



Soybean Processing and Biodiesel Production Facility

Preliminary Environmental Assessment

National Biodiesel Pty Ltd

1 May 2008

Soybean Processing and Biodiesel Production Facility

Prepared for

National Biodiesel Pty Ltd

Prepared by

Maunsell Australia Pty Ltd

Level 11, 44 Market Street, Sydney NSW 2000, PO Box Q410, QVB Post Office NSW 1230, Australia
T +61 2 8295 3600 F +61 2 9262 5060 www.maunsell.com

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Prepared by Rebecca Fisher

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Executive Summary

Introduction

National Biodiesel Pty Ltd (NB) seeks project approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for establishing a Soybean Processing and Biodiesel Production Facility in the inner harbour of Port Kembla.

Need for development

NB are proposing to construct and operate a Soybean Processing and Biodiesel Production Facility that will produce biodiesel, soybean meal and glycerine (by-product) within the existing heavy industrial precinct at Port Kembla. NB are proposing to utilise land that has been made available by GrainCorp, NSW Maritime and Port Kembla Port Corporation for the purpose of producing, storing and distributing these production outputs.

NB is a privately owned Australian company focused on the sustainable production of soybean meal and the alternative fuel source, soy-biodiesel. The holding company, National Biofuels Group Pty Ltd, are currently involved in the construction and future operation of a Soybean Processing and Biodiesel Production Facility in South Africa, importation of soy-biodiesel into Australia and are also actively involved in renewable energy research and development with a view to developing and commercialising future biofuel technology. National Biofuels Group Pty Ltd incorporates Rainbow Nation Renewable Fuels Ltd (South Africa), Algae Energy Pty Ltd (Renewable Energy Research and Development) and the National Biofuels Group Trading Operations.

At present, availability of biodiesel within Australia is limited due to the small number of active operators. This has been exacerbated by the closure of and/or suspension of production at some of the country's largest biodiesel manufacturers due to problems relating to reliable feedstock supply such as animal tallow, used cooking oil and palm oil. Tallow and used cooking oil are available in limited quantities and palm oil has attracted environmental concerns. In addition to the limited supply of biodiesel in Australia, there is also a lack of locally produced soybean meal, which generates the demand for its importation. The establishment of this Soybean Processing and Biodiesel Production Facility will result in the supply of fresh soybean meal for the domestic market and subsequently reduce the need for importation. In addition the soybean crushing capability will afford the opportunity to foster and develop a strong local soybean growing economy. This facility will thus help Australia increase its food and energy security.

The location of the site, and the infancy of this technology in Australia, will allow the facility to become a significant regional asset that will provide employment opportunities, both direct (235) and indirect (725). This is consistent with the aims of the Illawarra Regional Strategy which identifies Port Kembla as a key employment precinct. The facility will also generate demand for approximately one million tonne of locally produced oilseeds, which will contribute to rural economic growth in the domestic market. The operations will supply in the order of 800,000 tonne of domestically produced soybean meal that would otherwise be imported and will also supply approximately 288 million litres of biodiesel to the domestic market.

Port Kembla Port Corporation's growth strategy encourages diversification and increase of the existing trade base in order to secure the Port's future viability. This has been demonstrated by the undertakings of Port Kembla Port Corporation (PKPC) and Australian Amalgamated Terminals (AAT) to expand the Cargo Handling facility and the commissioning of a Master Plan for the Outer Harbour. It has been forecast that the proposed Soybean Processing and Biodiesel Production Facility will increase trade through PK in excess of US \$700 million per annum in revenue alone.

Upgrade works will be carried out on Berth 104 and on a number of the silos which are located on the GrainCorp site to facilitate this project. The facility will take advantage of all modes of transport

available at the site to conduct business (sea, road and rail). Accordingly a number of infrastructure upgrades, site improvements and enhanced utilisation of the Port's land will be realized due to this proposal.

A number of advantages present themselves through a dual port and heavy industry location, such as access to transport infrastructure (road, rail and sea), compatibility with surrounding land use and sufficient distance from sensitive land users. On-site production of biodiesel affords the opportunity to supply a greener fuel to surrounding port users. The establishment of a state-of-the-art Soybean Processing and Biodiesel Production Facility will assist in meeting any future greenhouse gas abatement targets.

Soybean Processing and Biodiesel Production Facility Concept Design Layout

The proposed Soybean Processing and Biodiesel Production Facility concept, at this preliminary stage, is an indicative layout utilising the allotment that have been made available to the proponents by GrainCorp, NSW Maritime and Port Kembla Port Corporation. The development will maximise use of currently underutilised land.

This document is a Preliminary Environmental Assessment prepared in accordance with the provisions of the *Environmental Planning and Assessment Act 1979* and has been prepared on behalf of National Biodiesel Pty Ltd (the proponent). The purpose of the PEA is to describe the key elements of the proposed Soybean Processing and Biodiesel Production Facility for which project approval is being sought, with the view to:

- seeking formal requirements from government agencies to establish the parameters for the detailed Environmental Assessment (EA) in order to gain project approval
- providing a conceptual design and layout to the community.

The concept will be further developed as part of on-going design development and as part of the detailed EA.

Environmental Assessment (EA)

Stakeholder consultation has been undertaken with PKPC, GrainCorp, NSW Maritime, NSW Department of Planning, fellow port users and representatives from Australia's automobile industry. Limited public consultation has been undertaken to date due to the commercial-in-confidence classification of the project. Broader consultation will be undertaken during the preparation of the detailed EA with stakeholders and the general public.

The key stakeholders that have been identified to date include the Department of Planning, the Department of Environment and Climate Change, neighbouring land users within Port Kembla (including the automobile industry), Port Kembla Port Corporation, GrainCorp, Wollongong Council, NSW Maritime and the Department of Water, Environment, Heritage and the Arts. It is envisaged that comprehensive consultation with these stakeholders will commence during the Planning Focus Meeting.

The key issues that have been identified and will be addressed as part of the detailed EA include:

- Key Issues
 - air quality and odour
 - energy and sustainability
 - hazards and risks
 - traffic and transport

- Issues of Moderate Significance
 - ecological and water quality impacts
 - noise emissions
 - social impact
 - waste management
 - landscape and visual impact.

It is proposed that these issues be addressed as part of the detailed EA in accordance with Part 3A of the *Environmental Planning and Assessment Act 1979*. NB will prepare a statement of commitments to describe how these issues will be managed through design, construction and operation of the Soybean Processing and Biodiesel Production Facility.

1.0 Introduction

1.1 Report Purpose

National Biodiesel Pty Ltd (NB) seeks project approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for establishing a Soybean Processing and Biodiesel Production Facility (facility) in the inner harbour of Port Kembla. Maunsell Australia Pty Ltd (Maunsell) has been engaged to prepare this Preliminary Environmental Assessment (PEA) on behalf of NB and it has been prepared in accordance with the provisions of the EP&A Act 1979.

The purpose of the PEA is to describe the key elements of the proposed facility for which project approval is being sought, with the view to:

- seeking formal requirements from government agencies to establish the parameters for the detailed Environmental Assessment (to be prepared as part of the application for Project Approval) and further design development
- providing conceptual design and layout to the community for feedback to inform the design refinement and impact assessment process.

This document provides a preliminary assessment of the key issues associated with the proposed development and recommends methodologies for detailed impact assessment. The proposed development concept described in this report will be refined as part of the detailed environmental impact assessment following issue of the Director-General's Requirements (refer to Figure 2 which describes the Part 3A process).

Figure 1 Aerial of Port Kembla



1.2 Project Summary

1.2.1 Project Overview

The proposed Soybean Processing and Biodiesel Production Facility is comprised of the following key components:

- an administration and training building with associated parking
- soybean preparation and extraction plant
- laboratories (x2)
- workshops (x2)
- soybean meal storage building
- cooling tower and compressor pump house

- crude soybean oil tanks (x3)
- biodiesel production plant
- biodiesel storage tanks (x4)
- truck maintenance shed with associated parking
- substations (x2)
- process chemicals tank farm.

The proposed development in Port Kembla will represent an approximate capital investment value of AU\$220 million (refer to Section 4.3.2 for a detailed cost breakdown).

The proposed facility concept layout presented in this report is not intended to represent the final design or layout. It is expected that the Environmental Assessment (EA) will identify management measures and subsequently design responses to avoid or mitigate potential adverse impacts of the development. Detailed design will establish the final location of plant and equipment which will be influenced by functional relationships, technology improvements via the technology provider, land availability, stakeholder consultation and the Director-General's Requirements. Consequently, the concept will necessarily be refined as part of ongoing design development and as part of the detailed Environmental Assessment.

1.2.2 Project aims

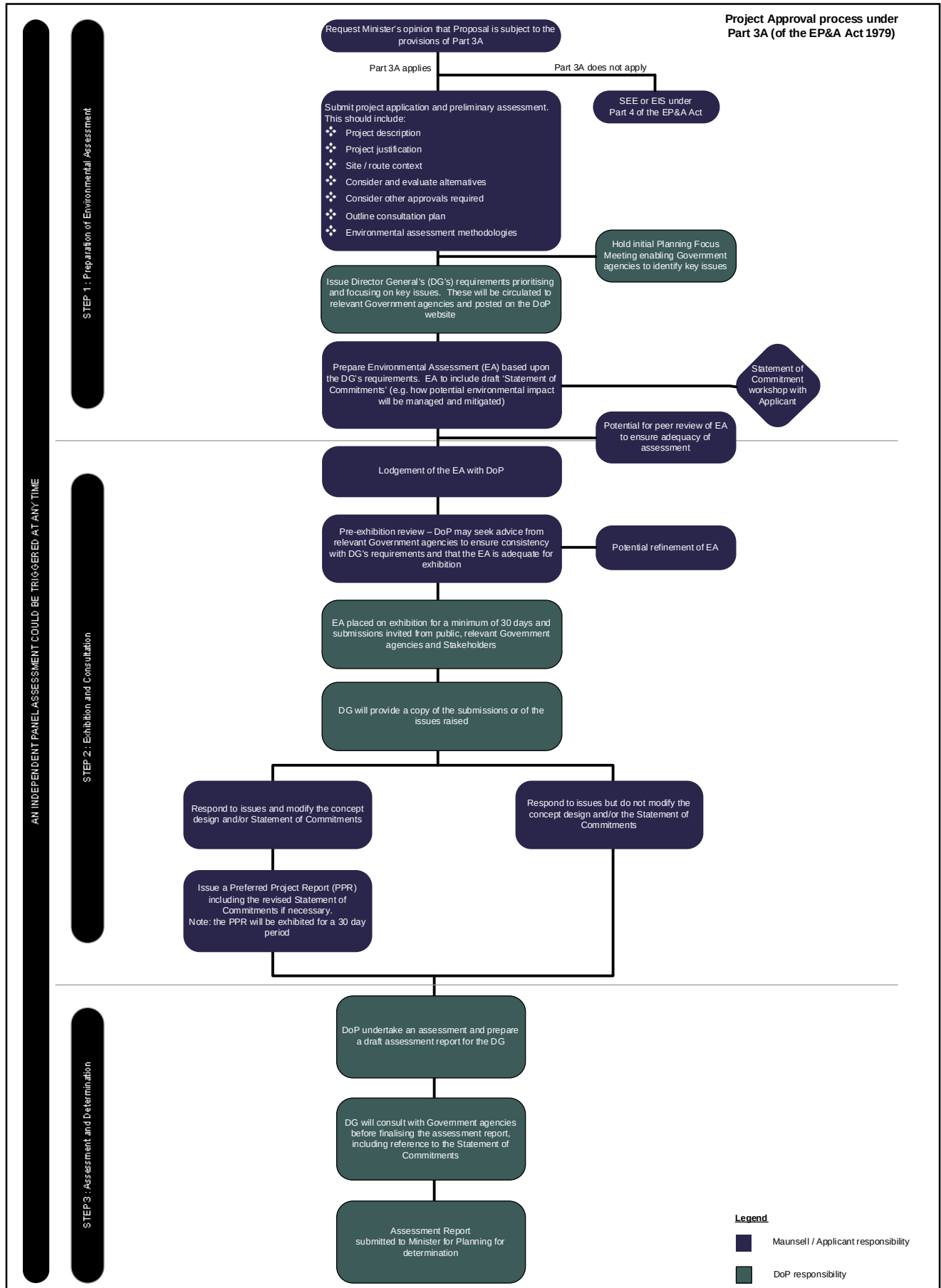
In light of the current awareness and public consciousness regarding clean energy, food security and the benefits of reducing carbon emissions, the project aims at:

- providing a domestic source of a global staple protein source (soybean meal) to the Australian market to replace current imports
- providing a cleaner fuel which is not only an alternative to the currently used fossil fuel, but will also be manufactured locally in an energy efficient mode using the best available technology
- providing regional community benefits through multiplier effects, including, but not limited to, direct and indirect employment and an impetus to create a local/domestic market (soybeans / oilseeds)
- maximising the use of currently under-utilised land and silos at the Grain Terminal as well as surrounding Port land
- establishing a commercially viable alternative energy source to the domestic market and other port users
- encouraging growth of the industry in Australia and hence rural economic growth by increasing demand for locally produced oilseeds in the order of at least one million tonnes per annum
- establishing a state-of-the-art Soybean Processing and Biodiesel Production Facility to assist in meeting greenhouse gas (GHG) abatement targets, decreasing Australia's reliance on imported fuel and increasing Australia's food security.

1.3 Approval process

The Minister for Planning has declared the proposed Soybean Processing and Biodiesel Production Facility to be a major project, in accordance with the provisions of clause 6 of State Environmental Planning Policy (Major Projects) 2005 (SEPP Major Projects) for which approval is required under Part 3A of the EP&A Act. The steps involved in the approval process under Part 3A of the EP&A Act are described in Figure 2.

Figure 2 Approval Process for Part 3A Projects (EP&A Act 1979)



1.4 Community and Stakeholder Engagement

1.4.1 Consultation to date

In conjunction with the Port Kembla Port Corporation, NB has convened preliminary discussions with a number of stakeholders at a meeting held on 30th of April 2007. The purpose of this meeting was to inform key stakeholders of the nature of the proposed operations and products and obtain feedback regarding the proposed project. The organisations that were represented at this meeting were:

- National Biofuels Group Pty Ltd
- Port Kembla Port Corporation
- GrainCorp Operations Limited (GrainCorp)
- Federal Chamber of Automotive Industries
- Honda Australia
- Mazda Australia
- Toyota Australia
- Ford Australia
- Australian Amalgamated Terminals (AAT)
- Holden
- Nissan Motor Corporation Australia
- PrixCar
- CEVA Logistics
- Patrick
- AutoNexus.

The meeting adjourned with a unanimous vote of confidence in the proposed operations and biodiesel in general. It is proposed to continue the stakeholder consultation process that has been initiated and expand it during the EA process to include relevant government agencies and community groups.

1.4.2 Planning focus meeting

It is expected that preliminary consultation will occur with key government agencies as part of a Planning Focus meeting that is to be convened following the submission of this PEA. As indicated by the Department of Planning, it is anticipated that the key government agencies will include:

- Department of Planning
- Department of Environment and Climate Change
- Wollongong City Council
- Department of State and Regional Development
- NSW Maritime
- RTA
- NSW Fire Brigade
- The Department of Environment, Water, Heritage and the Arts.

The key issues identified in this forum will then be addressed as part of the detailed EA.

1.4.3 Community engagement

A consultation strategy will be developed and implemented during the environmental impact assessment phase. A full discussion addressing all matters raised by the community will be provided in the detailed EA.

1.5 Overview of preliminary environmental assessment report

1.5.1 Report structure

This PEA report is presented in the following sections.

- **Section 1 – Introduction:** This section describes the purpose of this report, the background and introduces the proposed project.
- **Section 2 – Site and surrounds:** This section describes the existing site, surrounding land uses, the local area and the wider regional context for the development.
- **Section 3 – Project need and alternatives:** This section discusses the demand for the proposal and justification of the proposed project from a social, environmental and economic viewpoint.
- **Section 4 – Project description:** This section describes the proposed project, including the each component of the development, the process and the associated infrastructure and land based ancillary uses.
- **Section 5 – Planning and legislative framework:** This section provides an overview of the statutory and non statutory planning framework considered relevant to the proposal, including consideration of the strategic context of the project.
- **Section 6 – Preliminary environmental assessment:** This section contains a summary of the key issues of the main topics to be addressed in the EA document.
- **Section 7 – Conclusion:** This section summarises the report and describes the main findings of the PEA.
- **Appendices:** Appendices to this report contain the Preliminary Plans (Elevations) and the Concept Design Layout.

1.5.2 Key Assessment Issues

The PEA contained in this document provides descriptions of the key issues relating to the development of the Soybean Processing and Biodiesel Production Facility and the methods that will be employed to address those issues as part of the detailed EA. The key issues for discussion include:

- Key Issues
 - air quality and odour
 - energy and sustainability
 - hazards and risks
 - traffic and transport
- Issues of Moderate Significance
 - ecological and water quality impacts
 - noise emissions
 - social impact
 - waste management
 - landscape and visual impact

The EA report, which is to be prepared during the subsequent stage, will describe the findings of the comprehensive environmental impact assessment and subsequently recommend avoidance, mitigation and management measures to minimise potential adverse impacts. The EA will also address issues specified in the Director-General's Requirements. This assessment also considers the proposed facility in light of the strategic planning context.

2.0 Site and Surrounds

2.1 Site Location

The proposed Soybean Processing and Biodiesel Production Facility is to be located in the Inner Harbour of Port Kembla, which is located in the Wollongong Local Government Area, 3 km south of Wollongong and is approximately 60km from Sydney's south western suburbs. Port Kembla is the closest specialist industrial port to Sydney, Australia's largest market. The proposed facility is bounded by Tom Thumb Road to its north, Farrer Road to its west, Berth 104 to its south and the Western Drain to its east. Port Kembla is well connected with Sydney and regional NSW with an excellent road and rail system, making it an ideal base for import or export activities. The Soybean Processing and Biodiesel Production Facility is to be located on five separate allotments adjoining and surrounding the existing Grain Terminal and has a collective area of approximately 6.8 ha.

The area is recognised as the major industrial precinct and port within the Illawarra Region and is recognised as a key employment precinct which significantly contributes to the Wollongong economy and to the economy of the wider Illawarra Region. The Port provides a unique opportunity for NB insofar as land availability, land use compatibility, accessibility (road, rail and sea) and access to currently underutilised infrastructure. An aerial perspective of Port Kembla and the proposed site is shown in Figure 1.

Future changes to the Port area are proposed or currently underway to accommodate the transfer of cargo from Sydney and the general growth in freight. Under the State Government's *NSW Ports Growth Plan* a proportion of shipping and cargo currently handled through Port Jackson will be transferred to Port Kembla in 2008. This will mean up to an additional 400 ship visits, 15,000-20,000 containers, 240,000 motor vehicles and 120,000 tonnes of break bulk cargo (timber, machinery, steel, paper, and the like) to Port Kembla each year.

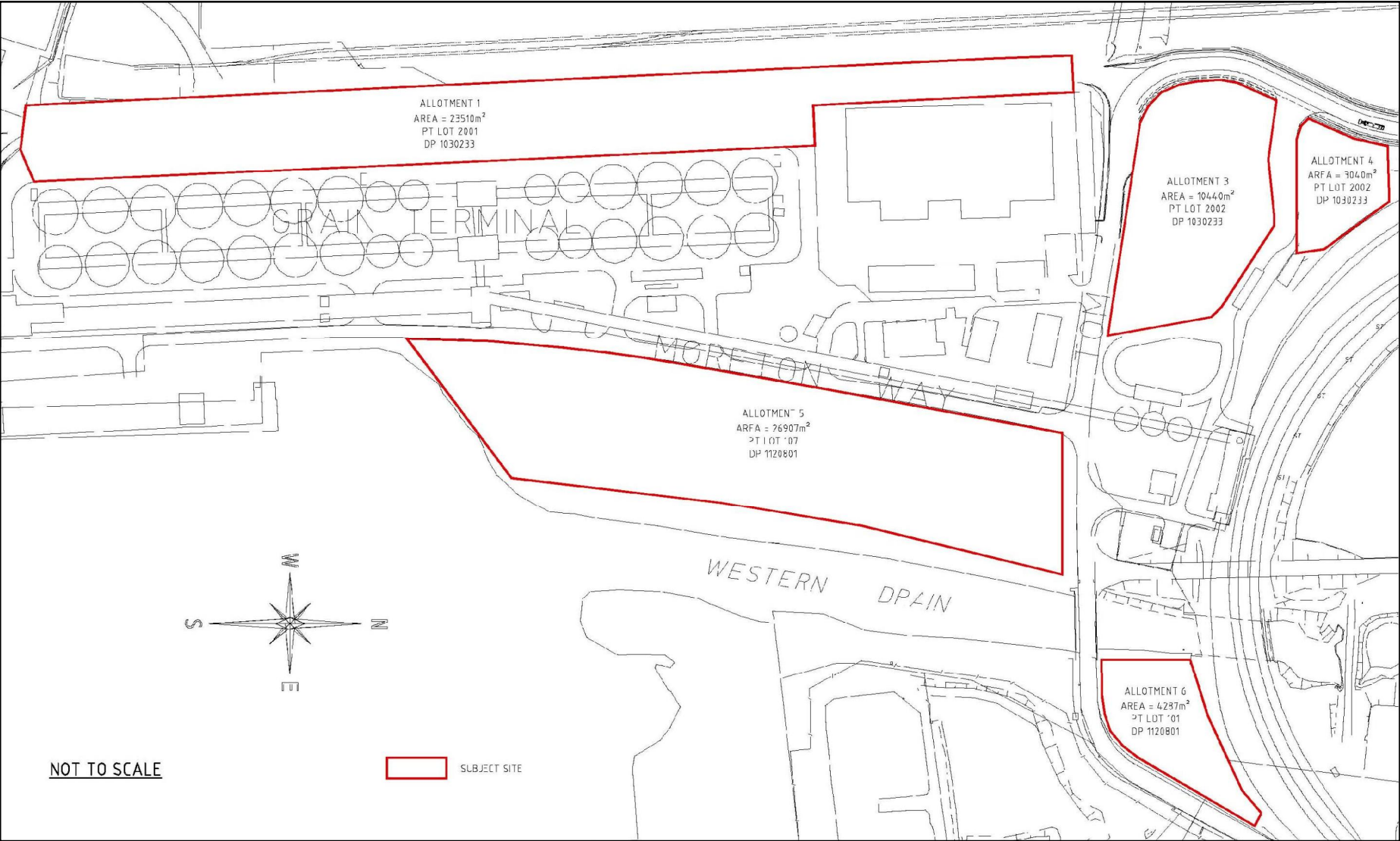
The *State Infrastructure Strategy (2006)* has confirmed that funding, in the order of \$86 million, is available for the redevelopment and revitalisation of Port Kembla's Inner Harbour. Key changes occurring at Port Kembla include the development of the multi purpose terminal to accommodate the relocated car trade and other non-containerised freight from Glebe Island. The relocation of containerised freight from East Darling Harbour to Port Kembla will also be accommodated by the new terminal. Access to the new terminal for vehicles will be from Tom Thumb Road. Consequently significant works are already underway to realign Tom Thumb Road to accommodate new port operations. Plans also include the development of the 103 berth for general and break bulk cargo.

The Inner Harbour of Port Kembla is located at a sufficient distance from residential housing to ensure that community amenity is not affected by port operations. This precinct provides a range of employment activities. In addition, the Port is fortunate in that it enjoys a number of purpose-built rail facilities that service each of the primary bulk terminals. In some cases, such as the grain terminal, an efficient loop siding is provided that allows trains to be discharged on the move and without the need for shunting operations.

2.2 Site Description

The five separate allotments that comprise the subject site along with the respective ownership are described in Table 1 and shown in Figure 3.

Figure 3 Site Identification



Source: National Biodiesel Pty Ltd, 2008

Table 1 Individual Site Details

Allotment	Lot & DP	Area	Owner	Proposed Use
1	Pt Lot 2001 DP 1030233	23,510 sqm	GrainCorp (leased from PKPC) and PKPC	Truck Maintenance and associated parking.
3	Pt Lot 2002 DP 1030233	10,440 sqm	GrainCorp (leased from PKPC)	Biodiesel Pre-treatment facility, Crude Soybean Oil Tanks (x3), Biodiesel Production facility, Workshop, Air Compressor, Boiler and Cooling Tower, Laboratory, Wastewater Treatment facility, Glycerine Refining Plant and Substation.
4	Pt Lot 2002 DP 1030233	3043 sqm	PKPC	Biodiesel Storage Tanks (x4), Biodiesel Loading Sheds and associated parking bays.
5	Pt Lot 107 DP 1120801	26,907 sqm	NSW Maritime (negotiations underway for PKPC to acquire)	Soybean Preparations and Extraction Facilities, Laboratory, Workshop, Cooling Towers and Compressor Pump-house, Soybean Meal Storage Shed and Substation.
6	Pt Lot 101 DP 1120801	4,287 sqm	NSW Maritime (negotiations underway for PKPC to acquire)	Administration and Training Building and associated Parking.

