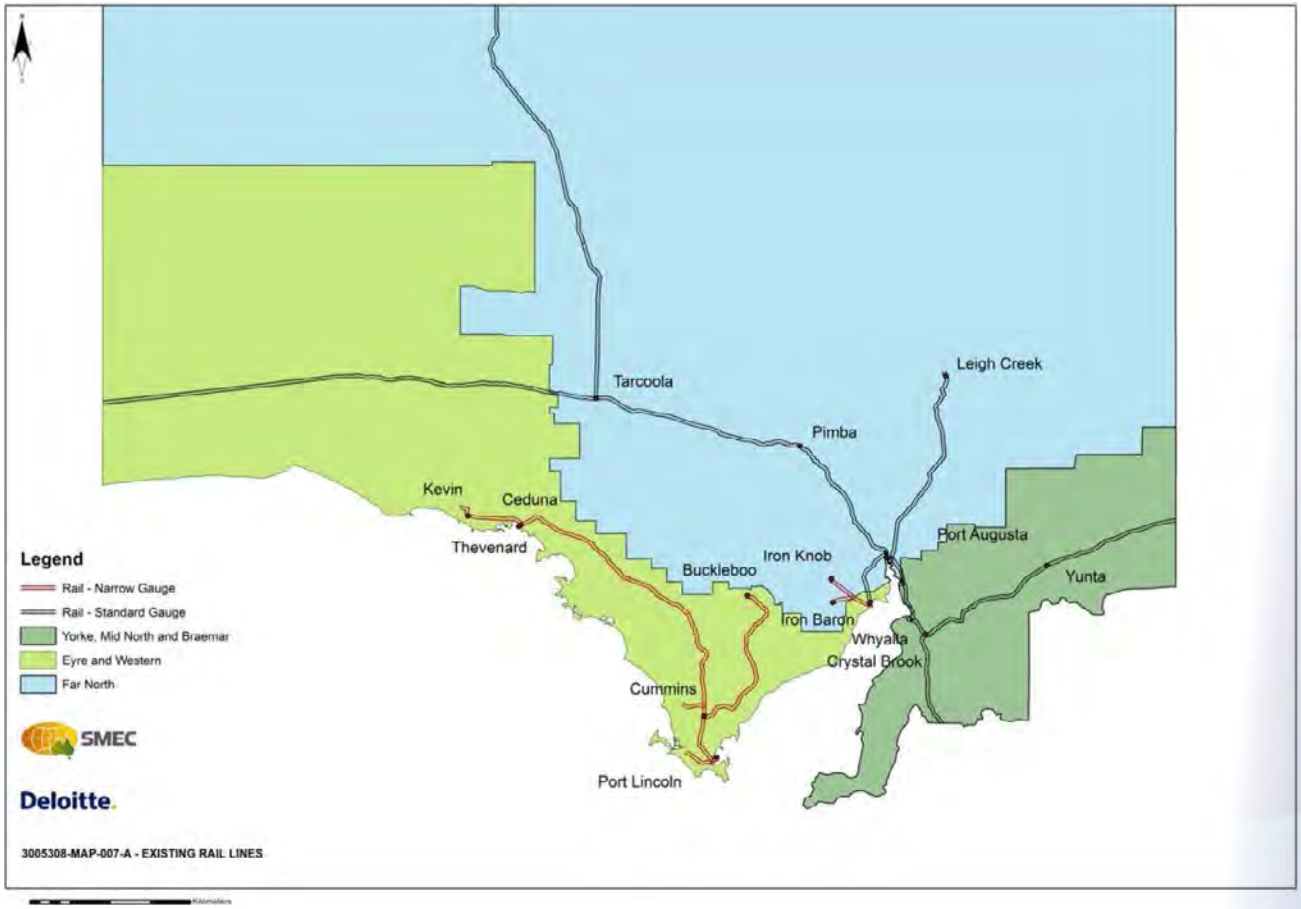
Figure 1.8a: Comparison of transport costs for open access rail, private rail and public road ($2012/tonne)



Note: Iron ore production for a 'typical' SA miner assumed to be 5.3 Mtpa and mine to port transport distance assumed to be 650km (sourced from PwC, 2013 in Appendix D.1).

The existing SA rail freight network is presented in **Figure 1.8b**. The proposed location of the BCEF is in close proximity to the Port Augusta/Whyalla line, minimising travel distance and transportation costs from the northern SA iron ore mines.

Figure 1.8b: Existing Rail Lines in South Australia (Deloitte, 2012 in PwC, 2013)



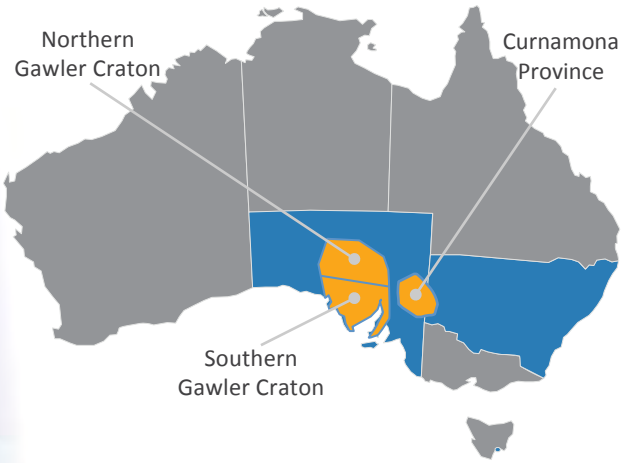
1.8.2. Proximity to Iron Ore Reserves and Resources

Current and future challenges in the SA iron ore logistics chain are identified in the SA Regional Mining and Infrastructure Plans (Deloitte, 2013 in PwC, 2013). These include:

- Eyre and western Region – Eyre Peninsula mines (located in South Gawler, Central Eyre Peninsula and southern Eyre Peninsula) have no commercially viable access to markets for their product
- Far north Region - The demands for future projects in the South Gawler and Mt Woods mine clusters are unlikely to be met through existing approaches and infrastructure
- Yorke and mid-north/Braemar Region – Braemar cluster mines have no commercially viable access to markets for their product.

The geological provinces identified above relate to all potential commodities. SA iron ore deposits (reserves and resources) are concentrated in the Southern Gawler Craton, Northern Gawler Craton and Curnamona Province (**Figure 1.8c**). Northern Gawler Craton mines are often referred to as the 'Mt Woods cluster', while mines in the Curnamona Province are often referred to as the 'Braemar cluster'.

Figure 1.8c: Location of SA iron ore deposits. (PwC, 2013) (Appendix D.1)



Operating costs are impacted by the distance from port to mine. The location of a port relative to iron ore deposits impact transport distances and are therefore a key driver of operating costs. The increased distances to Adelaide (SA) or Darwin (NT) significantly increases the total logistics costs at these ports. Locating the BCEF geographically close to existing and potential mines reduces environmental and other externality costs which increase with travel distance. Reducing logistics costs for marginal mines may make exports commercially more viable (PCW, 2012).

The central location of Port Bonython means that it is accessible across all regions (i.e. Eyre and western, Far north, and Yorke and mid-north/Braemar Regions). In other words, the proposed solution addresses the lack of a suitable bulk export facility and lack of mine to port bulk transport links across all SA regions. No other potential option identified addresses problems across all regions.

Figure 1.8d identifies the deposit owners for SA iron ore reserves and resources.

1.8.3. Capital Costs

PwC (refer to **Appendix D.1**) have undertaken a comparison of capital costs for a number of port options (which includes upgrades to existing ports). The estimated capital cost, including replacement capital over 30 years, is estimated to be $663 million for the BCEF which is similar to the proposed Port Spencer ($500m-$750m), Darwin (up to $700m) and lower than Port Lincoln ($1.3 billion). It should be noted that the capital cost of the BCEF does not include the cost of any potential rail upgrades beyond the Whyalla Rail Spur. ARTC have provided advice that the existing main rail line has sufficient capacity at present. This advice is attached in **Appendix H.5**.

1.8.4. Capacity

The proposed solution at Port Bonython offers the highest capacity of any of the potential common-user options, followed by Port Pirie (20Mtpa), Port Spencer (5-10Mtpa), Port Lincoln (up to 15Mtpa) and Darwin (2-10Mtpa) (PwC, 2013).

1.8.5. Vessel Size and Efficiency

A deep-water port capable of handling Cape-size vessels is more efficient than transhipment using barges, which results in higher logistics costs as a result of delays and longer loading times due to double-handling of ore. Port Bonython, Port Spencer and Darwin are deep water ports capable of handling Cape-size vessels. Port Lincoln, Whyalla and Port Pirie require transhipment.