NB has entered into a tripartite agreement with Port Kembla Port Corporation and GrainCorp to secure leasehold entitlements over five individual allotments to accommodate the operations within the Inner Harbour area of Port Kembla (following PKPCs acquisition of the allotments identified in Table 1). These include the following:

- GrainCorp for allotments 1 and 3 as well as ongoing access to Berth 104
- Port Kembla Port Corporation for allotments 4, 5 and 6.

The subject site is currently vacant and contains no significant vegetation. Topographically, each allotment is relatively flat. Vehicular access to allotments 1, 3, 4 and 6 will be via Tom Thumb Road and allotment 5 will be accessed via Morton Way.

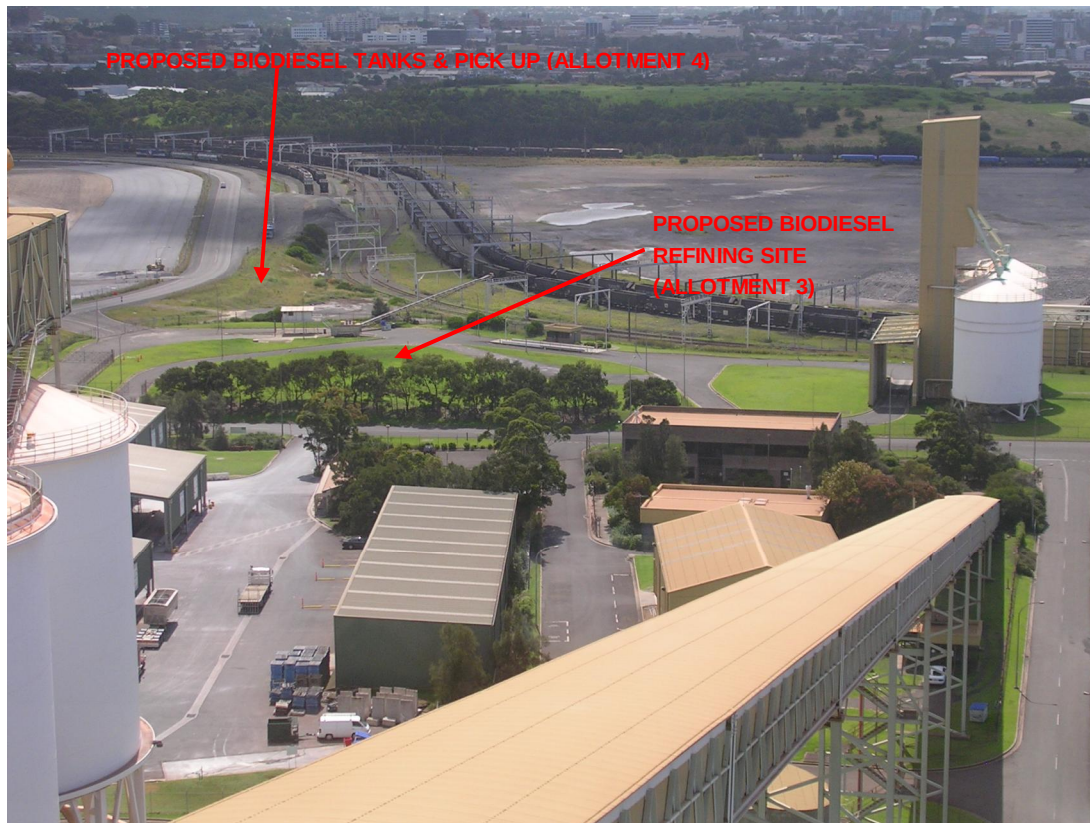
Allotment 1 (refer to Figure 4) incorporates Farrer Road, west of the Grain Terminal and south of Tom Thumb Road. The allotment is approximately 23,510 sqm in area. It can best be described as a grass verge and is currently bisected by cyclone fencing, which is proposed to be relocated further to the east and adjacent to the Grain Terminal silos. The allotment will accommodate parking for articulated vehicles and an associated truck maintenance facility. Access to Berth 105, located behind the proposed truck maintenance facility will be provided on the Australian Amalgamated Terminals (AAT) site as part the AAT site redevelopment, which is expected to be completed by 2008.

Figure 4 Allotment 1 looking south from Tom Thumb Road



Allotments 3 and 4 (refer to Figure 5) are situated north of Tom Thumb Road and are also grassed. The combined total area for these two allotments is 13,483 sqm. The allotments are devoid of vegetation and have a gentle fall east to west and from north to south. Adjoining the proposed northern boundary is a weigh bridge and silos are located to the east. At this stage, it is proposed to locate the Biodiesel Pre-treatment facility, the Crude Soybean Oil Tanks, the Biodiesel Production facility, Workshop, Air Compressor, Boiler, Cooling Tower, Laboratory, Waste Water facility, Glycerine Refining Plant, Fire Fighting provisions and Substation on Allotment 3. Allotment 4 will accommodate four Biodiesel Storage Tanks, Biodiesel Loading Bays and associated parking. The relative plant will be connected to the facilities on Allotment 5 via a pipeline which will traverse Tom Thumb Road using the existing underground conveyor used by GrainCorp.

Figure 5 Allotments 3 and 4 looking north from GrainCorp observation tower



Allotment 5 is bounded by the Western Drain to the east, Morton Way and the Grain Terminal to the west, Tom Thumb Road to the north and the eastern basin / Inner Harbour to the south. The allotment has a bitumen pavement and has a narrow vegetative strip along the eastern boundary which is predominantly exotic vegetation. This allotment has experienced limited landslip along the eastern boundary as a result of a broken subterranean pipeline.

Allotment 5 (refer to Figures 6 and 7) is the main parcel, having an approximate total area of 26,907 sqm. The proposal involves the erection of the Soybean Preparations and Extraction Facilities, Laboratory, Workshop, Cooling Towers and Compressor Pump-house, Soybean Meal Storage Shed and Substation on this particular parcel. As noted above, the plant on this allotment will be connected to that on allotment 3 via a pipeline.

Figure 6 Allotment 5 looking south from Tom Thumb Road

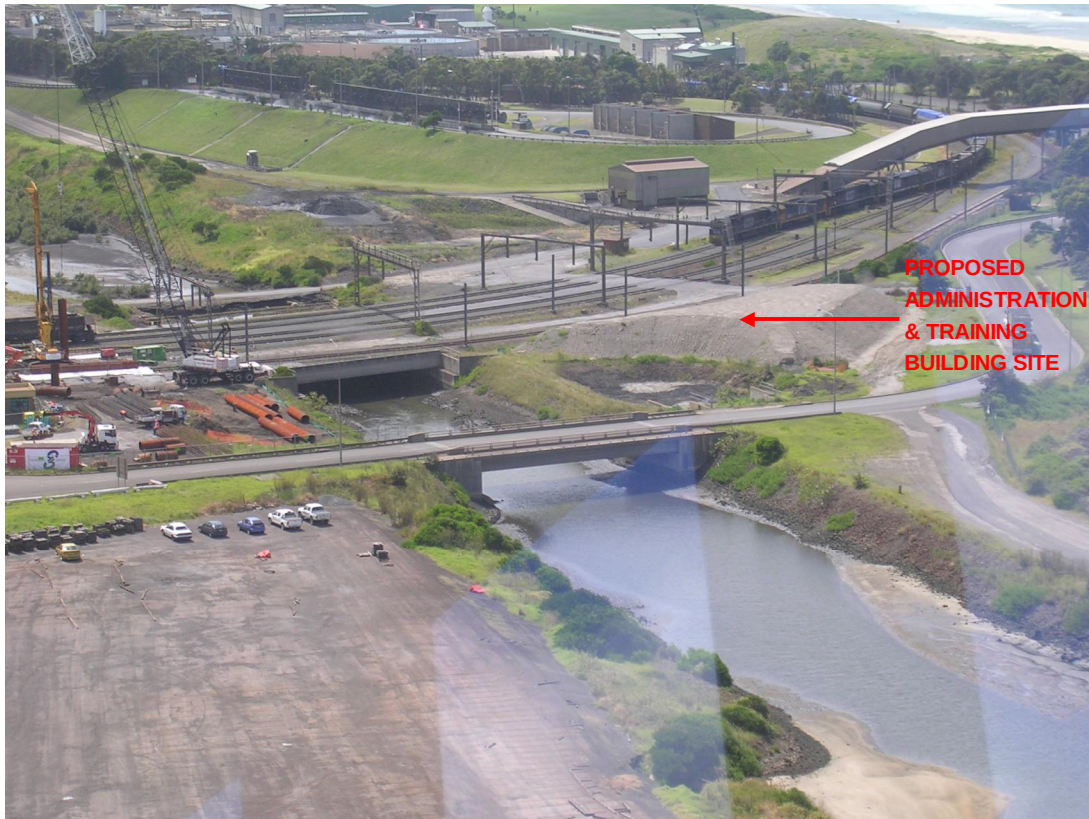


Figure 7 Allotment 5 looking north to Tom Thumb Road from GrainCorp observation tower



Allotment 6 (refer to Figure 8) is a residual allotment created by railway and road alignments. It is located north of Tom Thumb Road and is the eastern-most allotment. It is bounded by the rail line to the north, Tom Thumb Road to the south and east and by the Western Drain to the west. The allotment contains no significant vegetation, is relatively flat and is currently occupied by a stockpile of gravel. The facility's Administration and Training Building and the associated parking will be erected on this allotment.

Figure 8 Allotment 6, on the eastern side of the Western Drain looking north from GrainCorp observation tower



2.3 Concurrent site work

Preparatory site works that will be undertaken by others include the following:

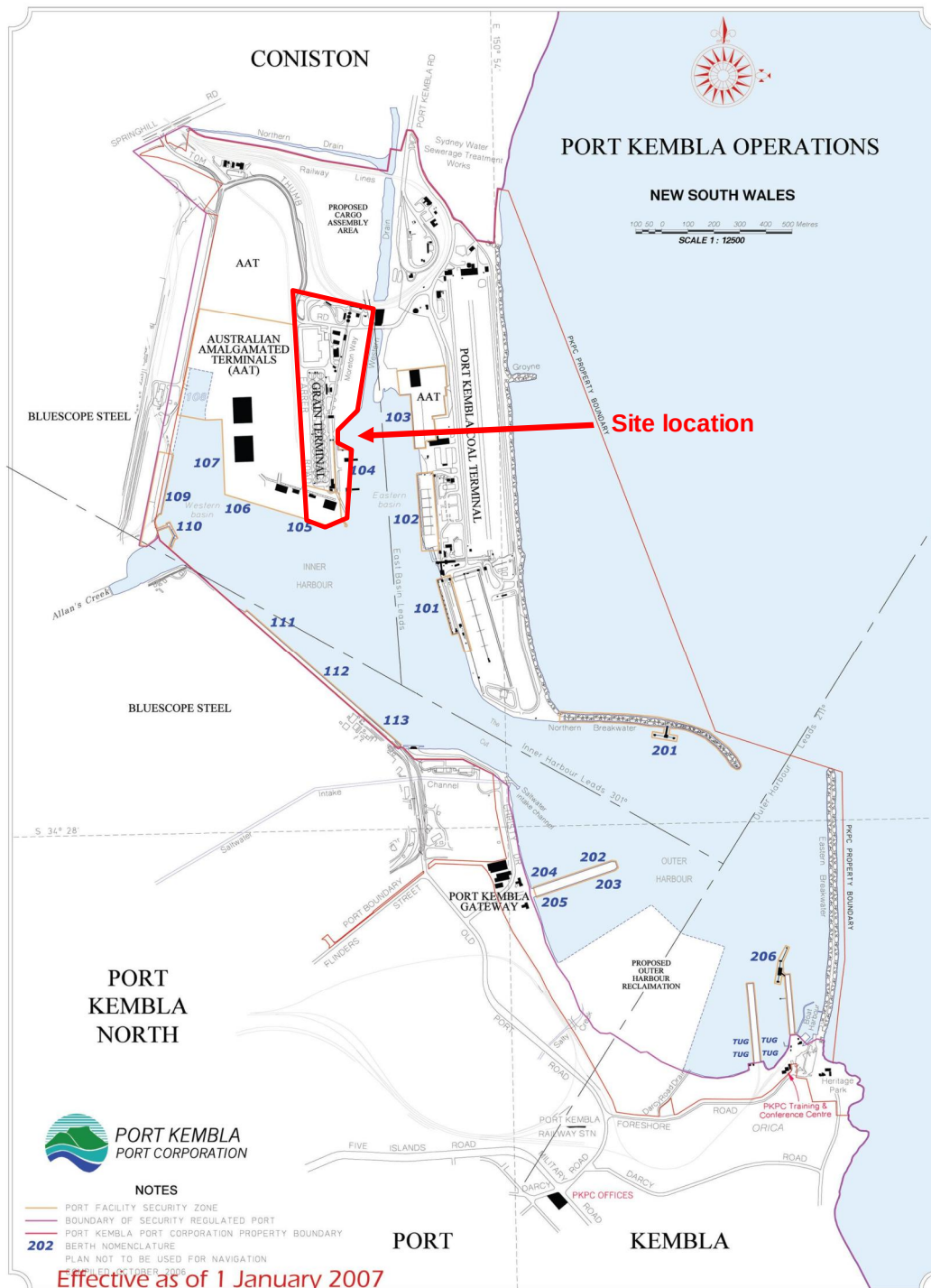
- Rectification of the Seawall and associated site stabilisation works along the eastern boundary of allotment 5. Such works are being carried out by PKPC as part of routine maintenance and will be subject to a separate assessment and approval process in accordance with Part 5 of the EP&A Act.
- Upgrade works to the Grain Terminal site, specifically to Berth 104 to facilitate unloading and loading of raw and processed material respectively. Such works are being carried out by GrainCorp and are subject to a separate assessment and approval process.
- Upgrade works to the relevant silos on the Grain Terminal site as NB will be utilising nine (9) of them. This includes seven (7) silos with a ten tonne capacity and two (2) with a 5 tonne capacity. These silos will be used to store incoming raw material (soybeans).
- Relocation of the fencing on the western boundary of Site 1 (Pt Lot 2001 DP 1030233) to the proposed eastern boundary of the subject site to provide a physical barrier between the Grain Terminal and the proposed truck maintenance and parking area.

It is noted that the appropriate commitments have been made by both GrainCorp and the Port Kembla Port Corporation in respect of the aforementioned works.

2.4 Surrounding Land Uses

The major land uses surrounding greater Port Kembla include light and heavy industry, mining and extractive industry, urban development, nature and recreation reserves, manufacturing and agricultural activity. The following subsections provide a summary of current activities within the immediate vicinity of the Port. The subject site is shown in the context of Port Kembla in Figure 9.

Figure 9 Port Kembla Port Operations



Source: Port Kembla Port Corporation

(<http://www.kemblaport.com.au/system/files/f2/o231/PORT%20KEMBLA%20OPERATIONS%20OCT%202006%20with%20note%20about%201%20Jan%202007%20rs.pdf> 21 April 2008)

Immediately adjoining allotments 3 and 4 to the north (refer to Figure 9) is the rail line, with the proposed Cargo Assembly Area on the northern side of the tracks. AAT's site is also located to the north-west of allotments 3 and 4. Beyond AAT to the north-west is the BlueScope Steel operations with the Sydney Water Sewerage Treatment Works to the north-east. The suburb of Coniston is further north and the city of Wollongong is approximately 3 km north from the subject site.

Figure 10 Land uses to the North



Allotments 1 and 5, the Grain Terminal and the AAT site are located south of allotments 3 and 4. Adjoining allotment 5, the southern most parcel, is the eastern drain with the Inner Harbour beyond. BlueScope Steel occupies an expansive area on the southern side of Port Kembla Inner Harbour. The proposed Outer Harbour Reclamation Area is on the south-eastern side of Inner Harbour (refer to Figure 9). It is understood that a master planning process is currently underway to guide the future of the Outer Harbour which includes an area of reclamation for Port uses. It is expected that a preferred option will be identified mid 2008 with a view to seeking approval under Part 3A of the *EP&A Act 1979* during 2009.

Figure 11 Land uses (BlueScope Steel) looking south of Allotment 5



Immediately to the east of allotment 5, beyond the Western Drain, is the Port Kembla Coal Terminal. The coal flows associated with Port Kembla and associated local industrial activities are generated by mines in the Western (Lithgow) and Southern Coalfields. It should be noted that a considerable amount of volume handled by the Port is confined to the immediate Port Kembla area e.g. Coniston/ Springhill/ Cringila. Illawarra Coal's submission to the House of Representatives Standing Committee on Transport and Regional Services in early 2006 stated that three million tonnes of coking coal was fed into the steelworks. The vast bulk of this comes from the West Cliff colliery, near to Appin Road.

This section of the Port is well serviced by rail lines and freight movements play a major role for the Coal Terminal's operations. Indeed, the rail line plays an integral role for many of the activities located in the Port and the Soybean Processing and Biodiesel Production Facility will also utilise the rail way. It is envisaged that the plant will use up to 2 freight movements per day (between 17-21 outbound and 3-4 inbound cargo carriages per day).

Figure 12 Land uses (Port Kembla Coal Terminal) looking east from Allotment 5



Figure 13 Land uses (Port Kembla Coal Terminal & Berth 101) looking east from Allotment 5



Immediately east of allotment 1 and west of allotment 5 is what is commonly referred to as the Grain Terminal. The Grain Terminal is relatively new and was built to replace the Sydney terminal. However, because of recent adverse weather conditions, current volumes are only approximately 50% of the historical highs of 2.5 to 3 million tonnes. The five-year average is approximately 1.5 million tonnes per year which has given rise to the spare capacity to accommodate NB operations.

On the western side of allotment 1 and Farrer Road is a significant portion of the AAT, which is currently in the process of being upgraded. The *NSW Ports Growth Plan* provided the impetus for the upgrade as a result of redirecting general cargo and automobiles from Port Jackson. These works are forecast for completion in 2008. Further west, the AAT site adjoins the BlueScope Steel operations.

As the primary purpose of the Port is to facilitate the movement of freight between ships and land based transport modes from suppliers, manufacturers, and producers, to their customers, Port Kembla is well connected in terms of road, rail and maritime infrastructure.

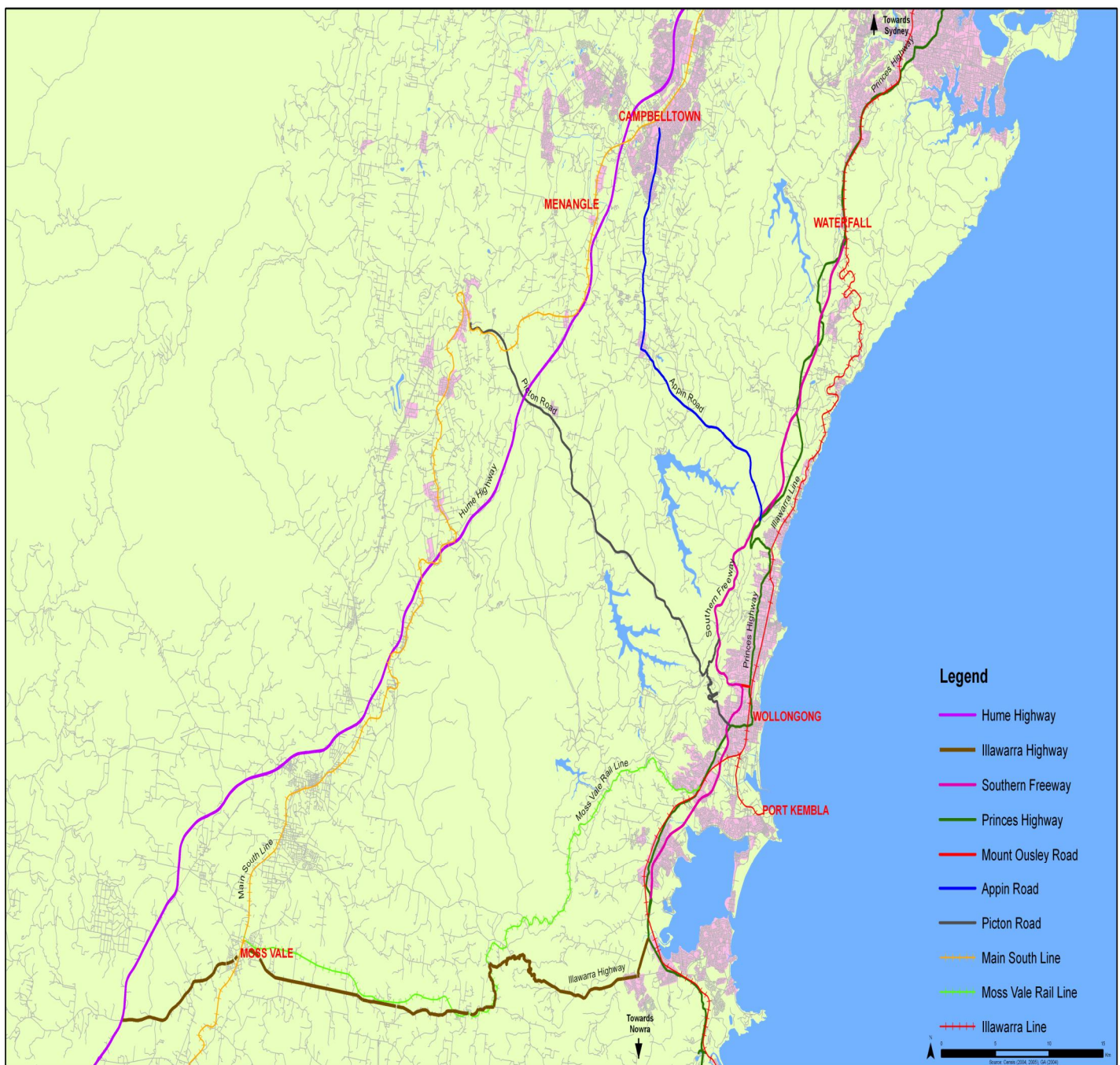
Figure 14 Land uses (Grain Terminal) looking west of Allotment 5



2.5 Key Transport Corridors and Road Links

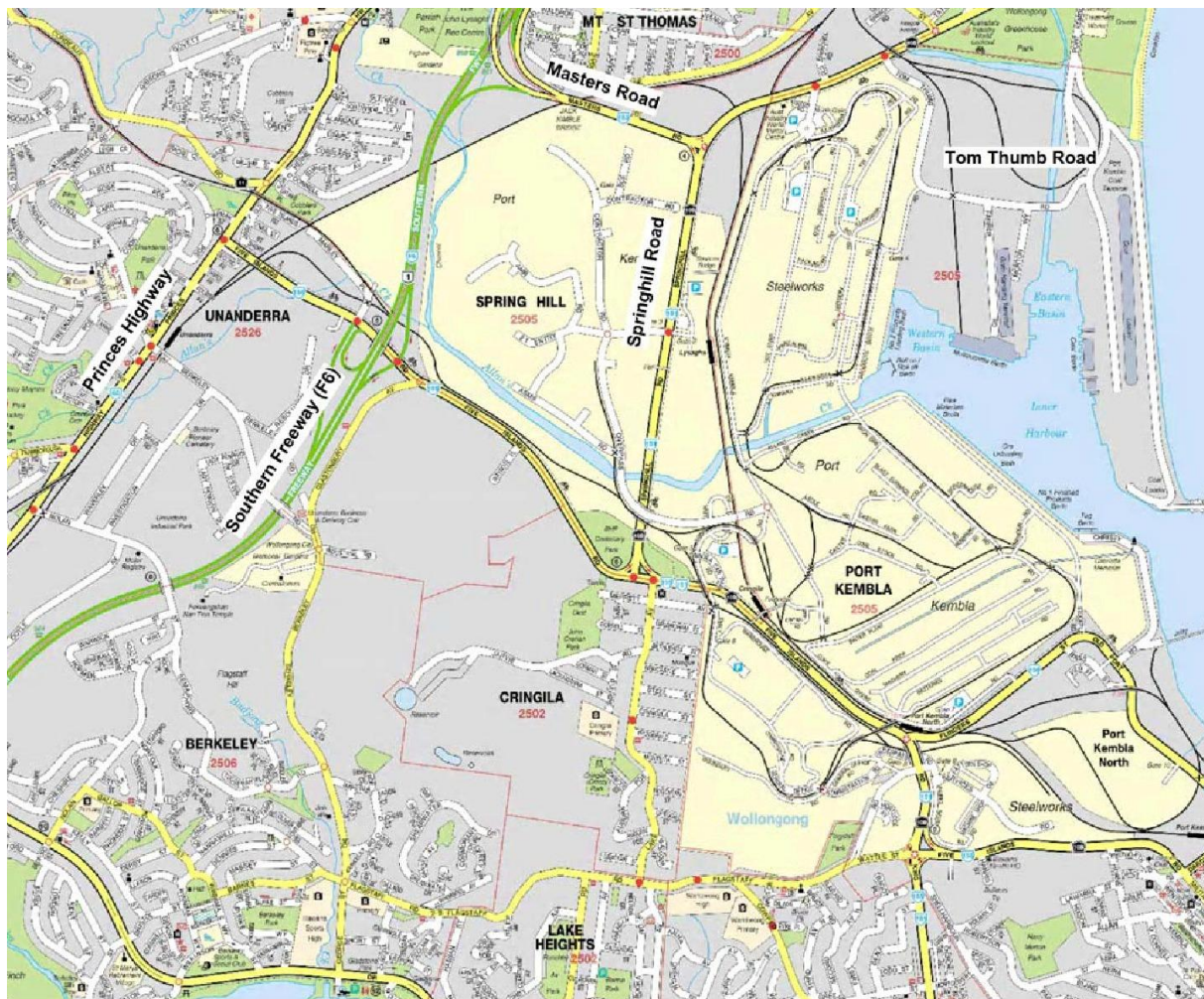
The Southern Freeway and the Illawarra Rail Line provide the primary road and rail links between Sydney and Wollongong. Heavy vehicle access to the Port for the Inner Harbour is gained via Springhill Road and Masters Road as they provide the most direct route between the Port and the Southern Freeway. For the Outer Harbour, Five Islands Road provides the most direct link between the Port and the southern harbour. Figure 15 shows the primary road and rail links in the Illawarra Region, and Figure 16 shows the local road and rail links around Port Kembla. This demonstrates that an intensification of land use in the Inner Harbour will not create traffic conflict with the future development of the Outer Harbour, as they rely on different road routes.