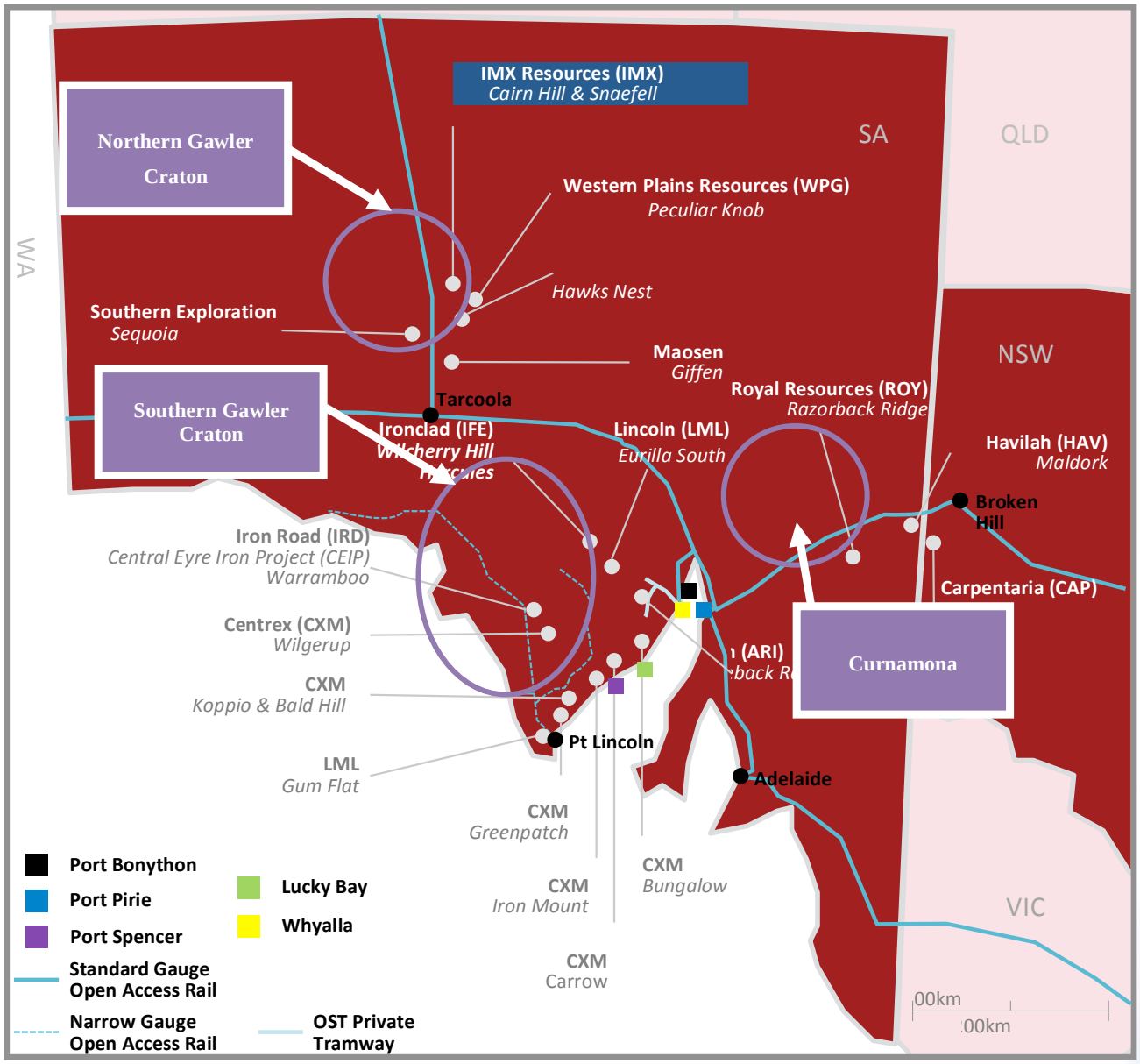
1.8.6. The 'Do Nothing' Option

This option explores the evolution of the site in the absence of specific proposals, which can be described as the 'Do Nothing' alternative.

The principal points to consider under this scenario include the following factors:

- There is not sufficient capacity at existing ports to accommodate the forecast iron ore export requirements in the long term (Refer to **Section 1.8.7**)
- If the site were to remain undeveloped, $24 billion in direct export revenue and up to 600 full time employment positions will be lost to the region and state