Figure 15 Primary Road and Rail Links in the Illawarra Region



Source: Port Kembla Freight Access Study, Maunsell, 2007

Figure 16 Local Road and Rail Links near Port Kembla



Source: Port Kembla Freight Access Study, Maunsell, 2007

2.5.1 Springhill Road

Springhill Road provides a southern arterial link into the centre of Wollongong as well as passing through the Port Kembla industrial area. It currently forms the western boundary of the Inner Harbour and the majority of freight accessing the Inner Harbour must use or cross this road. In addition, it is a major connector to Five Islands Road which is the main access route to the Outer Harbour. The road also connects to Corrimal Road which travels through the periphery of the CBD. Springhill Road comprises a divided carriageway with three lanes in each direction. In addition, there are additional flare lanes available for right turning vehicles at the majority of intersections.

2.5.2 Masters Road

Masters Road connects Springhill Road to the Southern Freeway and is the main access route between Port Kembla and all destinations both north and south. The route runs along the northern boundary of the BlueScope Steel Spring Hill site and provides access to Wollongong City centre, via Kiera Street and Corrimal Street, from the south. It consists of a divided carriageway with 3 lanes in each direction and additional flares are available for left and right turning vehicles at the intersection with Springhill Road.

2.5.3 Five Islands Road

Five Islands Road is also a major link to Port Kembla from the Southern Freeway and Princes Highway. The road links to Springhill Road and Flinders Street and thus links to both the Inner and Outer harbours. This road consists of a divided carriageway with three lanes in each direction, widening to accommodate turning lanes on the approach to major intersections.

2.5.4 Tom Thumb Road and Port Kembla Road

Tom Thumb Road and Port Kembla Road provide a loop from Springhill Road and form the main access routes into the Inner Harbour within the port boundary and consequently will provide vehicular access to the proposed Soybean Processing and Biodiesel Production Facility sites. Both routes are single carriageway roads with one lane in each direction with a speed limit of 50km/h.

Tom Thumb Road provides access to Berth 107 as well as the Grain Handling Terminal via Farrer Road. The route is currently undergoing re-alignment as part of the proposed expansion of Inner Harbour (AAT site) and will provide access to the extended Multipurpose Berth as well as the car handling facility. The route currently has a two way flow of 1,200 vehicles per day of which 35% are heavy vehicles¹. This realignment enables the use of allotment 1 as an articulated vehicle parking and maintenance area.

Port Kembla Road provides access to the Port Kembla Coal Terminal as well as to Eastern Basin 4. The route joins the local road network at a signalised junction between Springhill Road and Corrimal Road at the northern perimeter of the Port Kembla site.

2.6 Key Rail Links

2.6.1 Illawarra South Coast Line

The Illawarra South Coast Rail Line provides the principal rail link between Sydney and Wollongong. The track between Sydney and Unanderra is double track and single track south of Unanderra. The Port Kembla branch line connects with the Illawarra Line at Coniston, south of Wollongong. A number of coal loops also connect onto the line at various points.

Rail freight movements on the Illawarra Line focus upon Port Kembla as the ultimate destination or the origin. All rail traffic between Sydney and Wollongong utilises the Illawarra Line and it primarily caters for coal traffic from the Western Coalfields and from collieries located along the line. A number of other commodities are also handled by rail including:

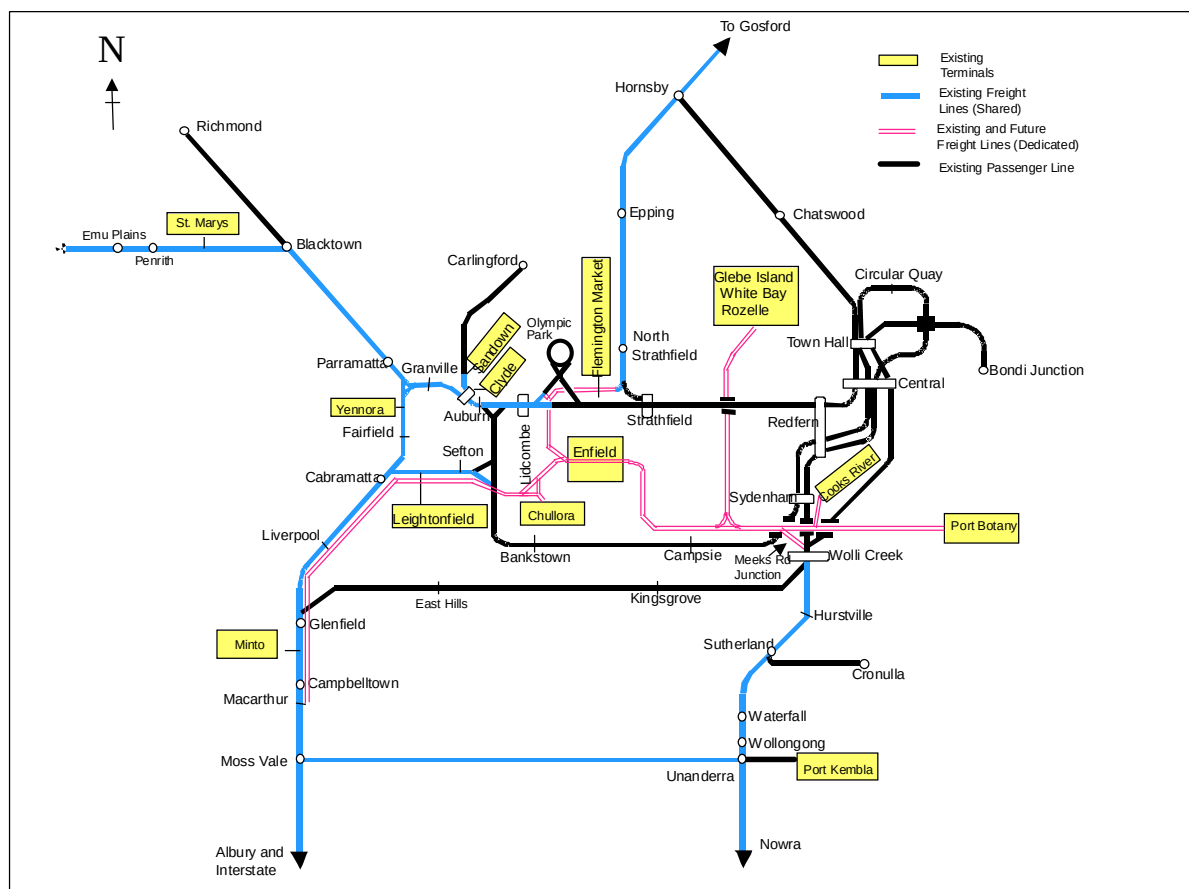
- Stone and ballast from Dunmore (Shellharbour) to Enfield;
- Steel products from Port Kembla to Sydney (for domestic and export via Port Botany) and interstate destinations;
- Flour and grain services from regional NSW and Port Kembla for export, and Bomaderry for domestic production; and
- Containerised freight between Bomaderry and Cooks River.

2.6.2 Moss Vale – Unanderra Line

The Moss Vale – Unanderra Line provides an east-west connection between the Main South Line and the Illawarra Line. The line is currently dedicated to freight train operations. The line provides a potential alternative route for freight traffic between Sydney and Wollongong. Although the line allows Wollongong – Melbourne freight to bypass Sydney.

¹ Sinclair Knight Merz (SKM) 2005. *Proposed Expansion of General Cargo Handling facility Environmental Assessment Report*. Final Report December 2005 prepared for Port Kembla Port Corporation

Figure 17 Key Rail Links



Source: Port Kembla Freight Access Study, Maunsell, 2007

2.6.3 Maldon – Dumbarton Proposed Rail Line

The Maldon – Dumbarton rail corridor is a proposed corridor that would provide a more direct connection between Port Kembla and Western Sydney via the Main South Line. The line has been viewed as a potential solution to supporting increased economic activity within the Illawarra.

The justification for developing the Maldon – Dumbarton line was based on catering for anticipated increases in coal volumes from the Western Coalfields. Construction of the line commenced in 1983. Progress went as far as providing 25 kilometres of formation between Maldon and Dumbarton, constructing half a bridge across the Nepean River and two portals of the Avon tunnel. However, as forecasts of higher coal volumes failed to materialise, construction on the line was halted in 1988. Subsequent planning studies to implement the remainder of the route have not indicated that the project is economically justifiable and it is unlikely to be completed based on current traffic volumes. However, potential increases in future rail volumes and congestion on the Sydney metropolitan freight network could improve the business case of the line.

There is currently interest in undertaking a feasibility study for the completion of this rail line which can be associated with the expansion of the Outer Harbour and Infrastructure Australia's concern about improving strategic transport access to Ports. The NB proposal would assist feasibility investigations in providing freight traffic potentially for this line.

The proposed Soybean Processing and Biodiesel Production Facility intends to utilise the rail system available to the site. It is envisaged that the operation will require up to 2 movements per day (17-21 outbound and 3-4 inbound cargo carriages).

2.7 Port Functions

The Port currently has 18 operational Berths servicing numerous Port operators. The construction of Berth 103 is expected to be completed in August 2008. To ensure efficiency and to accommodate the Port's future expansion major dredging works were required in Port Kembla's Inner Harbour. The dredging works were undertaken in 2007 which signalled another important milestone in the Port's transformation. The project involved the dredging and removal of approximately 380,000 cubic metres of material to allow construction of berth 103 and 107. The facility will have ongoing access to Berth 104 for its operations (refer to Figure 18).

Figure 18 Operational Berths Port Kembla Inner Harbour



Source: Port Kembla Port Corporation (<http://www.portkembla.com.au/>) 7 April 2008

3.0 Need for Proposed Operation

NB is proposing to construct and operate a Soybean Processing and Biodiesel Production Facility within the existing heavy industrial precinct at Port Kembla on a number of allotments that have been made available by NSW Maritime, GrainCorp and Port Kembla Port Corporation for the purpose of producing, storing and distributing biodiesel, soybean meal and pharmaceutical grade glycerin. Numerous Strategies have been developed that aim to provide a framework for the orderly expansion of the functions in Port Kembla, having particular regard to trade mix. Port Kembla Port Corporation's growth strategy aims to diversify and expand its trade base to secure the long term viability of the Port.

At present, availability of biodiesel within Australia is limited due to the small number of active operators. This has been exacerbated by the closure of and/or suspension of production at some of the country's largest biodiesel manufacturers due to a lack of consistent availability of feedstocks. In addition to the limited supply of biodiesel (and feedstock for producing biodiesel) in Australia, there is also a lack of soybean meal, which generates the demand for its importation. An increase in local manufacturing will result in the supply of fresh soybean meal for the domestic market and subsequently reduce the need to importation. Finally, the soybean crushing capability that will form part of the development will afford the opportunity to foster and develop a strong local soybean growing economy.

Due to the location and the infancy of this technology in Australia, the facility has the potential to become a significant regional asset that will provide employment opportunities, both direct (235) and indirect (725). This is consistent with the aims of the *Illawarra Regional Strategy* which identifies Port Kembla as a key employment precinct. The facility will also generate demand for approximately one million tonne of locally produced oilseeds, which will contribute to rural economic growth in the domestic market. The operations will supply in excess of 800,000 tonne of domestically produced soybean meal that would otherwise be imported and will also supply approximately 288 million litres of biodiesel to the domestic market. Moreover, there is no significant soybean crushing capability/capacity in Australia, meaning that the NB crusher can stimulate the development of a strong local soybean growing economy.

Port Kembla Port Corporation's growth strategy encourages the diversification and increase of the existing trade base in order to secure the Port's future viability. This has been evidenced by Port Kembla Port Corporation's and AAT's undertaking to expand the Cargo Handling facility and the commissioning of the preparation of a Master Plan for the Outer Harbour. This has been further reinforced by the *State Infrastructure Strategy (2006)* which confirms that funding in the order of \$86 million is available for the redevelopment and revitalisation of the Inner Harbour of Port Kembla.

The proposed Soybean Processing and Biodiesel Production Facility will diversify existing land uses within the Port and it has been forecast that the proposed facility will increase trade through Port Kembla in excess of US \$700 million in revenue alone.

As a direct result of the siting of and to facilitate the operation of this project, upgrade works will be carried out on Berth 104 and on a number of the silos which are located on the GrainCorp site. The facility will take advantage of all modes of transport available at the site to conduct business (sea, road and rail). In addition, PKPC have committed to rectify the sea wall as part of routine maintenance works. As such, a consequence of this proposal is infrastructure upgrade, site improvement and an enhanced utilisation of the Port's land.

The location in both a port and heavy industrial area is both logical and sensible due to access (road, rail, and sea), surrounding land use compatibility and distance of sensitive land uses. The on-site production of biodiesel also affords the opportunity to supply to other port users an alternative fuel source, hence encouraging the use of a greener form of fuel by large consumers. The establishment of a state-of-the-art facility will also assist in meeting GHG targets by reducing GHG emissions by

approximately 728,000 tonnes per year (CO₂ equivalents) and decrease the country's reliance on imported fuel.

The other main production output of this facility is soybean meal. Australia typically produces approximately 30,000 tonnes of soybean meal annually, but the animal feed industries alone require approximately 500,000 tonnes annually. Just about 85% of soybean meal in Australia ends up in poultry and pig food, with the chick meat industry taking up about 50% of all soybean meal, followed by the pig industry at 35%.² This necessarily leads to Australia being a net importer of a substantial amount of soybean meal. The proposed soybean meal output of the proposed facility will be in excess of 800,000 tonne per annum. As a result, NB operations will thus increase Australia's food security substantially by locally producing all of its soybean meal protein needs.

Finally, public health cost savings have been projected at 10.1 cents per litre of biodiesel yielding a total of AU\$29.1 million and public environmental benefits have been projected at 9.7 cents per litre of biodiesel yielding a total of AU\$27.9 million.

3.1 Alternatives Scenarios Considered

A number of alternative scenarios were considered prior to deciding to proceed to seek project approval for a Soybean Processing and Biodiesel Production Facility in Port Kembla. These are described in the following sections.

Importation Option

The importation of biodiesel was considered in lieu of constructing a local manufacturing site. The reasons underpinning why this alternative was not chosen were as follows

- That it will be more economical to manufacture biodiesel locally compared to importation.
- Constructing a local manufacturing facility will result in soybean meal also being available to the local market as opposed to biodiesel only.
- There is no significant soybean crushing capability/capacity in Australia, meaning that the NB crusher can stimulate the development of strong local soybean growing economy.
- Importation would not provide the magnitude of employment opportunities in comparison to that generated by a local plant (235 direct and 725 indirect positions).
- Importation would not place demand on local oilseed markets to provide produce or stimulate rural growth in this area.
- A capital project investment loss of approximately AU\$220 million would be incurred in Port Kembla which has further implications for the Illawarra Region.
- No replacement of 288 million litres of petro-diesel with locally manufactured renewable biodiesel, meaning that this volume of petro-diesel would also continue to be imported.
- Importation would not necessarily contribute to local economic growth in the Illawarra region.
- Importation would not contribute to land use diversification within the Port or increase the trade base.

² Australian Oilseeds Federation (www.australianoilseeds.com)

‘Do Nothing’ Option

In this scenario, the project would not continue. The consequences of not proceeding with this proposal in this location would include the following.

- The allocated Port Kembla land would be developed by alternative, possibly less environmentally friendly industry.
- A capital project investment loss of approximately AU\$220 million would be incurred in Port Kembla which has further implications for the Illawarra Region.
- No replacement of 288 million litres of petro-diesel with locally manufactured renewable biodiesel, meaning that this volume of petro-diesel would also continue to be imported. No increase in availability of environmentally friendly and renewable biodiesel to enable NSW and Australian companies to comply with corporate commitments to reduce carbon footprints. Further, it may result in a loss of a more environmentally friendly fuel alternative being readily available, especially to local Port users.
- No replacement of imported soybean meal with a domestic product, meaning that this volume would also continue to be imported. This operation alone will make Australia self-sufficient in terms of soybean meal needs by producing in excess of 800,000 tonnes of high quality soybean meal per year.
- No positive contribution to Australia's trade balance. This operation will account for the import and replacement of AU\$500 million for locally manufactured soybean meal and more than AU\$225 million for replacement of imported petro-diesel through locally produced biodiesel.
- No new soybean crushing facility in NSW and Australia which has the potential to provide opportunities to other soybean / grain producers.
- No consistent supply of high quality soy biodiesel for Port Kembla users, NSW and Australia.
- There would be limited soybean meal availability options for feed formulators in NSW and Australia.
- There would be a direct loss of potential trade and employment benefits to the Illawarra Region as well as the associated positive multiplier effects that normally ensue following an extensive capital investment. This may also result in the loss of other associated trade revenues.
- There would be a loss of stimulation and incentive for the soybean-growing agriculture potential of NSW and Australia. The facility will generate demand for one million tonnes of soybeans/annum.
- There would be a potential loss of GHG abatement and no reduction in other harmful pollutants such as particulate matter and diesel smoke due to the replacement of petro-diesel with biodiesel.
- Loss of an opportunity to utilise currently under-utilised infrastructure (silos) particularly given the compatibility between the proposed use and the current operations at the Grain Terminal.
- Loss of an impetus to undertake the sea wall rectification works.
- Loss of an impetus to upgrade Berth 104.
- A loss of an opportunity to diversify land uses within the Inner Harbour.
- Not proceeding would be inconsistent with the objectives of the Sydney Metropolitan Strategy, the NSW Ports Growth Plan, the Illawarra Regional Strategy, the State Infrastructure Strategy, the Illawarra and South Coast Employment Lands Study and the Wollongong LGA Economic Development Strategy.
- The operation, that would be the largest of its kind in Australia, would have to move to another state or even country.

3.2 Alternative Sites Considered

The operational requirements for the Soybean Processing and Biodiesel Production Facility have had a large influence on selection. As explained in detail in Section 4, the current domestic soybean market cannot meet the demand for the product that will be required for the scale of operations being proposed. Consequently, initially much of the raw material will be sourced elsewhere, in particular, overseas. Bulk trade is also a fundamental component of NB's successful operations. Accordingly, the facility had to be located in close proximity to an operational port. During the concept design and layout process a number of alternative sites were considered for the facility. An overview of the alternative sites considered is provided below.

Newcastle Options

Carrington

- Encroaching residential development raised concern in relation to land use conflict and the suitability of industrial operations in the area which may give rise to future complaints and hence adversely impact on plant operations.
- Insufficient land availability for the proposed operations.

Kooragang Island

- Lack of land availability with direct port access in conjunction with a lack of access to deep water berths.

Walsh Point

- An application was made for the use of public land for the proposed facility with the Department of Lands. This process concluded that no appropriate land was available to accommodate the operation.

Port Kembla – Grain Terminal Option

Land that is considered surplus to the needs of the Grain Terminal operations and Port Kembla Port Corporation operations was investigated and the outcomes of this investigation are as follows.

- The collective sites offered approximately 6.8 ha of land which is sufficient for the current needs of the proposed Soybean Processing and Biodiesel Production Facility.
- The site has the benefit of direct port access on the basis of a commercial agreement between NB and GrainCorp.
- The regional and road networks that service the Port have been protected through appropriate land use planning to facilitate ongoing industrial operations.
- The site also offers access to rail freight.

Other sites within Port Kembla

- After consultation with the PKPC it was determined that no other suitable sites were available in Port Kembla.

Non-port Location Option

- A location with direct port access was deemed to be an essential component due to the bulk trade of soybeans and soybean meal and as such, siting the production facility inland of a port was not deemed to be feasible or economically viable.
- A non-port location would result in excessive transport logistics between the requisite port and an inland facility location.

3.3 Preferred Option – Port Kembla

The preferred option to develop a Soybean Processing and Biodiesel Production Facility at Port Kembla by reusing the GrainCorp facility is selected as the preferred option for the following reasons:

- Availability of a deep water port location with adequate port-side facilities that meet the AQIS specification for handling imported soybeans
- Close to existing deep water berths
- Immediate availability for development and construction
- Rail access to site
- Road access to site
- Proximity to the industrial growth area of south west Sydney and the Illawarra region
- Good regional road and rail transport corridors
- Facilities to service all types of general containers, bulk and liquid cargo's
- Strong regional and community support
- Good buffers surrounding the port and by virtue conserving residential amenity
- Commercial agreement with GrainCorp as a direct result of this site selection involves:
 - Being adjacent to GrainCorp grain handling facility
 - Partial use of GrainCorp's severely under utilised storage facilities will turn the GrainCorp terminal into a net importer of material instead of being a net exporter
 - Use of GrainCorp's grain unloading facilities
 - Use of GrainCorp's deep water berth docking facilities
 - NB use of GrainCorp's dust control facilities
 - Avoids additional and unnecessary construction of storage and handling facilities for soybean.

Components, fundamental to the completion and operation of the proposed facility which are outside the scope of this application, but will be undertaken as a result of the site selection include the following.

- Rectification of the Seawall and associated site stabilisation works along the eastern site boundary. These works are being carried out by Port Kembla Port Corporation as part of a routine maintenance program.
- Upgrade works to the Grain Terminal site, specifically to Berth 104 to facilitate unloading and loading of raw and processed material respectively. These works will be carried out by GrainCorp as part of their commercial agreement with NB.
- Upgrade works to the relevant silos on the Grain Terminal site as NB will be utilising nine (9) of them. This includes seven (7) silos with a ten tonne capacity and two (2) with a 5 tonne capacity. These silos will be used to store incoming raw material (soybeans). These works will be carried out by GrainCorp as part of their commercial agreement with NB.
- Relocation of the fencing on the western boundary of allotment 1 (Pt Lot 2001 DP 1030233) to the proposed eastern boundary of the subject site to provide a physical barrier between the Grain Terminal and the proposed truck maintenance and parking area. These works will be carried out by GrainCorp as part of their commercial agreement with NB.

4.0 Project Description

4.1 General

National Biodiesel Pty Ltd (NB) proposes to establish a 250,000 tonnes per annum biodiesel and 800,000 tonne soybean meal producing facility (Agro-Industrial Processing plant) in the Inner Harbour of Port Kembla which is the closest specialist industrial port to Sydney, Australia's largest market. The facility utilises soybean as feedstock to produce high-protein soybean meal (75.9%) for animal consumption, an environmentally friendly renewable energy source, soy methyl ester (commonly known as biodiesel) (22.1%), and glycerol (2.0%) as production outputs.

Biodiesel is made through a series of unit operations and processes on a large-scale with continuous manufacturing level and requires a complex design to ensure high quality Biodiesel is formed. A project description is provided below including the proposed Soybean Processing and Biodiesel Production Facility concept design layout, process description and operational requirements.

4.2 Technology Providers

The production plant and technology will be supplied by Desmet Ballestra, an established international oilseed processing and biodiesel technology provider with the following credentials:

- a global presence in the oils and fats industry
- has constructed in excess of 5,700 oleochemical plants worldwide
- has constructed in excess of 70 biodiesel plants worldwide (including plants under construction).

4.3 Proposed Soybean Processing and Biodiesel Production Facility Concept Design and Layout

4.3.1 Proposed Works

The proposal is comprised of the following key components:

- an administration and training building with associated parking
- soybean preparation and extraction plant
- laboratories (x2)
- workshops (x2)
- soybean meal storage building
- cooling tower and compressor pump house
- crude soybean oil tanks (x3)
- biodiesel production plant
- biodiesel storage tanks (x4)
- truck maintenance shed with associated parking
- substations (x2)
- chemicals tank farm
- glycerine refining plant
- boiler house (x2).

Figures 19-24 provide photographic examples of various elements of similar international Soybean Processing and Biodiesel Production facilities. These have been included to provide an understanding of the intended project outcomes. Proposed building heights of particular buildings

have been indicated on preliminary plans and are provided in Table 2. Preliminary elevations of the extraction plant, glycerine refinery, pre-treatment and preparations facility and biodiesel refinery are included in Appendix A.

These project components are also shown in the proposed layout plan extract provided in Figure 25, with full version of the layout plan supplied in Appendix B.

Table 2 Proposed Building Heights

Building	Proposed Building Height (Highest Point)	Proposed Allotment Location
Extraction Plant	27.75 m	Allotment 5
Glycerine Refinery	34.5 m	Allotment 3
Pre-treatment facility	28.5 m	Allotment 3
Preparations facility	36 m	Allotment 5
Biodiesel Refinery	30.8 m	Allotment 3

As explained in Section 2 the subject works are to be carried out over five separate allotments, a summary of which is detailed in Table 3.

Table 3 Sites and Related Works

Site	Area	Proposed Use
1	23,510 sqm	Truck Maintenance and associated parking.
3	10,440 sqm	Biodiesel Pre-treatment facility, Crude Soybean Oil Tanks (x3), Biodiesel Production facility, Workshop, Air Compressor, Boiler and Cooling Tower, Laboratory, Wastewater Treatment facility, Glycerine Refining Plant and Substation.
4	3,043 sqm	Biodiesel Storage Tanks (x4), Biodiesel Loading Sheds and associated parking bays.
5	26,907 sqm	Soybean Preparations and Extraction Facilities, Laboratory, Workshop, Boiler, Cooling Towers and Compressor Pump-house, Soybean Meal Storage Shed and Substation.
6	4,287 sqm	Administration and Training Building and associated Parking.

4.3.2 Capital Cost

The project represents an approximate capital investment value (CIV) of approximately AU\$220 million as detailed in Table 4 however, for the purposes of the CIV, as defined in SEPP (Major Projects) 2005, the CIV is comprised of the first four components listed in Table 4, totalling AU\$141.8 million.

Table 4 Estimated Project Cost Breakdown

Utilisation	US\$'000	AU\$'000
Crushing facility	57,200	62,900
Processing & Refining facility	36,400	40,000
Land, Buildings and Tank Farm	18,400	20,300
Project Management and Contingencies	16,900	18,600
Working Capital (operational)	45,000	49,500
Project Finance Interest during Construction	7,600	8,400
Reserve per Covenants	17,000	18,700
Total	198,500	218,400

Figure 19 **Crushing Plant with Silos**



Figure 20 **Crushing Facility**



Figure 21 Biodiesel Plant



Figure 22 Biodiesel Refinery



Figure 23 Biodiesel Refinery



Figure 24 Out load Facilities



[illegible]

Soybean Processing and Biodiesel Production Facility
1 May 2008

4.3.3 Site Access and Parking

The project site is well connected by road, rail and waterways and detailed in Section 2 of this report. Articulated vehicle parking facilities have been allocated on Sites 1 and 3, with employee parking provided on Site 6. Detailed design will establish the numerical provision of parking on the respective sites.

Vehicular access to each allotment will be as follows.

- Allotment 1 – via Tom Thumb Road and Farrer Road.
- Allotments 3, 4 and 6 – via Tom Thumb Road.
- Allotment 5 – via Tom Thumb Road and Morton Way.

4.3.4 Storage on site

The raw materials identified in Section 4.5.1 will be stored on site. The storage specifications required for each material is presented below.

Raw Material Storage Details

The Soybean Processing and Biodiesel Production Facility will store a number of raw materials on site. The following materials will be stored on allotments 3, 4 and 5.

- Soybeans will be stored in silos owned and operated by GrainCorp. Nine GrainCorp silos are available for use by NB, seven of which having a storage capacity of 10,000 tonne and two 5,000 tonne storage capacity silos.
- Soybean oil will be stored in two storage tanks with individual storage capacities of approximately 12,000,000 litres each.
- Upon commissioning the crushing and manufacturing facility, 235 tonne of hexane will be charged into the closed production system. A separate, dedicated, secured area with appropriate exclusion zones will be used to store the remaining 325 tonne to be used as miscella and fresh stock.
- Methanol will be received in lots of 1,500 tonne by shipping vessel. Methanol will be stored in a separate, dedicated secure area with appropriate exclusion zones.
- Caustic soda, sodium methylate (stored in 200 cubic metre storage tank), sulphuric acid, phosphoric acid (stored in 35 cubic metre storage tank) and hydrochloric acid will be received in one cubic metre pallet containers as dictated by need and order quantity. The quantity of containers for each of these chemicals may vary from 1 – 30.
- Citric acid (stored as aqueous solution in 50 cubic metre storage tank) will be received as solids in plastic bags. Appropriate storage areas will be used to store the bags.
- Silica or Bleached earth (stored in two 25 foot shipping containers in one cubic metre containers).

Products Storage Details

Following the processing and manufacturing of the soybean meal and the biodiesel, these products will also be stored temporarily on-site prior to distribution, which includes the following.

- Biodiesel will be stored in on-site storage tanks with individual storage capacities of approximately 12,000,000 litres. The tank farm is self-bunded to a volume corresponding to 130% of the total storage capacity of the tanks (allotment 4).
- Soybean meal will be stored in a dedicated storage warehouse (allotment 5).
- Glycerine will be stored on-site as pharmaceutical-grade product in a storage tank with a capacity of approximately 1,700,000 litres. Two additional storage tanks with similar storage capacities will be in place to store technical grade glycerine and crude glycerine (allotment 3).

4.4 Construction Phase

The construction phase for the Soybean Processing and Biodiesel Production Facility is expected to take approximately 16 months and will involve the following key construction activities:

- preparation of a Construction and Environmental Management Plan.
- notification of the local community and other relevant stakeholders.
- staged site establishment.
- erection of security fencing along the working width and the installation of safety measures.
- transporting of construction equipment.
- site clearing and ground preparation.
- construction of storage facilities for construction materials, fuel and water.
- importing and installation of modular structures of the plant.
- reinstatement of site fences, if required and removal of temporary construction equipment.
- final clean-up.

The majority of the construction materials would be sourced locally except for the plant structures which would be imported from Desmet Ballestra, the technology providers. Following the completion of plant installation, commissioning of the plant is expected to take approximately two months.

4.5 Operations - Process Description

4.5.1 Manufacturing Process Overview

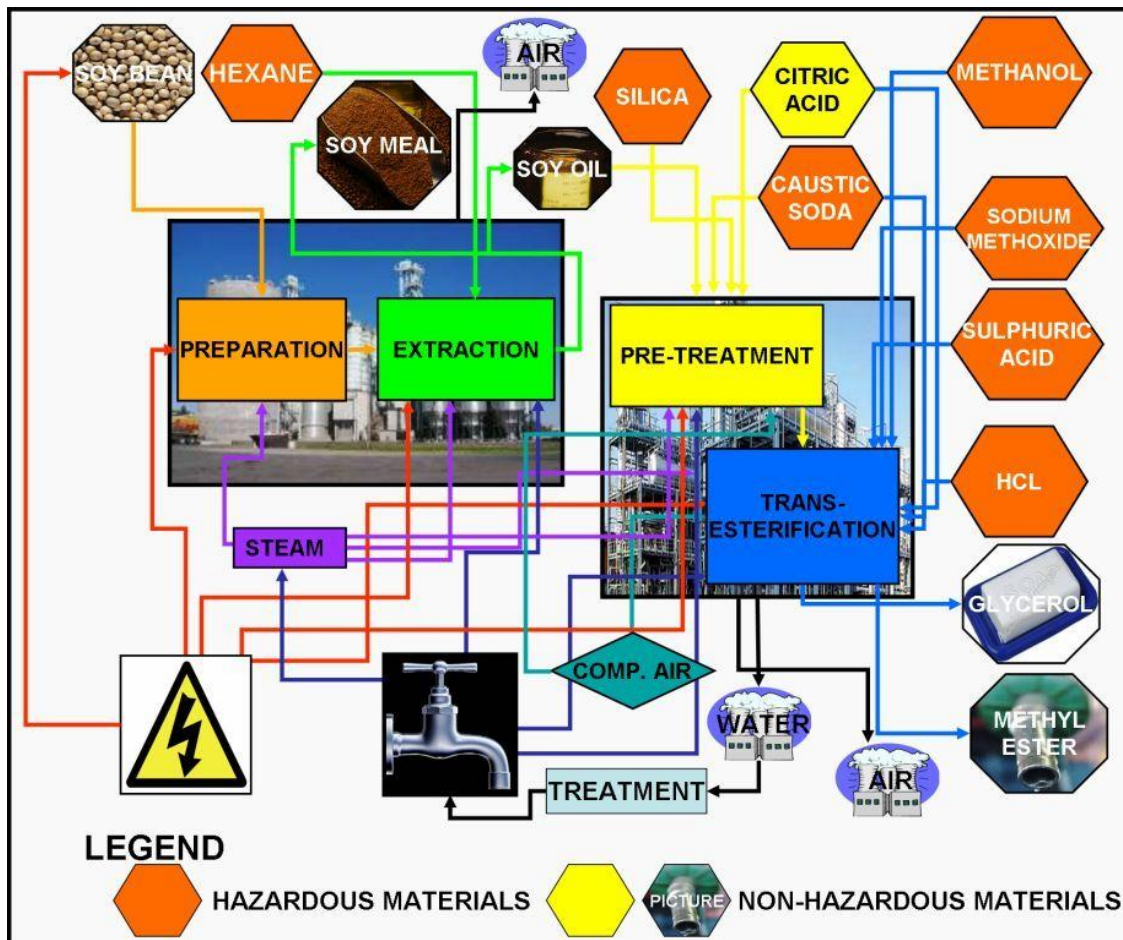
A detailed process description of the cracking, dehulling, conditioning, flaking, oil removal, desolventising, distillation and solvent recovery procedures will be provided as part of the EA. Notwithstanding, an overview of the procedures involved in producing soybean meal and biodiesel is provided in the following section.

A flow diagram providing an overview of the manufacturing process is shown in Figure 26.

Production of soybean meal and biodiesel can be divided into two distinct stages, which are described as follows.

- **Stage 1** of the production process involves soybean meal preparation and soybean oil extraction from the soybeans. The products from this stage are soybean meal and crude soybean oil.
- **Stage 2** is comprised of the biodiesel refining facility which will produce soy-biodiesel and pharmaceutical-grade glycerine.

Figure 26 Total Manufacturing Process for Biodiesel



The two stages of the manufacturing process are described in detail in the following sections.

Stage 1

Soybean seeds stored in the GrainCorp silos will be transferred to the Stage 1 area using a belt conveyor enclosed in an elevator gantry that will drop its cargo off into a buffer bin in the preparations building.

Feedstock Preparation

The purpose of soybean (feedstock) preparation is to modify the soybean seed into a shape and form that is suitable for fast and effective oil extraction. Preparation consists of a continuous succession of the following operations.

- Conditioning:** During conditioning, the soybean seeds are heated to soften them and conditioned to the desired moisture content of approximately 10-10.5%. The main objectives of the process are to:
 - give plasticity to the soybean seeds
 - decrease the viscosity of the oil
 - coagulate the proteins
 - sterilise the seeds
 - to reduce the viscosity of the oil and adjust moisture content.
- Cracking:** Soybean seeds are cracked to reduce the particle size to ensure uniform conditioning.

- **Seed de-hulling:** The purpose of de-hulling is to increase the protein content and reduce the fibre content of the extracted soybean meal. De-hulling is a succession of unit operations: impacting or cracking, screening, and gravity separation through multiple aspirators. The hulls are generally re-introduced as a fibre complement to the soybean meal.
- **Flaking:** This aims to rupture the cell structure of the broken soybean seeds to aid in oil extraction. Flaking is achieved by passing the seed between large diameter smooth rolls. A succession of conveyors transports the flakes from the preparation plant to the solvent extractor.

Extraction

The purpose of solvent extraction is to remove most (99%) of the oil contained in the soybean seed. Oil extraction by solvent is conducted on prepared seeds and consists of a sequence of four operations.

- **Extraction:** This process involves the physical removal of oil from the seed by immersing the seeds in the hexane solvent.
- **De-solventising – Toasting** of the de-oiled seed, the soybean meal. The Desolventiser - Toaster-Dryer-Cooler (DTDC) unit serves the purpose of removing any residual solvent from the soybean meal.
- **Distillation and Solvent recovery:** The extracted oil is passed through a distillation process which removes the solvent hexane from the extracted oil. Hexane which is thus recovered, is circulated for reuse in the at extraction process. Distilled oil is then removed to a degumming facility before being stored prior to entering Stage 2 of the process.

The soybean meal is sent to storage through conveyors.

Degumming

The degumming process consists of hydration of the crude oil. Certain impurities like phospholipids, gums and proteins are soluble in oil in their anhydrous form, but insoluble once they are hydrated. Hydratable phospholipids are removed from the oil prior to entry into Stage 2 of the manufacturing process.

The lecithin emulsion, produced as a by-product, is transferred to a buffer tank and dried into lecithin.

Meal Grinding

The meal is ground in hammermills. Mills number, size and power is a function of the capacity and of the meal granulometry that is specified. As standard, the equipment is designed to produce meal size of 2 mm (10 mesh). Air is separated off the meal grinder and cleaned in a bag filter.

Meal pelletising

According to market demand, a portion of the meal can be pelletised. Pelletising increases its bulk density, thus saving storage area required and making it easier to convey and ship. The meal leaves the DTDC (refer section 1.4.2) in the solvent plant with enough moisture to pelletise. A small quantity of steam is added just before the meal enters the pelletising mill where it is extruded under pressure through small holes in a die. The diameter and length of the holes will determine the size of the pellets.

Output of Stage 1

As per the process flow diagram in Figure 26, the material outputs of Stage 1 soybean meal. Table 5 below details the material output levels ($\pm 1\%$) based on the inputs as defined above in Table 7.

Table 5 Output and Classification of Products for Stage 1

Material	Classification	Usage (tonne)			
		Per year	Per day	Per hour	%
Soybean meal	Non- hazardous	815,000	2,397	109	75.9

Stage 2

Pre-Treatment

When the level of gums is high in oil, such as rapeseed, soya oil, an acid degumming is required prior dry pre-treatment. In addition, for complete elimination of all impurities and undesirable compounds, the oil is further subjected to dry pre-treatment. Therefore complete pre-treatment for unsaturated oils, such as soybean oil, rapeseed, jatropha, and the like and is comprised of three steps.

- **Acid degumming:** Crude oil is heated, mixed with the acid and sent to a centrifugal separator. There the gums are separated from the oil, which is sent directly to dry pre-treatment - bleaching section. The gum phase is collected in a tank from where it will be pumped either to a dryer or to any other treatment.
- **Dry pre-treatment combined with bleaching:** When the level of phosphatides is low, a degumming stage is not necessary. The oil can go to dry pre-treatment directly. Here the oil is treated with a strong acid and bleaching earth to remove the residual of the phosphatides and also impurities and minerals from the oil.

Afterwards, the oil-bleaching earth mixture is sent to the filters. After the filtration operation, oil recovery from the spent cake is done by steam blowing and the spent cake is discharged and evacuated.

- **Stripping:** The bleached oil is first de-aerated and deodorised. Pre-treatment of the crude (water degummed and distilled) soybean oil before it enters the process of conversion to methyl ester is essential. The process occurs in three phases which are:
 - acid degumming (using citric acid and caustic soda) in order to reduce the phosphorous content of the oil to an acceptable level, followed by
 - silica & bleaching earth treatment to remove the last traces of the phosphatides and some minor polar compounds, before
 - stripping of the free fatty acids under vacuum.

Biodiesel production

The main reaction for converting soybean oil to methyl ester (biodiesel) is called transesterification. The transesterification process is a chemical reaction during which an alcohol (methanol) is reacted with the triglycerides contained in soybean oil, forming methyl ester and glycerine. The reaction requires heat and a strong base catalyst, such as caustic soda.

A number of production steps are performed which are described below.

- **Acid Esterification:** The vacuum-separated free fatty acids go through an acid esterification process to increase the yield of methyl ester (biodiesel). The catalyst, sulphuric acid, is dissolved in methanol and then mixed with the pre-treated oil. The mixture is heated and stirred, and the free fatty acids are converted to methyl ester (biodiesel).

The stream of triglycerides, methyl esters, glycerine, sulphuric acid and methanol flows to the acid-esterification settling tank. The reaction mix will separate into two phases. The phase containing the triglycerides and methylesters is pumped to the trans-esterification unit. The phase containing primarily water with some sulphuric acid and methanol is pumped to the glycerol unit.

- **Transesterification:** The pre-treated oil is filtered and pre-processed to remove water and contaminants and then fed directly to the transesterification process along with any products of the acid esterification process. The catalyst, sodium methoxide, is dissolved in methanol and then mixed with the pretreated oil. As an acid esterification step is carried out earlier in the process, extra base catalyst (caustic soda) is added to neutralize the acid added in that step. Once the reaction is complete, the major co-products, methyl ester (biodiesel) and glycerine, are separated into two layers.
- **Methanol recovery:** The methanol is typically removed after the methyl ester (biodiesel) and glycerine have been separated, to prevent the reaction from reversing itself. The methanol is cleaned and recycled back to the beginning of the process.
- **Methyl Ester (Biodiesel) refining.** Once separated from the glycerine, the methyl ester goes through a clean-up or purification process to remove excess alcohol, residual catalyst and soaps. This consists of one or more washings with clean water. It is then dehydrated and sent to storage. It then goes through an additional distillation step to produce an odourless, zero-sulphur biodiesel.
- **Glycerine refining:** The glycerine by-product contains un-reacted catalyst and soaps that are neutralized with an acid. Water and alcohol are removed to produce 82-85% crude glycerine, with the 15-18% remaining contaminants comprising of unreacted fats and oils. The glycerine is then further purified, to 99% or higher purity, for sale to the pharmaceutical and cosmetic industries.

Glycerine Purification - Soap Splitting

The purpose of this section is the acidification of the raw glycerine stream, in order to neutralize the residual catalyst and to split the soaps formed during transesterification. Subsequently, the fatty acids derived from soap splitting are separated and the pH of the purified glycerine is finally adjusted.

The methanol is evaporated from the raw glycerine and is sent to methanol distillation column. The glycerine is sent to the acidification reactor. The mixture glycerine/fatty acid is sent by gravity to the separator and glycerine is separated from fatty acid (containing methanol and water) and neutralised by addition of a caustic soda solution 50%. The fatty acid stream is discharged as a by-product of the plant and sent to fatty acids storage. The neutralized glycerine stream coming from the neutralization vessel is sent to the next step to remove the residual methanol still present.

Glycerine Purification - Methanol Separation

The neutralized glycerine stream coming from the soaps splitting section is sent to the methanol distillation unit. The glycerine stream coming from neutralization reactor is pre-heated by the methanol free glycerine stream and then sent to the glycerine distillation column. The wet methanol evaporated in the glycerine distillation column is sent to the methanol distillation column.

The purified and concentrated outgoing glycerine is transferred to storage.

Output of Stage 2

As shown in the process flow diagram in Figure 26, the material outputs of Stage 2 are methyl ester (biodiesel) and glycerol. Table 6 details the material output levels ($\pm 1\%$) based on the inputs as defined above in Table 7.

Table 6 Output and Classification of Products for Stage 2

Material	Classification	Usage (tonne)			
		Per year	Per day	Per hour	%
Biodiesel	Non- hazardous	250,000	735	33	22.1
Glycerol	Non- hazardous	24,000	71	3	2

4.5.2 Raw material consumption per year

The main raw material used in the process is soybean. Soybeans would be imported from sustainable, commercial agricultural regions.

Process chemicals used are listed in Table 7. It is estimated that these chemicals would be obtained locally and transported to the site by rail or by road, except for methanol and silica/bleached earth which will be shipped to the site. Material consumption will vary slightly according to advances in technology and capabilities of the technology provider. It should be noted that the amounts shown in Table 7 are approximate values.

Raw Materials

The raw materials to be utilised in the facility are shown in Table 7.

Table 7 Raw Material Requirements

Material	Classification	Material Usage (tonne)		
		Per Year	Per day	Per hour
Soybeans	Non-hazardous	1,000,000	2,941.176	133.690
Hexane	hazardous	560	1.647	0.075
Methanol	hazardous	24,000	70.588	3.209
Silica	hazardous	750	2.206	0.100
Bleaching earth	Non-hazardous	3,750	11.029	0.501
Caustic soda (50%)	hazardous	750	2.206	0.100
Sodium methylate (30%)	hazardous	5,000	14.706	0.668
Sulphuric acid (98%)	hazardous	75	0.221	0.010
Hydrochloric acid (36%)	hazardous	3,000	8.824	0.401
Citric acid	Non-hazardous	175	0.515	0.023
Phosphoric acid (80%)	hazardous	950	2.794	0.127
Process water	Non- hazardous	378,000	1,111.765	50.535
Steam	Non- hazardous	355,000	1,044.118	47.460

4.5.3 Point of Origin

NB will consume approximately one million tonne of soybeans per annum through its Australian operations in Port Kembla and will have numerous sources of soybean supply. These will be:

- local supply from Australia
- import from the USA
- import from South America (Brazil and Argentina).

It is the long-term vision of NB to source 100% of its feedstock supply from Australia and significant resources will be invested in establishing this supply. Primarily, this will be achieved through the implementation of soybean development programs. However, at this stage soybeans only contribute approximately 6% to the total Australian oilseed crop in 2006/2007 with a drop forecast for 2007/2008³.

Consequently, until the local market can meet the facility's soybean demand, raw material will have to be sourced from overseas. Currently there are five predominant soybean producing countries globally including the United States of America (32%), Brazil (27%), Argentina (21%), China (7%) and India (4%). Market forces, produce availability and cost optimisation strategies will determine the supplier at any given point in time. Notwithstanding, NB is committed to ensuring that its feedstock does not originate from illegal, unsustainable and/or environmentally degrading agricultural operations.

4.5.4 Point of Arrival / Unloading / Loading (Sea bound)

Unloading/loading and Berth 104 modifications are currently being undertaken by GrainCorp and NB will have access to Berth 104 as required. Berth 104 specifications are provided in Table 8. The modifications surrounding the berth will involve the establishment of unloading facilities to compliment the already-existing loading facilities and are currently being undertaken by GrainCorp.

The soybeans will be transported from the GrainCorp facility to the soybean crushing site using a belt conveyor enclosed in an elevated gantry that will drop its cargo into a buffer bin in the Preparations building. This conveyor will be constructed by GrainCorp and is beyond the scope of this application.

NB will have nine (7 x 10,000 tonne and 2 x 5,000 tonne) storage silos available for use on the GrainCorp site. The silos allocated to NB are the easternmost 9 silos on the southern side of Row A (Row A being the eastern row) of the Grain Terminal.

In this joint operation, GrainCorp will be responsible for:

- receiving the soybean vessel
- unloading the cargo
- transfer of the cargo to the storage silos
- adhering to and satisfying any AQIS import requirements
- storage and moving of the soybeans
- transfer of soybean to the NB crushing facility.

³ Australian Oilseeds Federation website (www.australianoilseeds.com)

Table 8 Berth 104 Specifications

Component	Data
Vessel Storage Capacity	- Berth 104, comprising: Vessel Parameters: LOA = 300m, Bd = 50m, Draft = 16.25 + tide – 0.3m Berth Superstructure: Two gantry ship loaders – combined nominal loading rate of 5,000 tonnes per hour. 260,000 tonnes storage capacity.