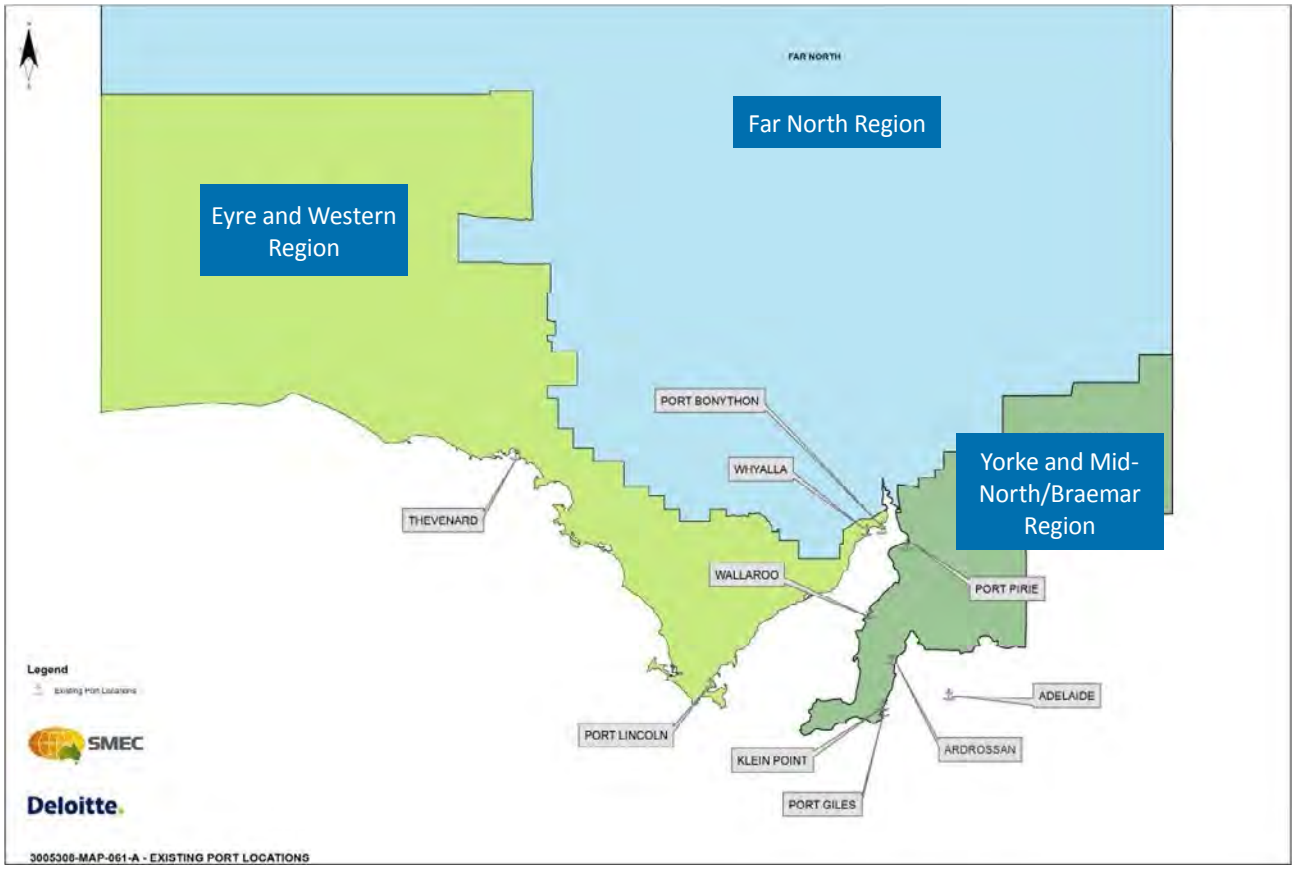
Figure 1.8d: Location of identified SA iron ore resources. (PwC, 2013) (Appendix D.1)



- Much of the Port Bonython Peninsula is zoned for the development of 'Special Industry', including the Project site and the adjacent Santos facility. Should the BCEF Project not proceed, it is likely that an alternative industrial proposal would be put forward for development of the site
- The terrestrial component of the BCEF is currently poorly managed, and the ecological condition of the site has been impacted by past and current disturbances including grazing and unauthorised vehicle access. Should the land be left undeveloped a further deterioration in its environmental value is likely. The proposed BCEF will retain existing vegetation (through rehabilitation of areas disturbed during construction) and perform ongoing active management (e.g. weed and pest maintenance) which is likely to improve the environmental value of undisturbed areas
- The existing site allows public access for both active and passive recreation purposes on the coast and marine areas; this access will be maintained with the exception of the storage areas, rail loop and a 50m exclusion zone around the jetty.

The development of the proposed BCEF is required to provide the increased capacity to service the projected increase in iron ore exports and contribute to the prosperity of the region and South Australia. The 'Do Nothing' option is therefore seen as untenable.

Figure 1.8e: Existing SA ports by region defined in SA regional mining and infrastructure plans (Deloitte, 2012)



1.8.7. Use of Existing Ports

Existing Spencer Gulf ports are located at Port Bonython (Santos oil and gas export terminal), Whyalla (Arrium), Port Lincoln, Port Pirie, Wallaroo and Adelaide, as shown in **Figure 1.8e**. Iron ore exports from South Australia currently occur from Port Whyalla, Port Adelaide and (occasionally) Port of Darwin. Currently, other ports are primarily being used for other bulk commodities than iron ore, including grain, limestone, dolomite, mineral sands, fertilizer, zinc, lead, coal, gypsum, copper, mineral sands, naphtha, crude oil, propane and butane.

Port Pirie, on the east coast of the Spencer Gulf is limited by the size of vessels it can accommodate, requiring transhipment from barges to Cape-size vessels, adding costs and delays to the logistics supply chain. Whyalla, on the western side of the Spencer Gulf also requires transhipment and is in private ownership, while export through Port Adelaide and Darwin require the use of specialised rail containers, resulting in higher operating costs (Geosciences Australia, 2013). Capacity to handle additional exports is also very limited at Port Adelaide and Darwin (SKM, 2008). Port Lincoln, on the western side of the Eyre Peninsula, is able to load large vessels (although not Cape-size), but there are landside infrastructure limitations (Deloitte, 2012).