4.6 Air Quality Control Measures

4.6.1 Dust Control

Equipment, cracking mills, conveyors and bins are connected to a dust control system (filter system). The purpose is to contain the dust within the equipment and ducts, and conduct it to the filter, where it is recovered. Clean air is exhausted to the atmosphere and the dust is discharged from the filter by means of the rotary lock. The dust consists mainly of loose hulls, and is sent to the hulls grinding section.

The dust carried by the gases leaving the Desolventiser Toaster (DT) is separated in a wet dust catcher. Both the air leaving the drying section and the air leaving the cooling section are freed from dust in adequate cyclones before being blown off to the atmosphere.

4.6.2 Solvent (Hexane) Recovery

The air entrained into the extraction unit by the pores of the material to be extracted is vented out. This air will entrain a certain amount of hexane, dependent on its temperature. The hexane is recovered by bringing the hexane-laden air in contact with mineral (or vegetable) oil. After absorption, the oil is heated up and the hexane is distilled, then condensed and recycled to the solvent circuit. The oil, after cooling, returns to the absorber.

4.6.3 Mineral Oil Absorber

The Desmet Ballestra Hytech mineral oil absorber absorbs solvent vapours out of the vapour stream exiting the atmospheric condenser prior to discharging the plant through a flame arrestor and fan.

4.7 Waste water recovery

The plant utilises a zero-effluent principle where wastewater is evaporated and recycled back to the process itself as steam. Oil pre-treatment and biodiesel refining employ an effluent reduction system.

The contaminated water is first collected in a decanter which allows the separation of solvents used in the process (i.e. hexane) from the water in settling processes. The decanted water is then pumped to a wastewater boiler tank and heated to approximately 85°C to remove all traces of residual contaminates (i.e. hexane and proteins).

Vapour from the boiler is collected to the first stage evaporator/separator, and the water is pumped to a wastewater buffer tank. The buffer tank is used during start-up and shut-down procedures to maintain a volume of effluent that cannot be returned to the toaster (in the lower compartment of the DT section) and it also provides a buffer capacity to ensure a constant feed to the subsequent units (i.e. tubular heater and separator).

The water from the buffer tank is then pumped to heat exchangers which raise the temperature of the water just below the evaporation temperature. From here the super-heated water goes to the steam separator, where low pressure steam produced. Steam is then passed to a steam superheater and re-used as injection steam in the last tray of the DT.

The efficiency of the process results in over 90% of the water being reused throughout the system.

4.8 Utilities

4.8.1 Electricity

The total electricity required for the process is 6MW with a projected usage of 4,702 kWh per year.

4.8.2 Water

Since the process is a closed circuit, the total water required is derived from the water loss within the circuit, which occurs largely due to condensation and evaporation from the process cooling towers. The total projected water consumption on an annual, daily and hourly basis is shown in Table 9.

Table 9 Projected Water Consumption

Projected Water Consumption	Volume
Annual Clean Water Evaporated	337,960 m ³
Daily Clean Water Evaporated	994 m ³
Hourly Clean Water Evaporated	41 m ³

4.9 Transport Methods and Volumes

Estimated transport volumes during operation phase are described in the following sections.

4.9.1 Inbound Traffic Movements

The materials that need to be received on site are soybeans and chemicals that are required for Stage 1 and Stage 2 operations. These materials will be delivered via ship, rail and road.

Shipping: The bulk of the soybeans will be received by means of HandyMax ships. These shipping vessels carry 35,000 – 40,000 tonne per load, leading to inbound shipping vessel movements of between 46 and 49 ships per year. This corresponds to one inbound shipping vessel movement approximately every seven days.

Rail: The site will be serviced with a dedicated rail line. Soybeans produced locally will be received mainly by rail. If it is assumed that one cargo carriage will hold 32 to 40 tonne, inbound rail movements will be between 1,250 and 1,560 cargo carriages per year. This corresponds to between 3 and 4 in-bound cargo carriages per day.

Road: Most of the chemical inputs needed for oil extraction, oil treatment and biodiesel production will be received by road. If it is assumed that one cargo truck carries 30 – 45 tonne per load, inbound cargo truck movements will be between 562 and 842 trucks per year. This corresponds to between 1 and 2 inbound cargo truck movements per day.

4.9.2 Outbound Traffic Movements

The products of the production process – soybean meal, biodiesel and glycerine – will be delivered to off-site locations. These products will be transported from the production site via ship, rail and road.

Shipping: The bulk of the soybean meal will be transported to different destinations around the coast of Australia and New Zealand. The Australian coast will receive approximately 300,000 tonne of soybean meal and New Zealand will receive approximately 200,000 tonne. The Australian coast will be serviced using coastal runners carrying an average of 10,000 tonne per load (30 maximum outbound coastal runner movements per year), while the New Zealand route will be serviced by HandyMax vessels carrying 35,000 – 40,000 tonne per load (5 – 6 outbound HandyMax movements per year). These activities result in maximum total outbound shipping vessel movements of 36 ships per year. This corresponds to one outbound shipping movement every 10 days.

Rail: Based on information from RailCorp⁴, an average of 12 freight train paths are utilised on the Illawarra Line in each direction on an average weekday. The bulk of the remaining soybean meal will be transported from the production site using rail. This will result in between 6,250 and 7,813 outbound cargo carriages (40 tonne load each) per year or, alternatively, between 17 and 21 outbound cargo carriages per day.

Road: All biodiesel, glycerine and remaining soybean meal will be transported from the production site using road. This will result in approximately 7,200 – 10,800 outbound cargo truck (30 – 45 tonne load) movements per year. This corresponds to 20 – 30 outbound cargo truck movements per day.

4.10 Employment and Working Hours

It is estimated that approximately 500 jobs will be created during the construction phase of the facility, which is estimated to commence during late 2008 / early 2009. Approximately 235 permanent jobs will be created directly when the facility is in full production, which is estimated to be in end 2009 / early 2010.

In addition, an estimated 725 jobs will be created indirectly in upstream and downstream industries. The facility will operate for 24 hours a day and 340 days per year.

⁴ RailCorp, *Sydney Metropolitan Rail Network: Accommodating Freight Beyond 2015*, prepared for the Department of Transport and Regional Services North South Study Deficiency Workshop, September 2006.

5.0 Planning and Legislative Requirements

The purpose of this section is to identify the applicable planning controls and legislative requirements as they relate to the proposed Soybean Processing and Biodiesel Production Facility as well as to convey their level of importance (Commonwealth, State and Local tiers). This section is structured by way of initially identifying the planning policy under which approval must be obtained, namely *State Environmental Planning Policy (Major Projects) 2005*, followed by the legislative framework that outlines the approvals process. The planning framework outlines the key strategic and statutory considerations that must be addressed within the EA to facilitate the issuing of approval for the construction and operation of the facility (including appropriate agency consultation where relevant).

5.1 Approval Process

5.1.1 State Environmental Planning Policy (Major Projects) 2005

State Environmental Planning Policy (Major Projects) 2005 (SEPP Major Projects) was gazetted on 25 May 2005 and duly amended on 1 August 2005. It replaces all previous provisions related to former State significant development in planning instruments, directions and declarations.

On 27 July 2007, the Director General of the Department of Planning, as delegate of the Minister for Planning, declared that the proposed works for the Port Kembla Soybean Processing and Biodiesel Production Facility are defined as a major project, pursuant to the provisions of clause 6 of *State Environmental Planning Policy (Major Projects) 2005* (SEPP Major Projects). Notwithstanding, for the purposes of this assessment, the definition of the Soybean Processing and Biodiesel Production Facility (the facility), falls within the following Groups of Schedule 1 to SEPP Major Projects:

Schedule 1 – Group 1

Section 3 - Agricultural produce industries and food and beverage processing of SEPP Major Projects, in part, states:

“Development that employs 100 or more people or has a capital investment value of more than \$30 million for any of the following purposes:

- (a) abattoirs or meat packing, boning or products plants; milk or butter factories; fish packing, processing, canning or marketing facilities; animal or pet feed; gelatine plants; tanneries; wool scouring or topping; rendering plants, or*
- (d) any purpose that the Minister considers constitutes an agricultural produce industry or food and beverage processing”.*

The proposed Soybean Processing and Biodiesel facility will be producing in excess of 800,000 tonne of animal feedstock per annum in the form of soybean meal, will employ approximately 235 people and has a capital investment value of approximately AU\$220 million. Accordingly, the proposed facility satisfies this criterion.

Schedule 1 - Group 3

Section 10(1) – Chemical, manufacturing and related industries of SEPP Major Projects, in part, states:

“(1) Development that employs 100 or more people or with a capital investment value of more than \$20 million for the purpose of the manufacture or reprocessing of the following (excluding labelling or packaging):

- (f) oils, fuels, gas, petrochemicals or precursors”.*

The proposed Soybean Processing and Biodiesel facility will be producing fuel (biodiesel), employing approximately 235 people and has a capital investment of AU\$220 million and as such meets this criterion.

Accordingly, the proposed Soybean Processing and Biodiesel Production Facility triggers two separate categories of development that is defined as a major project and the project has been declared, on 27 July 2007 by the Minister of Planning, to be a major project. For this reason the proposal will be assessed in accordance with the provisions of Part 3A of the EP&A Act.

5.1.2 Environmental Planning and Assessment Act 1979

The EP&A Act and the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) provide the framework for the assessment and approval of proposed developments in NSW.

Part 3A of the EP&A Act consolidates the assessment and approvals process for all major projects requiring approval of the Minister for Planning, which were previously assessed under Parts 4 and 5 of the Act. Part 3A applies to State government infrastructure projects, developments previously classified as State significant and any other projects, plans or programs declared by the Minister. It provides a separate streamlined and integrated development assessment and approvals regime for projects of State significance.

Clause 75(B)1 of the EPA&A states that *"This part applies to the carrying out of development that is declared under this section to be a project to which this part applies...by a State environmental planning policy"*.

Under Clause 75D, the Minister is the approval authority for Part 3A projects:

*'(1) A person is not to carry out development that is a project to which the Part applies unless the Minister has approved the carrying out of the project under this Part.
(2) The person is to comply with any conditions to which such an approval is subject'.*

Clause 75E of the EP&A Act provides that a proponent may apply for approval of the Minister to carry out a major project. This document supports NB's Project Application for the Soybean Processing and Biodiesel Production Facility. Accordingly, the facility will be subject to assessment by the Director General of the Department of Planning and determination by the Minister for Planning in accordance with the EP&A Act.

The planning framework is addressed in the following sections.

5.2 Commonwealth Legislation

5.2.1 Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) governs the Commonwealth Environmental Assessment process and provides protection for matters of National Environmental Significance (NES), which include:

- nationally threatened species and ecological communities
- Australia's World heritage properties
- Ramsar wetlands of international importance
- migratory species listed under the EPBC Act (species protected under international agreements)
- Commonwealth marine areas
- nuclear actions, including uranium mining
- national heritage.

The EPBC Act is separate from other approvals (such as those under the *Threatened Species Conservation Act 1995*).

Given the outcomes of the ecological investigations conducted as part of the EA, together with consideration of the above guidelines and the fact that the subject site has been highly disturbed and part of an industrial precinct for a number of years it is unlikely that there will be a significant impact on communities listed under the EPBC Act. Therefore, a referral to the Department of Environmental, Water, Heritage and the Art (DEWHA) for information is not required.

5.3 NSW State Legislation

5.3.1 Fisheries Management Act 1994

The NSW *Fisheries Management Act 1994* (as amended) (FM Act) aims to conserve, develop and share the fishery resources of the State for the benefit of present and future generations and applies in relation to all waters that are within the limits of the State.

The FM Act provides for the protection of certain aquatic habitats and species, the preparation of recovery plans and threat abatement plans and the regulation of certain activities that have the potential to impact aquatic habitats. Under the FM Act, approval is required from NSW Department of Primary Industries (DPI) - Fisheries for activities involving dredging and reclamation, blockage of fish passage and development of certain waterfront land.

The proposal does not seek approval for dredging activities or land reclamation and consequently would not have direct impacts on aquatic ecosystems. Indirect impacts, including changes to water quality and the potential for the introduction of exotic species, require further assessment to determine if DPI approval would be required.

5.3.2 Heritage Act 1977

The purpose of the *Heritage Act 1977* (as amended 1998) (Heritage Act) is to protect and conserve non-Aboriginal cultural heritage including heritage items, sites and relics. The Heritage Act is administered by the NSW Heritage Office. There are no listed heritage items likely to be impacted by the proposed works. In addition, the site has been heavily disturbed and is unlikely to contain any in-situ relics.

5.3.3 Native Vegetation Act 2003

The *Native Vegetation Act 2003* (NV Act) provides for the protection from clearing of native vegetation, primarily within regional areas of NSW. No terrestrial native vegetation would be affected by the proposed development as there are no significant tracts of vegetation on any of the proposed sites. Accordingly, this Act does not apply to the proposed development.

5.3.4 Noxious Weeds Act 1993

The *Noxious Weeds Act 1993* (NW Act) establishes a system for the identification and control of noxious weeds in NSW. Under the NW Act, the Minister for Agriculture may declare a plant to be a noxious weed.

Responsibility for the control of noxious weeds lies with the owner and/or occupier of private land and Crown land, as well as local councils and other public authorities on land they occupy. The obligation can be enforced by the issue of weed control notices by the Minister and local control authorities.

One noxious weed species was recorded on the site. This species would likely be removed prior to the development during the construction of the sea wall, which is outside the scope of this assessment. Ongoing control of noxious weeds would be required during the construction and operation of the facility.

5.3.5 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) relates to pollution management and waste disposal in NSW. The POEO Act also establishes licensing of certain activities, which are listed in Schedule 1 of the Act. Schedule 1 identifies the following:

“Agricultural produce industries that process agricultural produce (including dairy products, seeds, fruit, vegetables or other plant material) and that crush, juice, grind, gin, mill or separate more than 30,000 tonnes of produce per year.”

As the Soybean Processing facility will be producing in excess of 30,000 tonnes of soybean meal per annum (i.e. in excess of 800,000 tonne per annum) it is expected that the Department of Environment and Climate Change (DECC) will require NB to obtain the requisite licence. Accordingly, it is expected that the proposal be referred to DECC for comment.

5.3.6 Water Management Act 2000 and Water Management (General) Regulation 2004

The *Water Management Act 2000* provides that certain types of development and activities that are carried out in or near a river, lake or estuary are controlled activities. A controlled activity includes the following:

- *“the erection of a building or the carrying out of a work (within the meaning of the Environmental Planning and Assessment Act 1979), or*
- *the removal of material (whether or not extractive material) or vegetation from land, whether by way of excavation or otherwise, or*
- *the deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise, or*
- *the carrying out of any other activity that affects the quantity or flow of water in a water source.*

Section 344(1)(a) requires that *a person must not carry out a controlled activity in, or under waterfront land otherwise than in accordance with a controlled activity approval”.*

Section 5 of the Act provides the following criteria that should be considered in relation to controlled activities:

“(a) the carrying out of controlled activities must avoid or minimise land degradation, including soil erosion, compaction, geomorphic instability, contamination, acidity, water-logging, decline of native vegetation or, where appropriate, salinity and, where possible, land must be rehabilitated, and

(b) the impacts of the carrying out of controlled activities on other water users must be avoided or minimised.”

There are no direct impacts expected to any protected waters as a result of the proposed works. There is however potential for indirect impacts. Further assessment is required to determine if a controlled activity approval under Part 3 of the Act would be required and to establish whether DECC should be consulted regarding the proposed works in relation to water management.

5.3.7 Threatened Species Conservation Act 1995

The *Threatened Species Conservation Act 1995* (TSC Act) provides for the conservation of threatened species, populations and ecological communities of animals and plants.

Ecological investigations undertaken on the terrestrial ecology of the site have indicated that there is minimal likelihood of significant impacts on threatened species listed under this Act. Further investigation of potential indirect impacts is required in order to determine any permit or approval requirements under this Act.

5.4 State Environmental Planning Policies

5.4.1 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (SEPP Infrastructure) came into effect on 1 January 2008, which establishes the planning approvals path for infrastructure and had the effect of repealing *State Environmental Planning Policy 11 – Traffic Generating Development*. In this regard, Clause 104 in conjunction with Schedule 3 identifies what is considered to be traffic generating development requiring consultation with the Roads and Traffic Authority. The applicability of SEPP Infrastructure will be determined during the EA process once design details are provided.

5.4.2 State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

The objectives of *State Environmental Planning Policy No 33 – Hazardous and Offensive Development* (SEPP 33) include ensuring that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account. SEPP 33 has been considered and further discussions with the Department of Environment and Climate Change (DECC) will be required to determine whether the proposed works are deemed to be a 'potentially hazardous industry'. Should this determination be in the affirmative regard will be had to the current Department of Planning circulars and will further inform the hazard and risk assessment being undertaken.

5.4.3 State Environmental Planning Policy No. 55 – Remediation of Land

The objectives of *State Environmental Planning Policy No 55 – Remediation of Land* (SEPP 55) include the promotion of remediation of contaminated land for the purpose of reducing the risk to human health or another aspect of the environment.

Clause 7 of SEPP 55 requires a consent authority to consider whether the land is contaminated and whether it is suitable (or can be made suitable) for the proposed development.

There is no data available to suggest a history of site contamination or remediation. However, the detailed land use history is currently under investigation. Notwithstanding, the proposed facility is not considered to be a more sensitive land use than a "Port" and therefore, the site is considered suitable for the proposed use in its current state.

5.4.4 State Environmental Planning Policy No. 71 – Coastal Protection

State Environmental Planning Policy No 71 – Coastal Protection (SEPP 71) commenced in 2002 with the aim of ensuring there is a consistent and strategic approach to coastal planning and management. The SEPP applies to the coastal zone. Relevant matters for consideration are listed in Clause 8 of SEPP 71. The applicability of SEPP 71 will be addressed in the EA.

5.4.5 Illawarra Regional Environmental Plan No 1

Illawarra Regional Environmental Plan No 1 (IREP 1) commenced on 30 June 1998 and applies to land within the Cities of Shoalhaven and Wollongong, the Municipalities of Kiama and Shellharbour and the Shire of Wingecarribee (an area declared by order to be a region called Illawarra) but excludes land to which the *Jervis Bay Regional Environmental Plan 1996* applies. The overarching aims and objectives of the IREP 1 include:

- "maximising the opportunities for the people of the region and the State to meet their individual and community economic and social needs with particular reference to the way in which these needs are related to the allocation, availability, accessibility and management of the region's land resources having regard to the objectives specified in Parts 2-16 by:
 - Identifying regional planning issues and provisions applicable or potentially applicable:

- § *To actual development which may be carried out on land within the region, and*⁵
- § *To the overall planning of the region consistent with the policies for draft local environmental plan preparation specified in Part 2-16.*
- *Advising Government, public authorities and other persons in determining the way in which they may:*
 - § *Manage their land resources*
 - § *Exercise their functions*
 - § *Order their priorities and allocation of their funds in relation to the planning of the region, having regard to the principles in Parts 2-16, and*
- *Establishing parameters and controls relating to development, particularly as they relate to the environmental quality and social well-being of residents of the region”.*

Part 6 of the REP details provisions as they relate to industry, which are as follows:

- *“Ensure that there is sufficient industrially zoned land to meet industrial requirements*
- *Encourage industries and other enterprises to locate within the region to diversify the economic base or act as stimuli to the local economy or both, and so provide new employment opportunities*
- *Locate industrial land where it will meet the particular requirements of industry while having a minimal adverse impact on the natural environment and the amenity of living areas”.*

Part 10 of the IREP 1 details provisions as they relate to ports and harbours. The objectives of particular relevance to Port Kembla:

- *“To strengthen and expand the existing economic and functional roles of the port of Port Kembla,*
- *To ensure that the conflict in the use of recreation and fishing harbours is minimised without reducing their potential enjoyment by a wide section of the community.”*

The proposed Soybean Processing and Biodiesel Production Facility is the first industry of its kind to locate within the Illawarra Region and more specifically within the Port which will contribute to the diversification of the economic base of the region. The facility will generate approximately 235 direct and 725 indirect jobs and potentially provide multiplier effects by encouraging growth in the oilseed market to meet the facility's operational demands. This provides both employment opportunities and may further stimulate growth in the rural market.

The siting of the plant within an operational Port that is not in the immediate vicinity of sensitive land uses, is in close proximity to an operational berth, the rail line and the regional transport corridor is consistent with the objectives of the REP. Consistency with the REP is achieved by:

- strengthening and expanding the existing economic and functional role of Port Kembla
- stimulating the local economy,
- minimising environmental impacts
- providing employment opportunities while meeting the particular needs of the facility due to the site's high accessibility.

⁵ Illawarra Regional Environmental Plan No.1 – Clause 3.

5.4.6 Wollongong Local Environmental Plan 1990

Land Use Zoning

The subject site is regulated by the provisions of *Wollongong Local Environmental Plan 1990* (WLEP) and is zoned as '5a Special Uses – Port' under WLEP (refer to Figure 27).

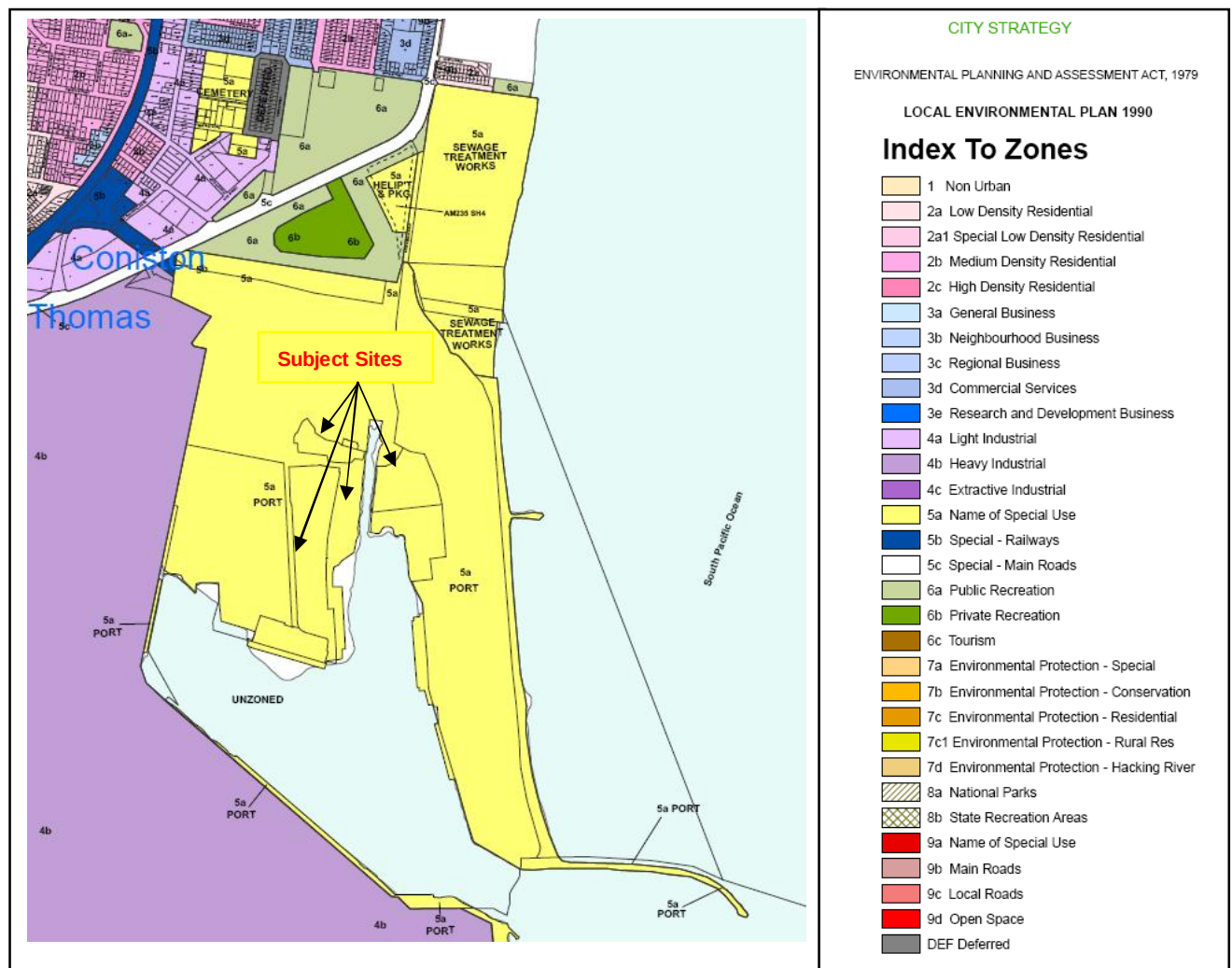
In accordance with Clause 15 of WLEP, development within Zone No. 5 may be carried out only with development consent for the purpose specified on the map. In this instance, the subject site is contained wholly within a '5a Special Uses – Port' area.

Clause 6 of WLEP defines 'port' as being a building or place used for:

- (a) *"The loading of goods onto ships and the unloading of goods from ships;*
- (b) *The storage of goods that are mainly to be loaded onto ships or that have been mainly unloaded from ships;*
- (c) *Industry that produces mainly goods to be loaded onto ships or that uses mainly goods that have been unloaded from ships; and*
- (d) *Any other purpose that is ancillary to or compatible with any of the purposes referred to in paragraph (a), (b) or (c)."*

As described in Chapter 4, the primary of origin of the raw material will be from overseas destinations and as a result will be imported via ships. The soybean meal and the biodiesel will be produced from the imported material and following processing, distribution throughout Australia will entail ship movements. In this regard, the proposed use is consistent with the aforementioned provisions.

Figure 27 Wollongong LEP Zone Plan



5.5 Planning Strategies

5.5.1 Port Kembla Land Use Strategy (2006)

Wollongong City Council, Port Kembla Port Corporation and the Department of Planning have jointly developed a land use strategy for Port Kembla. The *Port Kembla Land Use Strategy*, which encompasses the port area as well as surrounding industrial lands, aims to provide direction for planning and development of the study area over the next 20 years in response to the substantial growth and diversification in cargo types and volumes to be handled through Port Kembla in the future.

Stages 1 and 2 of the strategy identified strengths, weaknesses, opportunities and threats to the achievement of the vision and objectives. A structure plan has been developed based on precincts to provide direction on the desired future for Port Kembla. The structure plan identifies potential and improved road and rail links to provide access to and between the precincts.

The land use strategy identifies that regional transport and access are key elements of the implementation of the strategy. Lack of sufficient transport infrastructure is considered to be a major threat to the future growth and competitive advantages of Port Kembla.

To ensure development of Port Kembla is not limited by lack of access strategic actions and responsibilities have been identified to address regional transport issues. These issues are generally

outside the scope of the Land Use Strategy, but are critical to the achievement of its objectives. The actions include:

- preparation of a freight transport plan
- participate in future strategic planning for upgrading of regional road links
- lobby State Government to include Port Kembla in strategic planning for intermodal facilities
- establish links between the Land Use Strategy and the Illawarra and South Coast Freight Study
- investigate the need for westerly road freight connections
- monitor capacity and performance of key links including Mt Ousley Road
- assess and plan for improved rail connections including the Maldon-Dombarton rail link and South Coast line connection
- assess and plan for new road infrastructure to connect Port Kembla with Sydney
- prepare a traffic, transport and access plan for the study area to ensure transport infrastructure is sufficient to cater for future demand and to manage conflicts between transport modes
- maintain and improve existing private and public rail network in the study area
- consider need for extensions to rail lines to provide access to key sites
- retain and improve road and rail connections between Port Kembla and West Dapto
- review need for public transport improvements as growth in Port activities occurs.

The main outcome of the Strategy will be a framework for management of development in the area. The strategy outlines strategic actions for five discrete precincts within Port Kembla. The Inner and Outer Harbour are defined as Precinct 2. The objective for Precinct 2 that relate to the proposed operation is:

- *to retain grain export capabilities within Port Kembla through the retention of the existing Grain Terminal.*⁶

The proposed facility, by utilising the currently under-utilised infrastructure on the Grain Terminal, ensures the longevity of grain export from the Grain Terminal in conjunction with Grain Corp's currently operations and NB's proposed operations. In this regard, the siting of the new facility in this location will assist in realising the aforementioned objective.

Wollongong Council's strategic planning officer has advised that work is progressing on the preparation of revised planning controls for Port Kembla including the pending release of the new principle Local Environmental Plan and Development Control Plan. The draft planning controls will be publicly exhibited when the Director General has issued the Section 65 Certificate under the provisions of the EP&A Act.

5.5.2 Sydney Metropolitan Strategy (2005)⁷

The Sydney Metropolitan Strategy identifies initiatives that are directly relevant to freight at Port Kembla. The Metropolitan Strategy affirms previous NSW Government plans for a greater role for Port Kembla in cargo handling. Port Kembla is envisaged to take over most general cargo activities currently being undertaken in Port Jackson. General cargo and car stevedoring operations from East Darling Harbour and Glebe Island are in the process of being transferred from Port Jackson to Port Kembla, facilitated by a \$140 million upgrade of Port Kembla. Operations are expected to be transferred to Port Kembla by late 2008.

The Metropolitan Strategy seeks to maximise the efficient movement of freight through Sydney, whilst seeking to mitigate the impacts associated with road freight movements in terms of air quality and

⁶ Sinclair Knight Merz (SKM) 2007. *Port Kembla Land Use Strategy*. Final Report February 2007 prepared for Port Kembla Port Corporation and Wollongong City Council

⁷ Department of Planning, Sydney Metropolitan Strategy: City of Cities – A Plan for Sydney's Future, December 2005

noise effects on local communities and provide sufficient port capacity to cater for future growth. As such, the Strategy places emphasis on strategies to encourage the greater use of rail for movements to and from the Port. The Metropolitan Strategy identifies the need for further investigations into the movement of domestic inter-modal freight, construction materials and bulk fuel.

The proposed use of the land within the Port is considered to be consistent with the Strategy as it reinforces the primary function of Port Kembla as a major NSW Port and will take advantage of its high accessibility in terms of product distribution (road, rail and sea). It should also be noted that the proposed facility is not located on land identified for the portion of the cargo and automobile industry to be transfer from Port Botany.

5.5.3 Illawarra Regional Strategy 2006-31

The Illawarra Region is bounded by Sydney, the South Coast and the Southern Highlands and encompasses the Wollongong, Shellharbour and Kiama local government areas. The Illawarra currently boasts a population of over 281,000 people and specialists have forecast a population growth of 47,000 and job growth of 30,000 within the next 25 years⁸. The Illawarra Regional Strategy 2006-31, in part, aims to facilitate economic growth, generate local job and housing opportunities and attract new business investment to meet the needs and demands inherently associated with to such growth.

Port Kembla is identified as a key employment precinct within the Region and the commitment for its expansion, facilitated through the *NSW Port Growth Plan* and Port Kembla Port Corporation's future strategies, provides a significant opportunity to support investment and employment in this precinct. Further, support to facilitate increased investment and employment generation is offered through the protection of strategic transport corridors from inappropriate development⁹.

The siting of the proposed facility in the Port is consistent with the Illawarra Regional Strategy insofar as it a new business investment locating in the region, which provides employment opportunities (direct and indirect). NB also has an intention to foster the growth in the rural market through it's development programs.

5.5.4 NSW Port Growth Plan (2003)

On 5 October 2003, the *NSW Ports Growth Plan* was announced by the NSW Government. The Plan provides a framework on how port capacity in NSW is to be managed to ensure future capacity is available to cater for anticipated growth, with the ultimate goal of distributing the benefits of port growth more equitably between Sydney, the Hunter and Illawarra regions of NSW. Of particular relevance for the Illawarra Region is the core directive of the Plan to progressively relocate containers, general cargo and car stevedoring from Port Jackson to Port Kembla.

The transfer of general cargo and car import activities from Sydney Harbour to Port Kembla is anticipated to generate every year:

- an additional 400 ships
- up to 30,000 additional containers
- 125,000 tonnes of break bulk cargo (timber, machinery, steel, etc) and
- 240,000 vehicle imports.

In response, the Port Kembla Port Corporation (PKPC) has formulated its strategies to cater for the anticipated transfer of activities from Sydney Harbour. The additional trade will be catered through the development of a new multi-purpose terminal in the Inner Harbour as demonstrated in Figure 28.

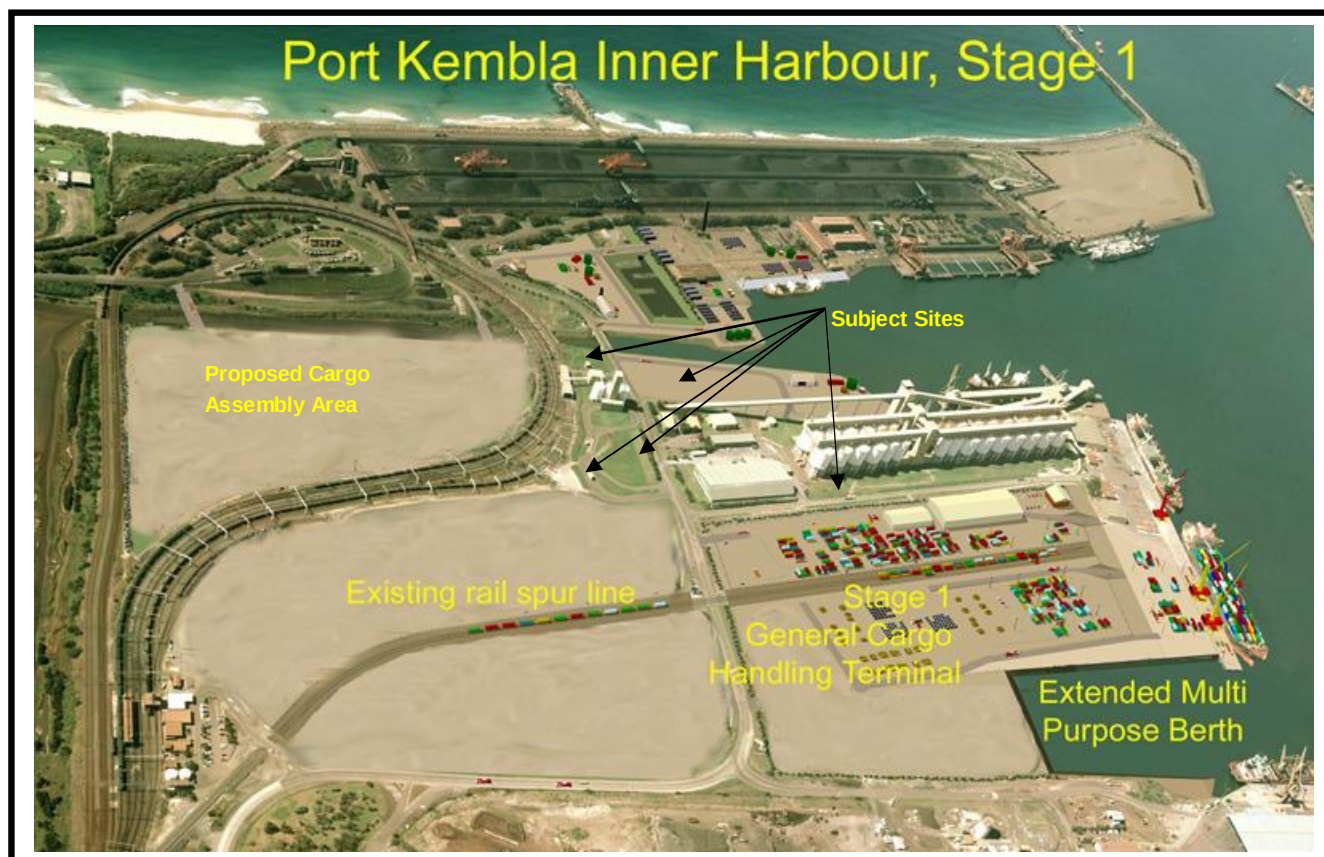
⁸ NSW Government, Department of Planning, *Illawarra Regional Strategy 2006-2031*

⁹ Et al

In the medium to long term, PKPC has identified the possible future development opportunities in the Outer Harbour and has commissioned the preparation of a Master Plan to establish the strategic framework for its future development. At this stage, it is envisaged that an extensive area is to be reclaimed, allowing for the construction of two new berths.

The subject allotments are not sites identified to take the cargo assembly areas identified above, indeed they are residual allotments that will infill this portion of the Port. The proposal to construct the Soybean Processing and Biodiesel Production Facility is consistent with the *NSW Ports Growth Plan*.

Figure 28 Port Kembla Inner Harbour, Stage 1 and the Biodiesel Production facility Location



Source: NSW Maritime (http://www.maritime.nsw.gov.au/images/Port_view_2.jpg)

NB: The existing rail spur line referred to has been removed and Tom Thumb Road has been realigned to follow the rail line.

5.5.5 State Infrastructure Strategy (2006)

The *State Infrastructure Strategy (2006)* outlines planned financial outlays for infrastructure projects in NSW for the 10 years to 2015-16. The State Infrastructure Strategy has been aligned with planning strategies such as the *Sydney Metropolitan* and *Illawarra Regional Strategies*. The Strategy confirms that funding is available for the future development of Port Kembla, allowing for:

- the purchase of Outer Harbour land (\$1.5 million)
- construction of a bridge to access 10 ha of land within the balloon loop (\$4 million)
- redevelopment of the Inner Harbour (\$86 million)
- staged redevelopment of the Outer Harbour (\$25 million).

The decision to inject \$86 million into the redevelopment of the Inner Harbour demonstrates a commitment to the revitalisation of the Port. Positioning of a new state-of-the art industry in the Port is

consistent with such an initiative and will compliment the upgrade works whilst utilise what is currently under-utilised land.

5.5.6 Port Freight Plan (2004)

The *Port Freight Plan (2004)* (PFP) was announced in 2004. Its primary objective is to divert road freight onto rail. Although the Plan focuses on freight movements in the Sydney metropolitan area, the Plan enunciates the need to develop an overarching policy regarding the management of freight movements within NSW. The operation of the plant will involve utilising up to two rail freight movements per day, which requires approximately 25 carriages per day (inbound and outbound). In this regard, the proposed operations reconciles with the objectives of the PFP.

5.5.7 Port User and Port Related Industry Study (2004)

Objectives of the *Port User and Port Related Industry Study (2004)* were to identify businesses that may redirect cargo through Port Kembla, to understand their cargo consolidation and forwarding needs and predict their potential use of Port Kembla in the future. The study area included the Illawarra, South Coast, Southern Tablelands, Outer Western Sydney (Liverpool to Camden) and parts of the Sutherland Shire.

A survey of firms in these areas revealed that business activity requiring sea freight was high. However, the amount of trade linked to the Illawarra Region and South Coast is lower in comparison to the opportunities presented by firms located in the Outer Western Sydney region. These results suggest that strategies to develop a sea cargo business at the Port Kembla must target potential customers in both the Illawarra and Outer Western Sydney regions.

NB operations, at this stage, necessarily require sea freight for the importation of their primary processing product. NB's selection of Port Kembla for its soybean processing operations is consistent with the future direction recommended by the *Port User and Port Related Industry Study*.

5.5.8 Illawarra and South Coast Freight Study

The *Illawarra and South Coast Freight Study* was commissioned by the NSW Department of Planning to identify and prioritise freight issues affecting the Illawarra and South Coast Region. The study included an assessment of the current and future demand for freight in the region as well as method of transportation. This analysis has been incorporated into the assessment of the proposed facility where appropriate.

In addition, the study highlighted a number of issues which currently inhibit freight operations in the region including the following:

- review of SEPP 7 (now repealed) which restricts coal freight road transport deliveries to the coal terminal to day light hours (curfew between 6pm and 7am)
- reconsideration of the business case for the Maldon-Dombarton rail line
- review and develop incident management plans for road transport, in particular, to assess the proportion of the road network without reasonable alternative routes for heavy vehicles.

There is currently interest in undertaking a feasibility study for the completion of the Maldon - Dombarton rail line in association with the expansion of the Outer Harbour in conjunction with Infrastructure Australia's concern about improving strategic transport access to Ports. The NB proposal would assist feasibility investigations by potentially generating freight traffic for this line.

5.5.9 Illawarra and South Coast Employment Lands Study (2006)

This *Illawarra and South Coast Employment Lands Study 2006* comprised the development of an employment lands strategy for the Illawarra and South Coast Region to make certain that there will be sufficient employment opportunities for future populations within the region. The strategy was undertaken in three stages including an audit of employment lands in the region; identification of the region's current and future economic and employment prospects; and the implications for regional planning. The study included an action plan and recommendations regarding Local Environmental Plan (LEP) amendments to ensure consistency across the LGA's. Port Kembla is recognised by this study as regionally significant employment land.

The study aims to promote the orderly planning and development of employment land in the region. Employment land is broadly defined as land that could be used for employment generating activities including land zoned for industrial purposes. The Illawarra and South Coast Employment Lands Study and the Illawarra Regional Strategy identify Port Kembla as a key employment precinct. NB's site selection for the facility assists in achieving the aims enshrined in the *Employment Lands Guidelines for the Illawarra* by promoting the orderly development of residual allotments in a cohesive and coordinated manner while generating significant employment opportunities, both directly and indirectly.

5.5.10 West Dapto Economic and Employment Study

Wollongong City Council has commissioned an Economic and Employment Study for the West Dapto Release Area which covers 3,080 hectares of farming land. An optimum development scenario has been identified for West Dapto of approximately 19,400 dwellings and a population of 46,560 by 2049.

The employment study estimates that 10,000 on-site jobs will be generated through the provision of employment land within West Dapto. A further 12,000 jobs are expected outside of the release area through the multiplier effect. This employment relies on demand from new residents; selling to external markets; and jobs associated with the construction process.

A strategic framework has been developed to realise the anticipated employment yield. The framework includes reinventing Wollongong's future; encouraging an entrepreneurial culture; offering a sustainable environment and excellent quality of life; and ensuring an inclusive community. The siting of the plant in Port Kembla will assist in realising the objectives of this study through employment generation, both directly and indirectly, by the facility as well as any multiplier effect it generates through growth in the rural market to cultivate oilseeds.

6.0 Preliminary Environmental Assessment

6.1 Introduction

This section describes the potential issues associated with the proposed Soybean Processing and Biodiesel Production Facility and provides a description of the methodology for assessing and addressing these matters in the EA.

6.2 Key Issues

The issues that may potentially arise from the construction and operation of the facility have been separated into 'key issues' and 'issues of moderate significance'. The issues for discussion include:

- Key Issues
 - air quality and odour
 - energy and sustainability
 - hazards and risks
 - traffic and transport
- Issues of Moderate Significance
 - ecological and water quality impacts
 - noise emissions
 - social impact
 - waste management
 - landscape and visual impact.

The following subsections address each of the above.

6.2.1 Air Quality and Odour

Potential Impacts

Storage of liquids and unloading of hexane, biodiesel and the like need to be managed with respect to releases into the air. This would be controlled by normal practices for relevant facilities such as:

- vapour/vacuum vent controls for bulk storage tanks, vapour redirection to internal to process items
- appropriate dusts collection systems with appropriate monitoring and alarm systems.

From our review of the proposal we understand the following issues to provide potential for impact to local air quality.

- Increase emission from road traffic servicing the site.
- Fugitive dust emission from dried material transfer from conveyor belts and ships.
- Emission of hexane from the soybean oil extraction plant and methanol from the methyl ester refining plant.
- Fugitive emissions from biodiesel storages tanks and transfers.

Environmental Impact Assessment Methodology

The environmental impact assessment methodology for air quality and or odour would be required to be conducted in accordance with the DECC's "Approved methods for the modelling and assessment of air pollutants in NSW (August 2005).

The following information would be required to complete this:

- emission rates, heights, velocity and temperature
- local ambient air quality data
- local meteorological data including wind direction, speed and stability class, mixing depth (this information could be sourced from DECC or the Bureau of Meteorology).

The assessment would consider the nearest receptors including residents to the north at Mount Saint Thomas and Coniston (1500 metres) and to the south and south west at Cringella and Port Kembla (2000 metres). Appropriate mitigation measures will be identified.

6.2.2 Energy and Sustainability

Potential impacts

Assessment of the proposed Soybean Processing and Biodiesel Production Facility will be based on addressing the four principles of Ecologically Sustainable Development (ESD) which are defined within the *Environmental Planning and Assessment Regulation 2000*:

- precautionary principle
- intergenerational equity
- biological diversity and ecological integrity
- incentives, valuation and pricing.

The impacts of the project can be managed in a manner that is consistent with the principles of Ecologically Sustainable Development.

Assessment Methodology

The principles of sustainable development and ESD have been considered during the concept design stage and will be considered further as part of the detailed design and associated environmental assessment. A description of the project with respect to these principles will be provided as part of the detailed EA report. The EA will demonstrate the impacts of the project can be managed in a manner that is consistent with the principles of ESD.

The Precautionary Principles requires assessment in terms of risks and uncertainty of the project, particularly in relation to the potential for causing environmental harm. Likewise, potential hazards from the operations will be assessed as part of the EA, to demonstrate risks can be managed to minimise harm.

A qualitative assessment will be carried out as part of preparing the EA to establish the greenhouse gas emission sources and recommend appropriate mitigation measures to address both single and cumulative emission sources.

The assessment will involve addressing the key strategic differentiators arising from this project that promotes ESD principles, including:

- a net improvement in environmental outcomes due to more efficient transport using biofuel technologies
- reduced hauling distance (to and from the facility) for materials by locating at Port Kembla, thereby reducing emissions and traffic congestion
- utilisation of an existing facility (GrainCorp) that is currently underutilised
- promotion of sea trade which can have a lesser ecological footprint per tonne kilometre than comparable land or air transport where applicable and optimise energy efficiency of available transport options
- positive indirect environmental and social costs and benefits through investment in regional economy
- provision of alternative fuel in response to issues such as fossil fuel scarcity, displacement of greenhouse gas emissions caused by traditional fossil fuel consumption and peak oil.

6.2.3 Hazards and Risks

Potential Impacts

Potential significant fire and explosion risks arise from a number of aspects of the plant operations. Items of risk include:

- storage of large volumes of flammable liquids –such as Hexane and Methanol
- processing of flammable liquids in the production processes such as extraction, solvent recovery and transesterification
- presence of combustible dusts from processes such as dehulling, cracking and storage of soybean.

The level of risk varies with each specific plant process and storage concerned. Other readily identifiable risks arise from spills of dangerous goods including flammable and combustible liquids and acids.

Conditions leading to each class of risk are well understood and are covered under numerous Australian and international standards. As the plant design would meet all relevant standards the specific hazards and risks would be appropriately managed.

In the context of adjoining land use these risks are less than current grain silo operations. Hazards and risks are also less than other styles of processing plant which are common in industry.

Environmental Impact Assessment Methodology

Hazards and risks associated with the plant are managed by the following measures.

- Ensuring design meets relevant standards and practices. In this case Australian Standards would be identified for the project and supplemented by international standards where appropriate.
- Using relevant design expertise. In this case the design would be by experienced designers relevant to each section of the proposed facilities.
- Carrying out specific hazard and risk analysis studies at various stages in the project development. It would be normal for a plant of this type to have numerous safety studies carried out during the design development. Studies would include design and operational groups to ensure that a cross section of relevant knowledge and experience is obtained. Studies would be at increasing levels of detail as design progresses and would be carried out for each area of the plant e.g. storage areas and processing areas. Hazard and risk studies are also reviewed once

the plant becomes operational to ensure closure of items as well as address items that become known as part of the specific plant operational experience.

For the environmental impact assessment two specific studies are proposed as the first stages of the above outline, which are as follows.

- Preliminary hazard identification and operational study (E.g. HAZOP or similar study format).
- Fire risk contour study to review heat flux and possible fatality risk contours around the plant in event of a major fire.

6.2.4 Transport and Traffic

The proposed Soybean Processing and Biodiesel Production Facility will be located immediate to the east of the Port Kembla GrainCorp Terminal within the Port Kembla Inner Port area. The *Port Kembla Freight Accessibility Strategy Study* identifies the primary access between the Southern Freeway and the Inner Port is via Tom Thumb Road. The Southern Freeway provides arterial connection between Wollongong and Sydney Airport and Port Botany. However, the Sydney motorway network is undermined by the lack of similar standard roads through Southern Sydney.

The main access route to the facility to and from the Southern Freeway is via Masters Road, Springhill Road and Tom Thumb Road, except traffic from the south will be approaching the site via Five Islands Road and Springhill Road .

Potential Impacts

Shipping Facilities

The proposed facility will be using the docks that currently belong to the GrainCorp Terminal. It is also assumed that the Port has undertaken the necessary planning of the shipping facilities required for the facility and therefore water-based transport requirements are not considered in this assessment.

Freight Network

According to the *Port Kembla Freight Accessibility Strategy Study*, there are restrictions regarding access from the Port to the main rail line during the peak hours for passenger rail between Wollongong and Sydney. It is also understood there are limited capacity available to train movements in and out of the Port outside the restriction hours. However, it is expected the Port will have spare capacity to accommodate the forecast maximum of 2 daily rail movements for the facility. It is not part of our original scope to assess in detail any capacity constraints to the freight network.