Adelaide, Port Lincoln and Darwin are also a substantial distance from the majority of iron ore deposits (Refer to **Section 1.8.2**).

Based on distance to iron ore deposits, capacity and port ownership, current operating ports are not considered viable locations for a bulk export facility of up to 50Mtpa.

1.8.8. Alternative Spencer Gulf Location

A number of alternative new port locations have also been proposed either by mining companies or the public in addition to those explored by SKM in 2008. These include Port Nonowie (south of Whyalla), Point Lowly, Lucky Bay, Port Spencer, Myponie Point and a number of sites to its north.

Stony Point at Port Bonython was chosen as the best option due the following reasons:

- Existing operating deep water port
- Ability to access deep water without the need for dredging
- Its close proximity to rail, iron ore deposits and other services which benefit the financial viability of exporting iron ore to overseas markets
- Availability of land in public ownership and appropriately zoned
- Limited and manageable impact on surrounding communities in terms of amenity and recreational uses.

1.8.9. Summary of Alternative Options

A summary of the various alternative port options is provided in **Table 1.8a.**

Table 1.8a: Summary of the alternative port options (Deloitte, 2013 & SKM, 2008)

Port Location	Description	Potential Capacity	Advantages	Disadvantages
Existing Ports				
Proposed BCEF at Port Bonython	Nominal 3km jetty, 17.5km rail spur and storage facilities at Stony Point at Port Bonython.	50Mtpa	» Central location with close access to northern mines » Proximity to open access rail » Significant local employment impacts in a 'Priority Employment Area' » Government-owned land » Aligns with current land use planning	» May be additional transport distances for mines in the Eyre and western Region and Curnamona Geological Province (potentially offset by lower operating costs associated with open access rail) » Proximity to Giant Australian Cuttlefish Breeding Aggregation
Whyalla (Arrium)	Existing facility at the Arrium Steeelworks in Whyalla. Recently upgraded to potential capacity of 13MTPA	13Mtpa	» Proximity to open access rail » Proximity to employment and services	» A privately-owned facility » Capacity constrained » Inability to handle Cape-sized vessels, requiring transhipment using barges, resulting in inefficiencies
Port Pirie	Existing port at Port Pirie	20Mtpa	» Proximity to open rail » Freight rail network has some capacity to carry additional mining product » Relatively low capital cost to upgrade to requirements	» Inability to handle Cape-size vessels, requiring transhipment using barges, resulting in inefficiencies » Proximity to township » Land side constraints
Port Lincoln	Current deep water port on the southern tip of the Eyre Peninsula that mostly exports grain.	Up to 15Mtpa	» Port Lincoln Port has natural deep water (although not deep enough for fully loaded Cape-size vessels) » Existing rail corridor links to Port Lincoln simplify the establishment of rail connections from the Eyre and western Region	» Inability to handle fully laden Cape-size vessels » Not located near a 'Priority Employment Area'.
Darwin	Major NT port that serves markets for livestock exports, dry bulk goods, petroleum, general cargo, cruise and naval vessels	2-10Mtpa	» Existing rail corridor simplifies achievement of additional capacity » Closer to market (i.e. china/india)	» Long distance to Darwin results in high rail logistics cost » Limitations on Darwin Port capacity – limited storage capacity – multi use facility – capital cost for any material increase in volumes.

Port Location	Description	Potential Capacity	Advantages	Disadvantages
Potential New Ports				
Nonowie Port	Proposed facility in the northern Yorke Peninsula. There is no current development plans or developer for this location	Unknown	» Access to land (subject to ownership) » Access to deep water » Located away from community / cultural areas (subject to confirmation)	» High capital cost » Land is currently within private ownership » Will require significant new rail with construction restrictions around Whyalla » Incompatible with current planning » May require transhipment depending on final solution » Likely to require an extremely long jetty to achieve depth requirements » No infrastructure or services available
Port Spencer (formally Sheep Hill)	Proposed deep water port without rail access	5-20Mtpa	» Port is well positioned for mines in the Eyre and western Region » Short wharf lengths to deep water for Cape-size ships (0.5km to 1.6km) lowers capital costs » Local employment benefits during construction and operation of the port	» Road transport costs are higher than open access rail » Managing impacts of significant road freight task including traffic and environmental impacts (i.e. noise, air quality). » No rail access to northern mine areas » Private facility » Not a dedicated iron ore facility, co-existence with grain
Myponie Point	A potential port location between Wallaroo and Tickera (south of Port Pirie)	Unknown	» Sufficient draft to accommodate Cape-size vessels	» No detailed feasibility studies have been undertaken » Nearest heavy rail is 70km away
Lucky Bay	A small potential port on the western side of Spencer Gulf. Ironclad are proposing to upgrade facilities	10-12Mtpa	» close to Ironclad mine of Wilcherry Hill	» transport to port via road train » depth restrictions mean transhipment by barge required to deliver ore to export vessels » private ownership » Inefficient loading operation
Cape Hardy	A potential port proposed by IronRoad at Point Hardy, on the western side of the Spencer Gulf	30Mtpa	» deep water port	» Minimal feasibility studies undertaken at this point