Local road network

The proposed plant will be collocated with the Port Kembla GrainCorp Terminal and accessed via Tom Thumb Road. The main access route to the facility from the Southern Freeway is via Masters Road, Springhill Road and Tom Thumb Road.

Tom Thumb Road is currently a two-lane two-way road connecting Springhill Road with the Port Kembla Inner Harbour. The route currently carries a two way flow of approximately 1,200 vehicles per day of which 35% are heavy vehicles.

Springhill Road is a six lane road connecting the centre of Wollongong with the Port Kembla Industrial Area. It carries approximately 30,000-35,000 vehicles per day towards Five Islands Road and 15,000 vehicles per day towards Wollongong CBD. Heavy vehicles are estimated to comprise 15% of total traffic.

Masters Road provides a critical connection between the Southern Freeway and Springhill Road and is also a six lane road. It carries approximately 25,000 vehicles per day comprising 15% of heavy vehicles.

Recent studies suggest that these roads currently have significant spare capacity and the intersections of the Southern Freeway/Masters Road, Masters Road/Springhill Road and Springhill Road/Tom Thumb Road all operate with significant spare capacity and minimal average delays.

The proposed Soybean Processing and Biodiesel Production Facility will generate a maximum of 65 heavy vehicles per day to the road network, which equates to a significantly small amount of additional vehicles to the surrounding road network. The traffic impact assessment to be prepared as part of the EA will assess the impacts of the heavy vehicles on the road network.

The layout design of Tom Thumb Road/Farrer Road and Tom Thumb Road/Moreton Bay Road will need to be reviewed to ensure safe manoeuvring of trucks. Swept path analysis should also be undertaken in designing the truck parking areas at the end of Farrer Road.

Strategic Road Network

It is envisaged that some of the raw materials and the products related to the facility will be originated and distributed to the areas outside Wollongong. The strategic road network links Port Kembla to Wollongong and Sydney in the north, Western Sydney and Appin in the west and Nowra, Melbourne and Adelaide in the south are listed below.

- The Southern Freeway connecting Wollongong and Sydney.
- Mount Ousley Road, the major route through the Illawarra Escarpment linking two sections of the Southern Freeway.
- Princes Highway, a link between Wollongong and Sydney as well as Melbourne and Adelaide.
- The Northern Distributor, linking North Wollongong with Bellambi.
- Picton Road, linking Western Sydney and Wollongong.
- Appin Road, linking the Southern Freeway to Campbelltown.

Some of these routes are constrained by unfavourable geometry, poor vertical and horizontal alignment and limited provision of divided carriageway (in particular road network south of Kiama). However, the relatively small amount of additional traffic generated by the proposed facility will not have a significant impact to these strategic road networks.

Future development

The proposed transfer of container, break-bulk and automotive activity from Darling Harbour and Glebe Island to the Port Kembla Multipurpose Berth in 2008 will result in an increase in the number of daily truck movements on the local road network in the vicinity of the Port.

Truck turning conflicts are created at the following intersections:

- Masters Road/Springhill Road – major entry exit route for a large portion of Port traffic
- Five Islands Road and Springhill Road – Secondary entrance point for southern movements and access to Outer Harbour
- Springhill Road and BlueScope entrance – Vehicles turning into the BlueScope plant
- Springhill Road and Tom Thumb Road – Trucks turning off/on to Springhill Road from the grain and coal berths as well as the future proposed car and container berths
- Springhill Road and Port Kembla Road - Trucks turning off/on to Springhill Road from the coal unloader
- Tom Thumb Road and entrance to new berth development – Container and car truck conflicting with grain and coal movements.

The Port Kembla Port Corporation in conjunction with The Port's Growth Plan has also identified possible development opportunities in the Outer Harbour. It is envisaged that up to 10 ha could be

reclaimed allowing for construction of two new berths. In the future this will add more trucks to the local road network around Port Kembla. However, the impact of this proposal to the main access route to the proposed facility will not be significant as the Outer Harbour development is expected to be accessed via Five Islands Road.

Environmental Impact Assessment Methodology

The environmental impact assessment methodology for transport and traffic will involve the following procedures.

- Assess the amount of traffic to be generated by the Soybean Processing and facility (construction and operation, staff and deliveries).
- Review the impact of additional traffic demand on the existing road network and expected impacts at the key intersections.
- Recommend measures necessary to mitigate expected impacts (during construction and operation).
- Review the design of intersections and parking areas to ensure they meet with design and safety standards.
- Review the internal operations to ensure its impacts to the external road network is minimised.

6.3 Issues of moderate significance

6.3.1 Ecology and Water Quality

Terrestrial ecosystems

The terrestrial ecosystems on the site are highly degraded. Minimal vegetation exists over the vast majority of the site which is largely covered in fill material and asphalt. The edge of the site adjacent to Tom Thumb Lagoon contains a narrow strip (2 to 5 metres wide) of predominantly exotic vegetation. The dominant grass species here is Kikuyu Grass *Pennisetum clandestinum*, an invasive exotic species. Other exotic grasses, vines and herbaceous plants are also found here. Several species of native grass, Beach Spinifex *Spinifex sericeus* and Native Reed *Phragmites australis* occur as small isolated patches. Scattered specimens of the shrubs Sydney Golden Wattle *Acacia longifolia* (native) and Bitou Bush *Chrysanthemoides monilifera* ssp. *rotundata* (noxious weed) also occur. Most of this vegetation is likely to be removed during reconstruction of the sea wall which would take place prior to the construction of the proposed facility. The sea wall construction and its potential impacts are beyond the scope of this assessment.

Twelve bird species and one exotic mammal (Brown Hare *Lepus capensis*) were observed on the site. Of the birds, three are exotic species and the remaining nine are common species which are capable of utilising highly modified habitats. Due to the condition of the habitats on the site and the lack of suitable habitat, no threatened species of terrestrial flora or fauna are considered likely to occur on the site. Direct impacts on terrestrial flora and fauna are therefore considered to be minimal and no further assessment of these impacts is considered necessary.

A potential indirect impact from the importation of soybeans is the risk of introducing exotic species. Some potential may exist for the introduction of exotic plants, animals or pathogens (disease-causing organisms) that could spread from the site and cause damage to native ecosystems and agricultural production. Control measures would be implemented to reduce the likelihood of the introduction of exotic species. The proposed measures would be assessed to determine whether they would conform to current best practise and whether they would be adequate to reduce this risk to an acceptable level.

Aquatic ecosystems and water quality

Water quality in Port Kembla Inner Harbour is affected by urban and industrial runoff with elevated levels of metals and organic pollutants and moderate turbidity.¹⁰ A variety of plant and animal species are known to occur in the inner harbour including a number of introduced species. As of 2004, no threatened aquatic flora or fauna species had been recorded here.¹¹

Inspection of the edge of Tom Thumbs Lagoon adjacent to the site did not reveal the presence of any marine vegetation. Visual assessment of the water quality revealed moderate turbidity and floating rubbish as factors affecting water quality.

Water quality may be affected by the construction of the sea wall but this is outside the scope of this assessment. Runoff may potentially impact water quality during the construction and operation of the facility. The potential for this to occur and the adequacy of proposed mitigation measures requires further assessment.

The operation of the facility would require ships to transport soybeans from overseas ports to Port Kembla. Ballast water carried by ships is a potential source of exotic marine species that may impact aquatic ecosystems, fisheries, aquaculture and human health. Fouling in the form of marine growth on the hulls of ships is also a potential source of exotic species. Control measures would be implemented to reduce the likelihood of the introduction of exotic species. The proposed measures would be assessed to determine whether they would conform to Australian and international best practise guidelines and whether they would be adequate to reduce this risk to an acceptable level.

6.3.2 Noise

Potential Impacts

A previous study by Bridges Acoustics *"Bluescope Steel Limited Port Kembla Steelworks – Ore Preparation Area Upgrade Noise Impact Statement - 2006"* has established the noise environment around the proposed development site and at the nearest potential residential receivers.

Key activities that could have a negative impact on the existing noise environment are outlined as follows.

- Construction of the facility.
- Import of raw materials by road, rail and sea.
- The biofuel manufacturing process.
- Export of finished products by road, rail and sea.
- Increased traffic flow on local roads resulting from increased workforce.

Environmental Impact Assessment Methodology

A detailed noise impact assessment will be undertaken for the construction and operational aspects of the proposal based on data contained in the study prepared by Bridges Acoustics *"Bluescope Steel Limited Port Kembla Steelworks – Ore Preparation Area Upgrade Noise Impact Statement - 2006"*.

¹⁰ Sinclair Knight Merz (SKM) 2005. *Proposed Expansion of General Cargo Handling facility Environmental Assessment Report*. Final Report December 2005 prepared for Port Kembla Port Corporation.

¹¹ EcoLogical Australia (ECA) 2004. *Ecological Assessment for Proposed Berth - WB1* (Project No. 48-02). Report prepared for Port Kembla Port Corporation July 2004

The noise impact assessment will involve:

- identification of residential receivers and other noise sensitive localities that could potentially be adversely affected by noise and vibration generated by construction related activities and facility operation
- determination of construction and operational noise criteria
- calculation of noise levels at the nearest potentially affected residential receivers and other noise sensitive localities
- an assessment of the impact at the nearest potentially affected residential receivers and other noise sensitive localities in accordance with the Environmental Noise Control Manual and the NSW Industrial Noise Policy for the construction and operational activities respectively
- recommendations relating to noise monitoring and management and mitigation suggestions where appropriate.

6.3.3 Social Impact

Potential Impacts

A preliminary review of the social impacts associated with the potential proposal has been undertaken by the Maunsell Communications and Consultation team. An initial review of the potential environmental impacts indicates that the proposed works will not have a significant adverse impact on the local community proximate to the proposed development. This preliminary review will be confirmed through the various environmental impact assessments undertaken to support the EA.

It is further anticipated that the proposed development will result in a beneficial social impact for the local community through local business investment and employment generation. The Port Kembla community is supportive of balancing development with environmental impacts. Community and business stakeholders in the Port Kembla area have a long history of interacting effectively with industrial port activity which provides a range of economic benefits.

Environmental Impact Assessment Methodology

This initial social impact assessment will be confirmed by a desktop study which will profile the Port Kembla area and identify relevant social issues and concerns. The study will also include a desktop review to identify key stakeholders and their priorities in relation to the development, and provide an overview of the history of the area, demographics, community identity, land use, documentary analysis and media issues. In addition, the study will involve a comprehensive analysis of relevant current state and regional plans and policies that describe the existing policy context of the development proposal. This information will then be documented in a social impact assessment which will be incorporated into the EA.

6.3.4 Waste Management

This scope of works includes identification of waste inputs and outputs associated with the facility. This will include an assessment and identification of possible waste disposal and management options.

Potential Impacts

Waste generated by the proposed plant can be broadly segregated into three categories, which are:

- construction/demolition waste
- employee generated waste
- production waste.

Construction and demolition waste has the potential to impact on the environment depending on the types of materials and methodologies. The environmental impact of employee generated waste is likely to be limited to the effects of littering on visual amenity and local flora and fauna.

A summary of the waste generated during the production process is shown in Figure 26 below.

Table 10 Production Wastes

Operation component		Nature	Effluent (kg)	Units	COD (ppm)	BOD (ppm)	Suspended solids (ppm)	pH
Bean preparation		Liquid	0	/tonne soybeans				
Soy-oil extraction	With Zero Effluent Unit	Liquid	0	/tonne soybeans				4-9
	Without Zero Effluent Unit	Liquid	55	/tonne soybeans				4-9
Soy-oil pretreatment	With 800BW Unit	Liquid	110	/tonne biodiesel	2700	1800		5-9
	Without 800BW Unit	Liquid	200	/tonne biodiesel	1500	1000		5-9
	With Ice Condensing Unit	Liquid	20	/tonne biodiesel	15000	10000		5-9
Exhaust air from sub vent cooling		Gaseous	1.6	/tonne biodiesel	-	-	-	-
Exhaust cake from soy-oil pretreatment	Composition: Used bleaching earth with 30-35% oil	Solid	30	/tonne biodiesel	-	-	-	-
Exhaust gums from soy-oil degumming	Composition: 50% oil and phosphatides; 50% water	Solid	0.04	/tonne biodiesel	-	-	-	-
Biodiesel Production		Liquid	10	/tonne biodiesel	8500	1500		7-9
Glycerine distillation		Liquid	750	/tonne glycerine	6500	3500		
Pitches from glycerine distillation	Composition: NaCl, M.O.N.G., poli (glycerol) and residual glycerol	Solid	100	/tonne glycerine	-	-	-	-
Exhaust activated carbon from glycerine distillation	Contains glycerol	Solid	4	/tonne glycerine	-	-	-	-

Due to the number of hazardous chemicals used in the production process, it is likely that there will be some residual chemicals in the wastes generated. These could have a wide range of environmental impacts if not handled and disposed of properly.

Environmental Impact Assessment Methodology

The environmental impact assessment will review the construction/ demolition, operational and employee generated waste streams to identify and assess possible waste disposal and management options. These will follow best practice waste handling, containment, storage, transportation and disposal methods. This will include a review of hazardous waste handling and disposal as well as the potential for re-use and recycling of inert wastes.

6.3.5 Landscape and Visual Assessment

Potential Impacts

The subject buildings are to be located within an existing heavy industrial precinct and are proposed to be consistent with the height and scale of development within the precinct.

Key objectives of the environmental impact assessment with respect to visual amenity are to:

- assess the visual character of the landscape
- determine the impacts of the proposed facility on this landscape
- determine management strategies to ensure that the visual character of the landscape is maintained or improved.

The details of the architectural design of the proposed facility are not yet available however it is expected that the plant will be similar to those currently in operation (refer to Figures 19-24).

In addition to the general presentation of the proposed plant, shows the general building footprints for each of the affected sites (refer to Figure 25 and Appendix B).

Environmental Impact Assessment Methodology

The visual character of the landscape setting will be assessed at both a local and broad scale. Based on this assessment we will address:

- existing landscape values
- scenic quality assessment of the landscape
- identify design strategies to ensure that the visual character of the landscape is maintained or improved.

The view corridors for the various components will be established by GIS analysis of terrain data, followed by on-site verification. Key viewpoints to the development include views from the Western Drain and the development on the eastern side of the Western Drain, from Tom Tom Road, adjoining sites and from the escarpment. The key viewpoints will represent the range of views that will be experienced to the facility. View corridors of each key viewpoint will then be determined to identify the extent the development can be viewed from each viewpoint.

7.0 Conclusion

NB proposes to develop land and structures that have been made available by NSW Maritime, GrainCorp and the Port Kembla Port Corporation. The construction of the proposed Soybean Processing and Biodiesel Production Facility has been declared, by the Minister for Planning, a major project, pursuant to clause 6 of *State Environmental Planning Policy (Major Projects) 2005*. Therefore, the proposal requires approval from the Minister for Planning under Part 3A of the *Environmental Planning and Assessment Act 1979*.

This document constitutes as a formal request to the Department of Planning for the Director-General's Requirements for this proposal.

The PEA contained in this document provides descriptions of the key issues and the methods for addressing those issues as part of the detailed EA. The key issues for discussion are:

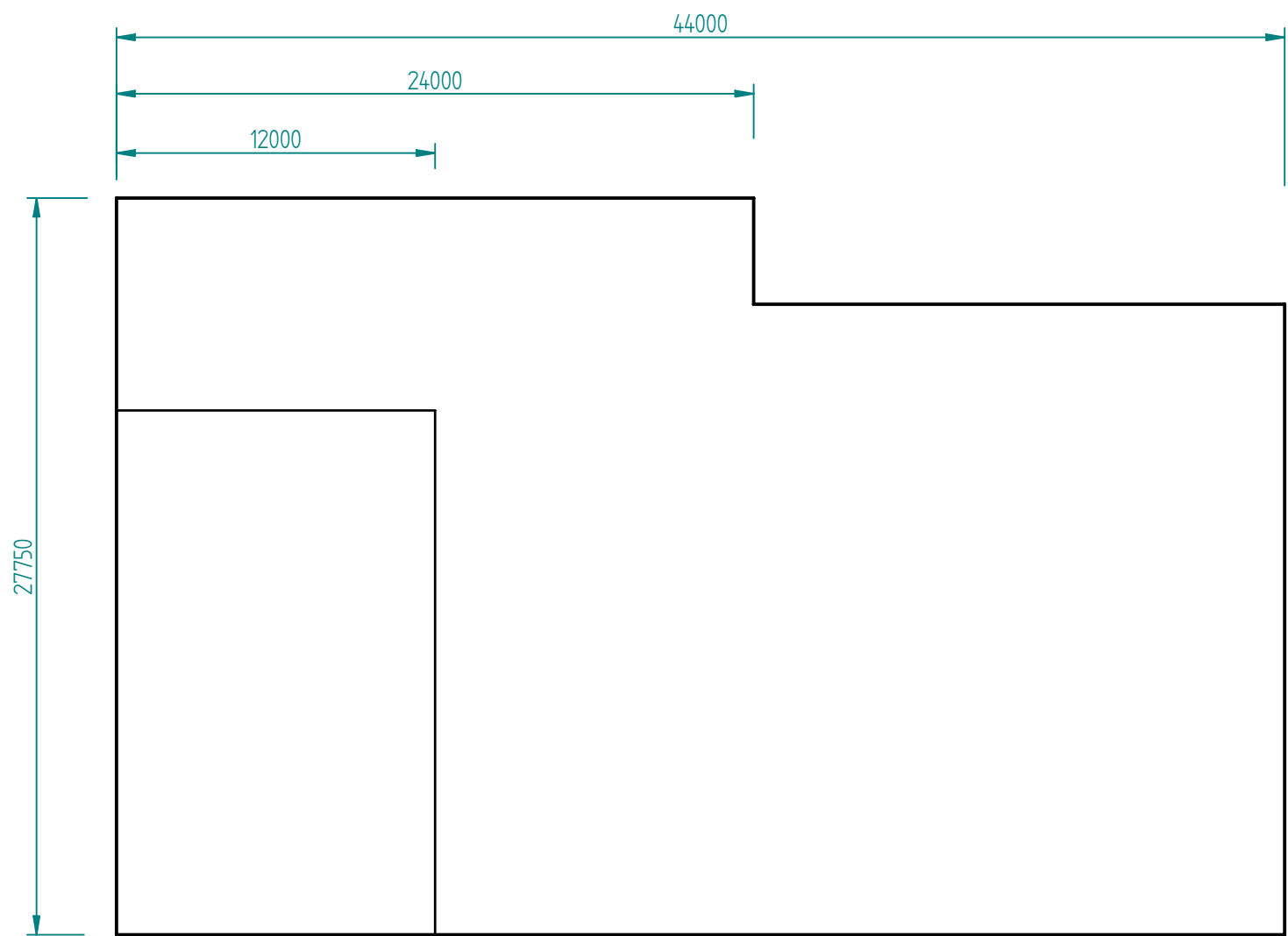
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 - Air quality and Odour
 - Energy and Sustainability
 - Hazards and Risks
 - Traffic and transport
- Issues of Moderate Significance:
 - Ecological and Water Quality impacts
 - Noise emissions
 - Social Impact
 - Waste management
 - Landscape and Visual impact.

This document presents conceptual footprints and representations for the proposed Soybean Processing and Biodiesel Production Facility in order to inform the EA process. Upon receipt of the Director-General's Requirements NB will undertake a detailed EA and submit that assessment as part of the formal application for Project Approval.

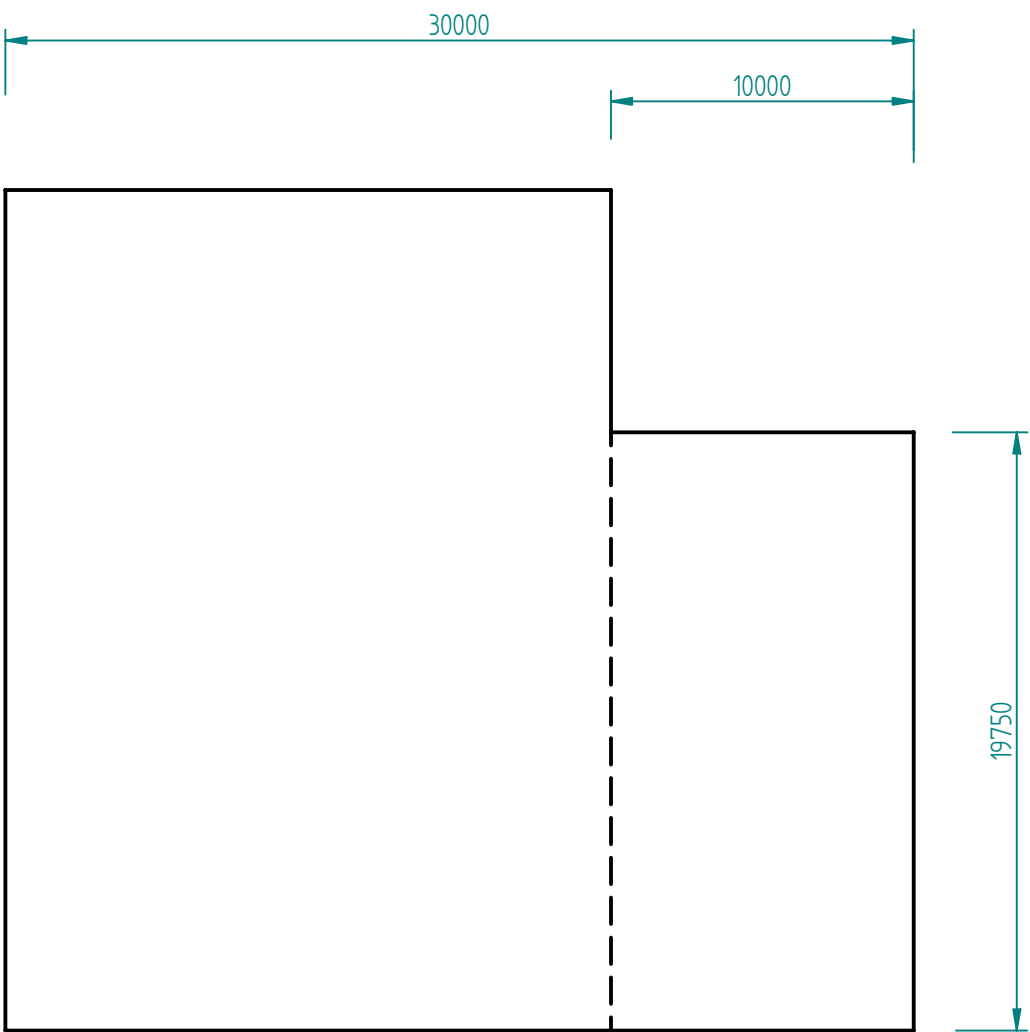
Appendix A Concept Design Plans – Elevations

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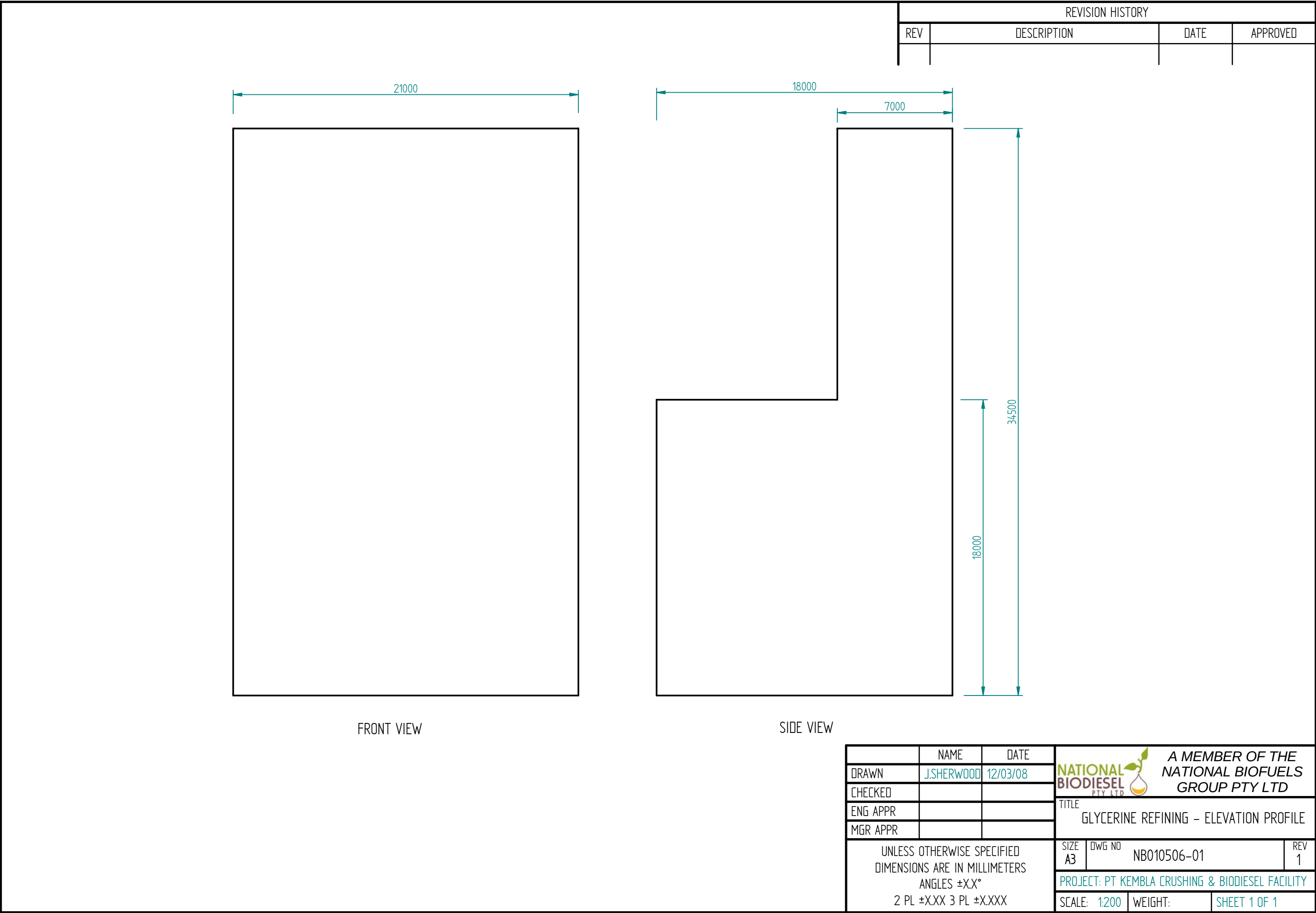