1.9. Environmental Impact Process and Policy Framework

1.9.1. EIS Approval Process

A Major Development declaration by the Minister triggers a comprehensive environmental impact assessment process, which involves one of three possible levels of assessment. From least to most complex, these comprise: Development Report (DR), Public Environmental Report (PER), and Environmental Impact Statement (EIS). The major development assessment process provides an opportunity for formal public consultation to occur prior to a decision being made by the Governor. The proponent is required to respond to any comments received through the provision of a Supplementary EIS. The process does not allow for third party appeals once a decision has been made.

The proposal may be approved, approved with conditions attached, approved in part or rejected. Some matters of detail may be reserved for a later decision (a secondary consent). There are no appeal rights for the proponent against the Governor's decision. **Figure 1.9a** illustrates the EIS approval process.

An EIS was considered an appropriate form of assessment by DAC due to the following concerns:

- Potential impact on the marine environment
- The level of conformity with existing Development Plan provisions within the Development Plan
- The establishment of a large shipping terminal in a rural coastal location
- Traffic generation and implications for the existing road network
- Location within the Upper Spencer Gulf Marine Park
- Potential economic benefits to the region or strategic provision of port facilities
- Visual and community impacts (especially recreational and tourism use of the area)
- Climate change
- Greenhouse gas emissions
- Construction impacts (including noise, dust, odour and vibration)
- Infrastructure requirements.

The EIS Development Assessment Guidelines (DAG) was issued by the DAC in August 2012, and are available for public viewing on DAC's website. A cross-reference matrix identifying each of the DAG's requirements and where they are addressed in the EIS is contained in **Appendix B**.

1.9.2. EPBC Significant Impact Referral Process

Along with the EIS, the Project was referred to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) under the provisions of the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* on 4 April 2012.

Figure 1.9a: EIS approval process

In May 2012, SEWPaC determined that the Project was a 'controlled action' under Section 75 and Section 87 of the *EPBC Act* and that the Project will be assessed by preliminary documentation. The relevant controlling actions are:

- Listed threatened species and communities
- Listed migratory species
- Commonwealth marine areas.

Specifically, further information was requested on the following matters:

- Impacts to Southern Right Whales (*Eubaleana Australis*)
- Impacts to Slender-billed Thornbill (*Acanthiza iredalei iredalei)*.

A Preliminary Documentation Report was prepared and submitted to SEWPaC and was made available for comment on Monday the 1st July, 2013. The document is available on SGPL website at www.spencergulfportlink.com.au.

1.9.3. Key Policies and Legislation Requirements

Beyond meeting any EIS conditions of approval, the Project will be required to adhere to other relevant Federal, State and Local legislation and policy. For further detail, refer to **Chapter 3, Legislation and Planning.**

1.10. EIS Methodology

1.10.1. Study Area

This EIS relates to (a) the immediate footprint of the Project, including the jetty, rail, storage facilities and piloted shipping channels, as illustrated in **Figure 1.5b** and (b) a broader area beyond the immediate development footprint.

This broader area encompasses:

- The township of Whyalla in regard to consideration of socio-economic aspects of the Project
- Smaller residential communities at Point Lowly, False Bay and Fitzgerald Bay who may experience impacts related to changes in air emissions, noise emissions, visual amenity, traffic or other community related issues
- Surrounding land uses (e.g. Santos refinery, Cultana Army Base) which may experience impacts similar to those described above
- The marine environment of Spencer Gulf.

The Study Area may vary dependent on the technical investigation being undertaken. For example, the social impact assessment (Refer to **Chapter 12, Socio-Economic Assessment**) covers a broad area due to regional considerations. The noise assessment (Refer to **Chapter 5, Noise and Vibration**), has a smaller study area as the effects of noise occur on a smaller scale i.e. surrounding residential areas.

The study area for each technical discipline is defined in the methodology section of the relevant Chapter.

1.10.2. Structure of the EIS

The EIS requires the identification and assessment of environmental impacts across a range of environmental and socio-economic disciplines. In order to provide consistency, the following approach to assessing impacts has been used, and is illustrated in **Figure 1.10a**.

1.10.2.1. Technical Assessments

Each technical assessment (**Chapters 4** to **17**) contains the following:

- Description of relevant legislation and policy
- Description of the methodology used to undertake the technical assessment
- Description of the existing conditions that may be impacted by the Project
- Description of the potential adverse and beneficial impacts of the Project on the existing conditions, taking into account any inherent design features
- Discussion of viable strategies for managing, mitigating or enhancing identified impacts
- Description of any residual impact once mitigation measures have been applied.

1.10.2.2. Approach to Assessing Impact Significance

The EIS adopts a risk-based approach to assessing the significance of identified impacts, which considers the geographical extent, duration of the impact, sensitivity of the receiving environment to the impact and the likelihood of it occurring.

To assist in defining impact significance, each technical assessment has utilised the assessment tables below to enable a consistent approach across Chapters to defining impacts and the risk level for comparative purposes. At the end of each technical Chapter, a summary table of impacts and mitigation measures is included.

Each technical assessment has utilised the significance table as shown in **Table 1.10a**.

Figure 1.10a: EIS Methodology

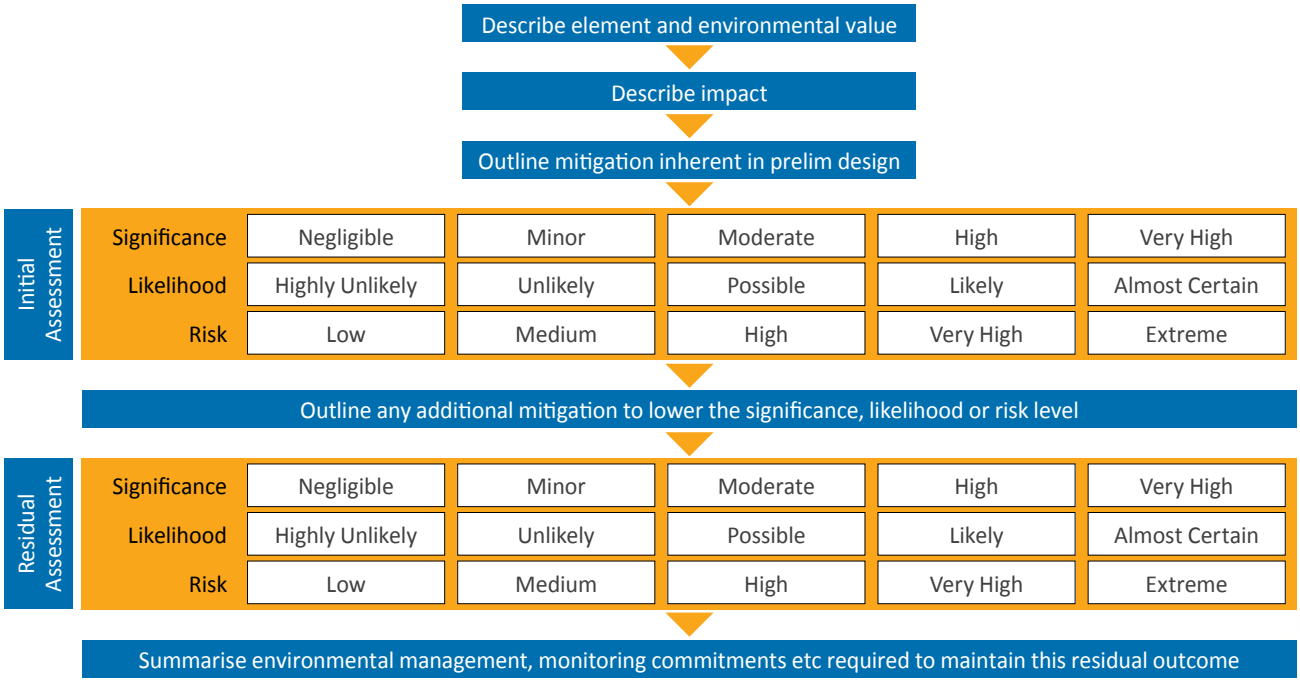


Table 1.10a: Significance Criteria

Impact Significance/ Consequence	Description of significance
Very High	The impact is considered critical to the decision-making process. Impacts tend to be permanent or irreversible or otherwise long term and can occur over large scale areas. Very high sensitivity of environmental receptors to impact (e.g. national significance – i.e. loss or removal of a population of an EPBC listing status).
High	The impact is considered likely to be important to decision-making. Impacts tend to be permanent or irreversible or otherwise long to medium term. Impacts can occur over large or medium scale areas. High to moderate sensitivity of environmental receptors to impact (e.g. fragmentation or partial loss of populations of EPBC listed threatened flora)
Moderate	The effects of the impact are relevant to decision-making including the development of environmental mitigation measures Impacts can range from long term to short term in duration Impacts can occur over medium scale areas or otherwise represents a significant impact at the local scale Moderate sensitivity of environmental receptors to impact (e.g. removal or significant reduction in the extent of suitable habitat assessed as 'high suitability' for EPBC listed threatened flora across the site).
Minor	Impacts are recognisable/detectable but acceptable. These impacts are unlikely to be of importance in the decision making process. Nevertheless, they are relevant in the consideration of standard mitigation measures. Impacts tend to be short term or temporary and/or occur at local scale. (e.g. a reduction in the extent of suitable habitat assessed as 'high suitability' for EPBC listed threatened flora across the site, however replacement habitat will be provided.)
Negligible	Minimal change to the existing situation. This could include for example impacts which are beneath levels of detection, impacts that are within the normal bounds of variation or impacts that are within the margin of forecasting error.
Positive	Impacts have a positive outcome on the existing situation. This could include for example, an improvement in vegetation management or an improvement in air quality as a result of the Project.