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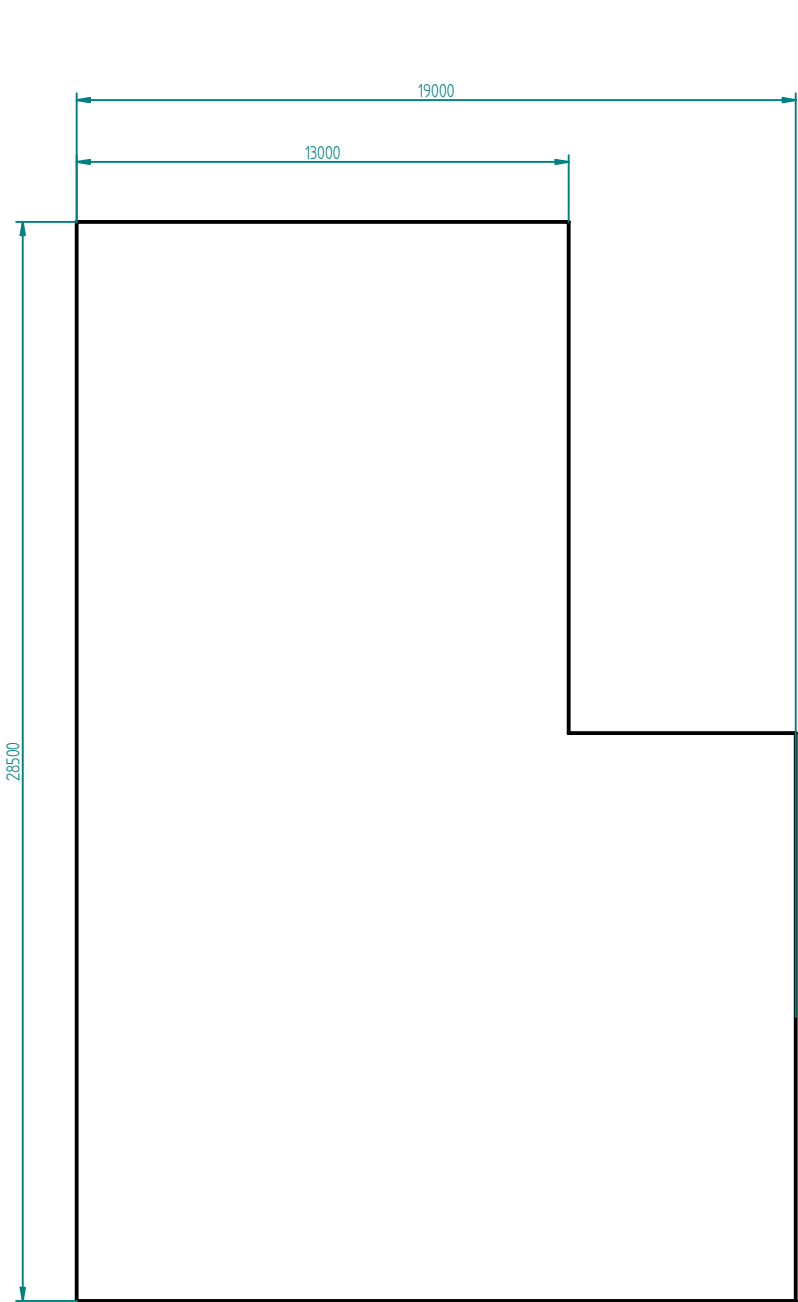
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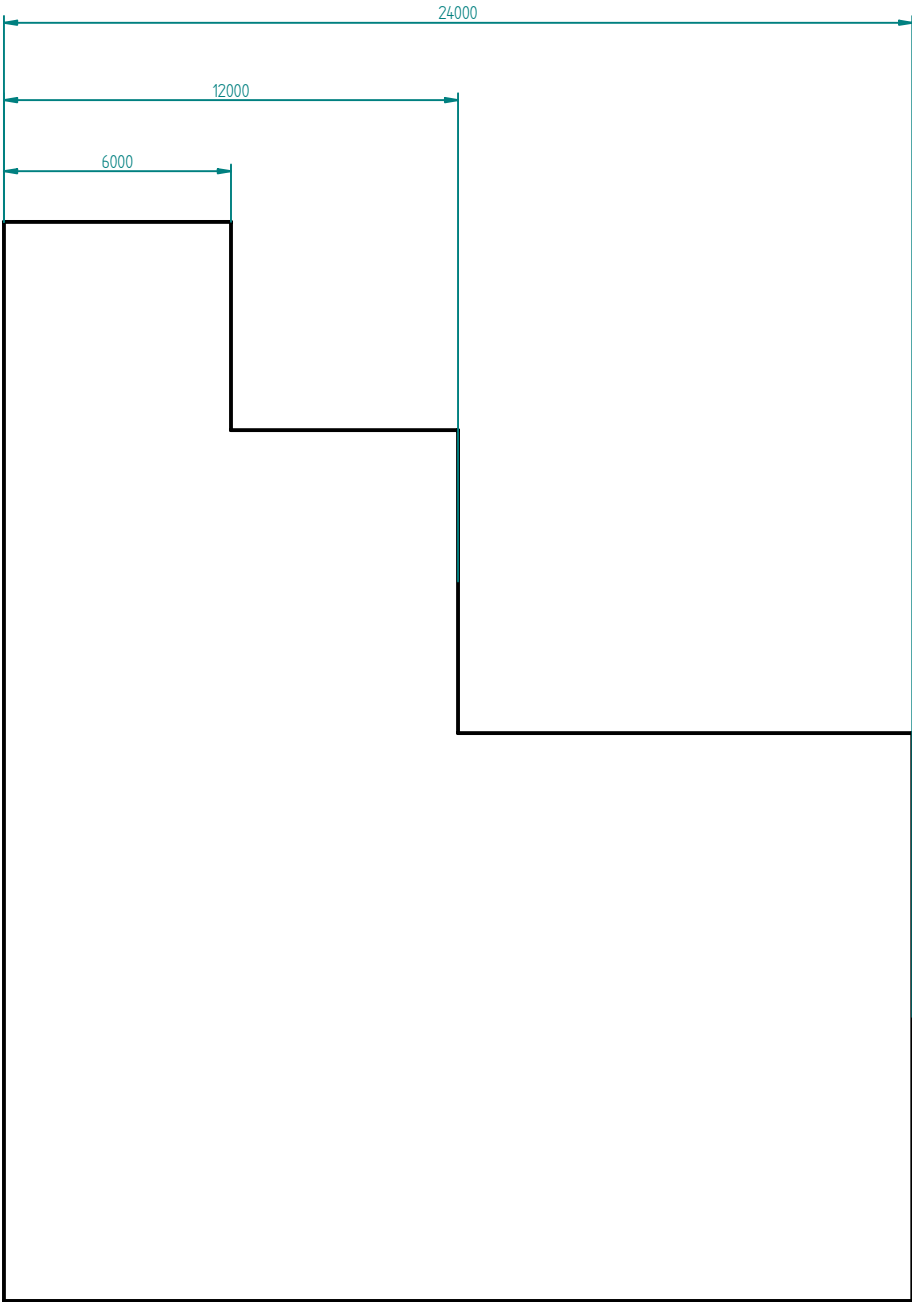


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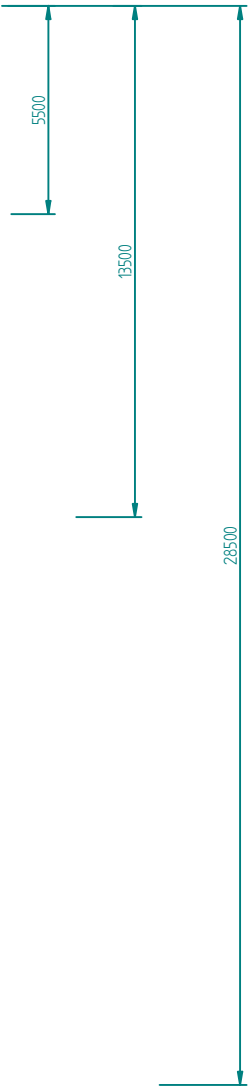
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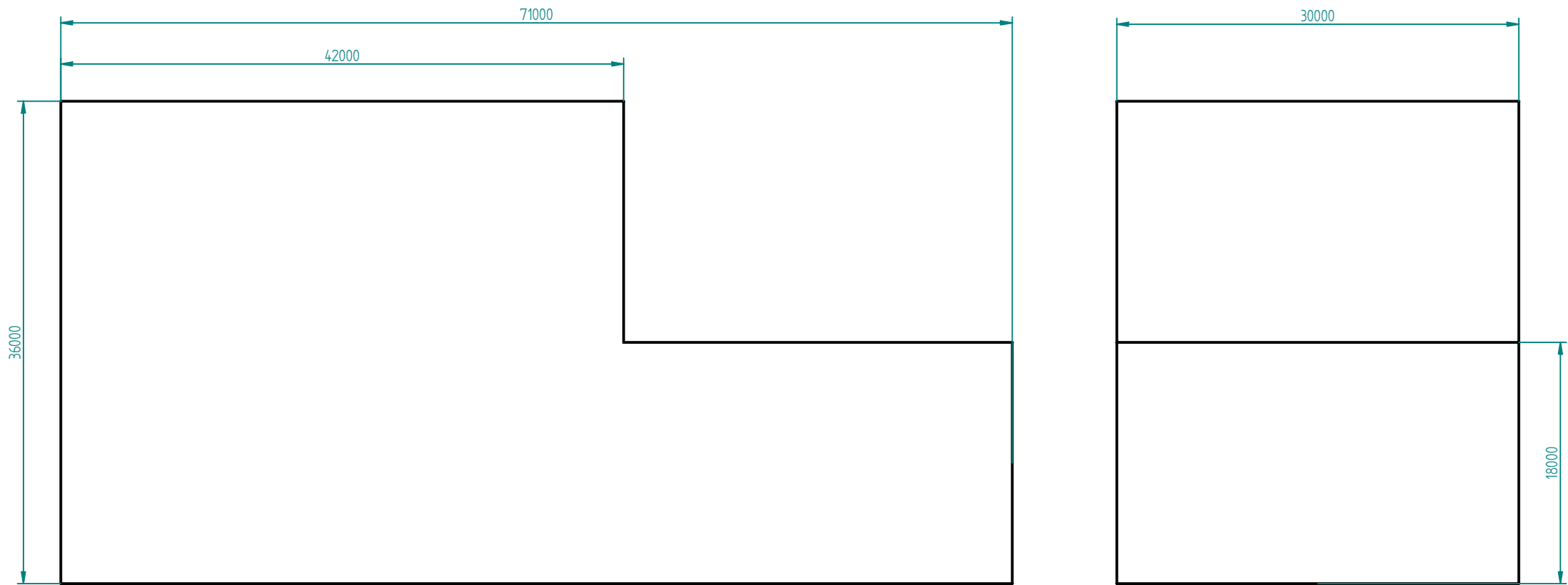


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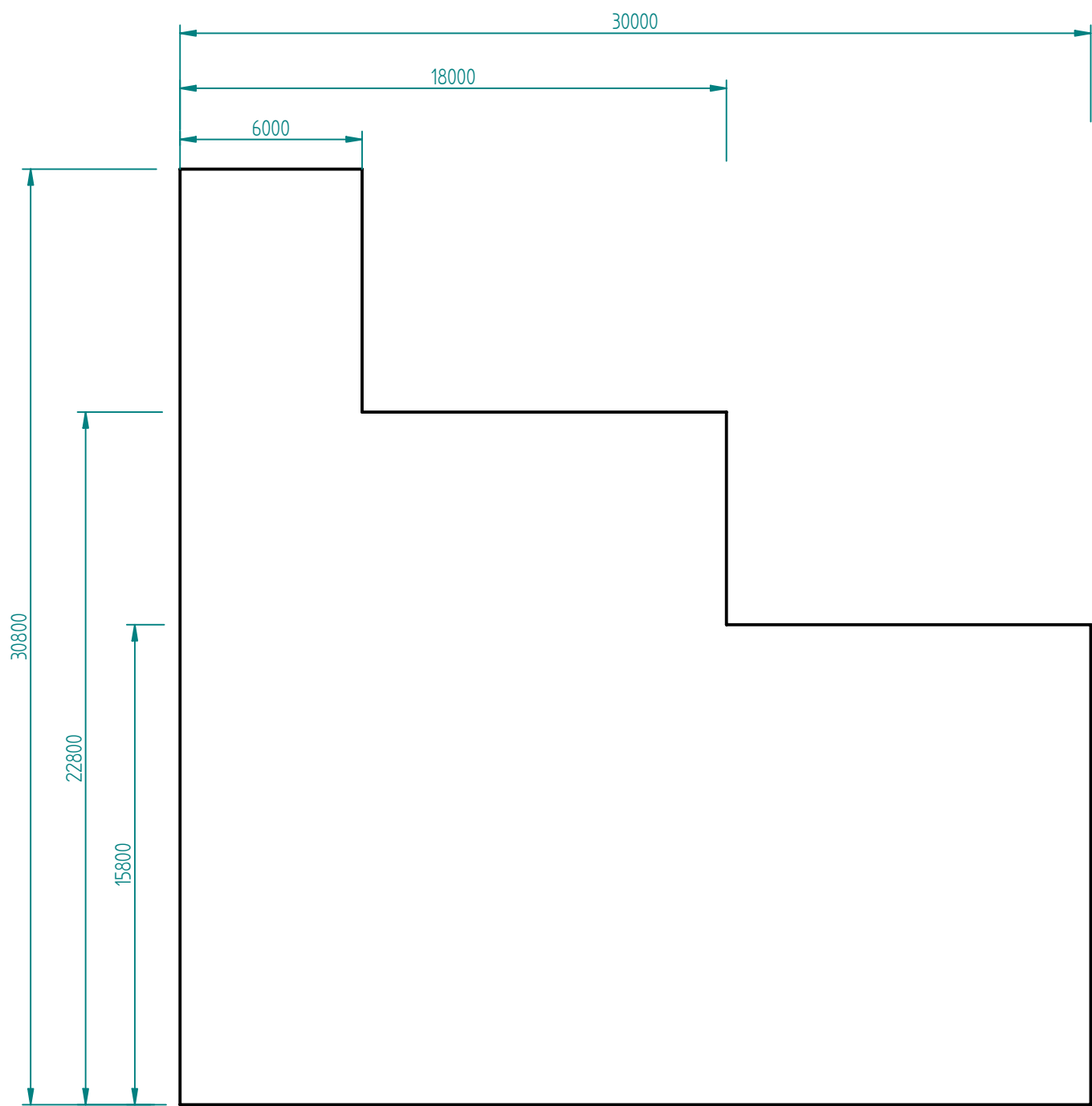
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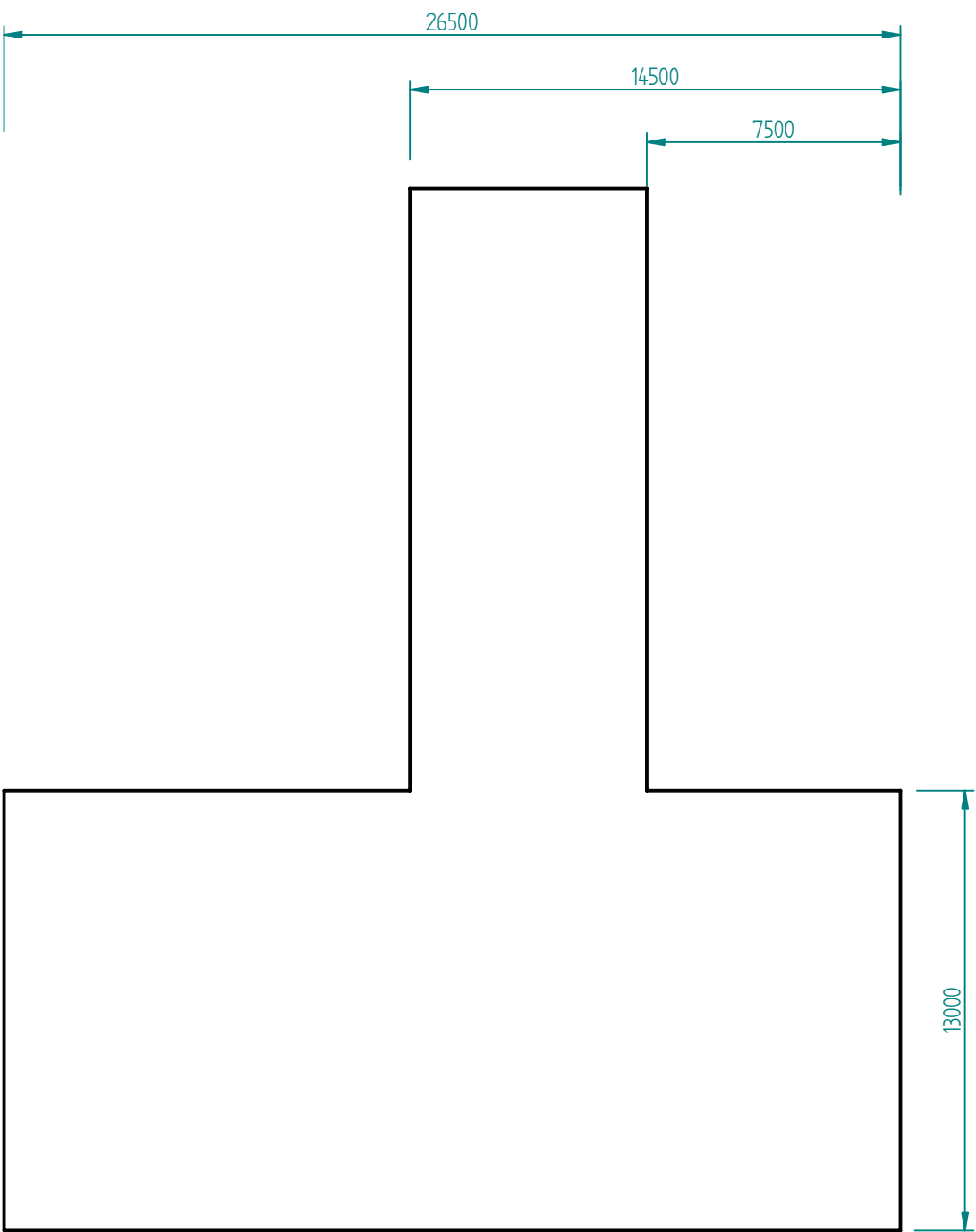


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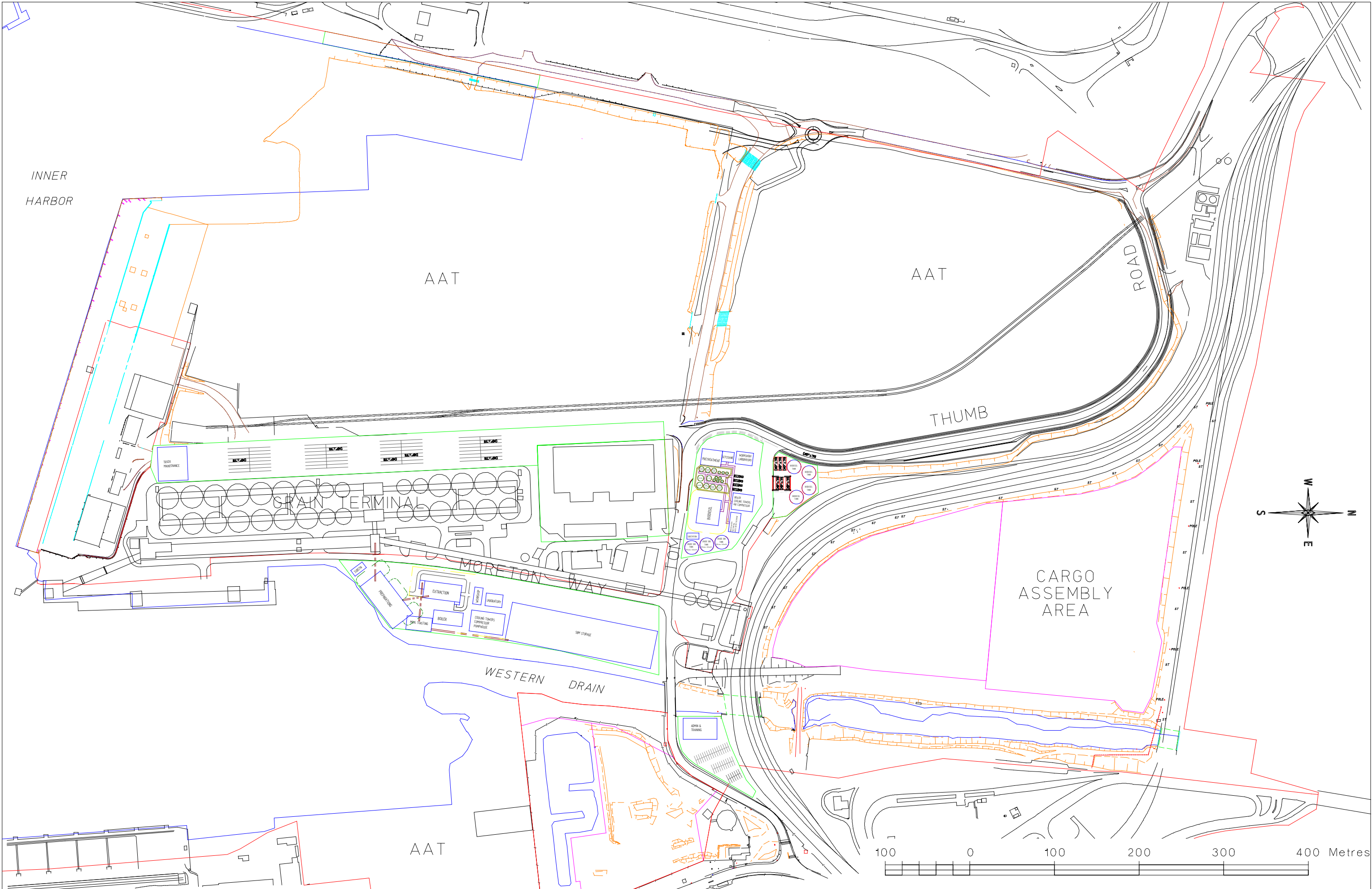
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Appendix B Concept Design Plans - Layout

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CLIENT 	NOTES PKPC BDY PROPOSED BDY PROPOSED NATIONAL BIODIESEL LAYOUT	PREPARED BY  NATIONAL BIODIESEL PTY LTD SURVEY AND DESIGN SERVICES Ph: 02 6296 0291 email: info@ncpl.com.au Web: 0418 140 881 www.ncpl.com.au ORIGINAL LAYOUT TEMPLATE	SCALE 1 : 4000 AT A3 SIZE DATE 12/03/2008	NATIONAL BIODIESEL PTY LTD SITE CONCEPT PLAN	NB DRAWING NUMBER NB-01010001
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