Table 1.10b outlines the general approach to classifying the duration of identified impacts.

Table 1.10b: Classifications of the duration of identified impacts

Relative Duration of Impacts	
Temporary	Days to Months
Short Term	Up to one year
Medium Term	From one to five Years
Long Term	From five to 50 Years
Permanent / Irreversible	In Excess of 50 Years

Table 1.10c outlines how the likelihood of an impact occurring has been assessed.

Table 1.10c: Likelihood of Impact

Likelihood of Impacts	Risk Probability Categories
Highly Unlikely	Highly unlikely to occur but theoretically possible
Unlikely	May occur during construction of the Project but probability well below 50%; unlikely, but not negligible
Possible	Less likely than not but still appreciable; probability of about 50%
Likely	Likely to occur during construction or during a 12 month timeframe; probability greater than 50%
Almost Certain	Very likely to occur as a result of the proposed Project construction and/or operations; could occur multiple times during relevant impacting period

A risk rating has been generated for the key impacts to environmental values and is summarised at the end of each technical Chapter. This has been done by assessing significance versus likelihood within a risk matrix with up to five levels of risk (negligible, low, medium, high or very high) possible. In developing a risk rating for impacts, the matrix in **Table 1.10d** has been used.

Table 1.10d: Risk matrix

	Impact Risk Rating				
Likelihood	Negligible	Moderate	Minor	High	Very High
Highly unlikely	Low	Low	Low	Medium	Medium
Unlikely	Low	Low	Medium	Medium	High
Possible	Low	Medium	Medium	High	High
Likely	Medium	Medium	High	High	Very High
Almost certain	Medium	High	High	Very High	Extreme

1.10.2.3. Cumulative Assessment

The EIS Guidelines requires that the EIS investigates cumulative impacts associated with the proposed development both on and around the site, including water quality and the Giant Australian Cuttlefish aggregation area and offshore marine habitats when considered in conjunction with:

- The current Santos liquids fractionation plant at Port Bonython
- The existing Port Bonython jetty and associated shipping facility
- The approved Port Bonython diesel fuels storage facility
- Expansion or addition to the Whyalla port facility
- The approved BHP Billiton (BHPB) desalination plant and return water discharge into the marine environment off Point Lowly.

Detailed information is not publically available on the Port Bonython diesel fuels storage facility or the Whyalla port facility (Arrium). A request for information was made to DPTI; however the documentation was not released. Information on the current Santos facility is also limited to an Environmental Impact Assessment undertaken in 1981. For this reason, cumulative impacts can only be addressed at a high level.

For further information on cumulative impacts, refer to **Chapter 18, Cumulative Impacts**.

1.10.2.4. Environmental Management Plan

Chapter 19 provides an **Environmental Management Plan** addressing both construction and operational controls that will be applied. It summarises Project objectives, proposed mitigation measures, roles and responsibilities as well as monitoring to be undertaken.

1.11. Submissions

Written submissions on the EIS may be made to the Minister for Planning during the submission period which will be advertised advising of details and timing. The EIS can be viewed at the following locations during the submission period:

- Online at spencergulfportlink.com.au and www.sa.gov.au
- On CD – available for $10 (ex GST) by contacting DPTI
- In hard copy at the following locations:
  - Department of Planning, Transport and Infrastructure (DPTI) – Level 5, 136 North Terrace, Adelaide
  - South Australian State Library – Kintore Avenue, Adelaide
  - Whyalla City Council – Civic Building, Darling Terrace, Whyalla
  - Whyalla Library – Elkhorn Street, Whyalla
- Hard copies of the printed EIS are also available for purchase for $300 (ex GST) by contacting DPTI.

A properly made submission must:

- Be made to the Minister for Planning in writing
- Be received on or before the last day of the submission period
- Be signed by each person who made the submission
- Provide the name and address of each person who has made the submission.

Submissions must be addressed to the Minster for Planning at:

Att: Mr Robert Kleeman
General Manager Assessment Branch
Department of Planning, Transport and Infrastructure
Level 5, 136 North Tce
ADELAIDE SA 5000

Submissions received during the submission period will be collated by the South Australian Government and where additional information is required to address the submissions, response required will be issued by SGPL, which will be addressed in a Supplementary EIS.