NSW GOVERNMENT | Planning & Infrastructure

MAJOR PROJECT ASSESSMENT: NPC Port Terminal Facilities, Mayfield Part of Lot 33 DP 11165571 (MP09_0096)

Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

March 2012

ABBREVIATIONS

CIV	Capital Investment Value
Department	Department of Planning and Infrastructure
DGRs	Director-General's Requirements
Director-General	Director-General of the Department of Planning and Infrastructure
EA	Environmental Assessment
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPA	Environment Protection Authority
MD SEPP	*State Environmental Planning Policy (Major Development) 2005*
Minister	Minister for Planning and Infrastructure
Part 3A	Part 3A of the *Environmental Planning and Assessment Act 1979*
PEA	Preliminary Environmental Assessment
PFM	Planning Focus Meeting
PPR	Preferred Project Report
Proponent	Newcastle Port Corporation
RMS	Roads and Maritime Services
RtS	Response to Submissions

Cover Photograph: Aerial photograph of proposed Concept site and adjacent land
Source: AECOM, July 2010

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Department of Planning and Infrastructure

EXECUTIVE SUMMARY

Newcastle Port Corporation (the Proponent) proposes to redevelop a portion of the former BHP Steelworks site at Mayfield, along the South Arm of the Hunter River in Newcastle for port related facilities. The project has been described conceptually and includes a layout plan which divides the site into five key precincts, to be developed progressively over a period of approximately 25 years with development commencing in 2012 and peak operations anticipated being reached by 2036.

The key precincts of the Concept Plan include:

- Newcastle Port Corporation (NPC) Operational Precinct (3 hectares) for managing operations by NPC within the Port of Newcastle. It contains various administrative buildings and small-scale facilities, including vehicle and marine equipment maintenance areas;
- Bulk and General Precinct (12 hectares) to be used for handling and storing non hazardous dry bulk products. It contains various buildings and infrastructure, including covered storage areas, storage silos, conveyor systems and office buildings;
- General Purpose Precinct (25 hectares) for handling and storing cargo containers, heavy machinery, break bulk and Roll On Roll Off cargo. It contains various buildings and infrastructure, including covered storage areas and areas of hardstand. This area includes the General Cargo Handling Facility constructed as part of the 2001 consent;
- Container Terminal Precinct (35 hectares) for the storage and transfer of containers. Operations within the precinct are planned to reach up to 600,000 Twenty Foot Equivalent Units (TEU) by 2024 and a peak of one million TEU by 2034. It contains buildings and infrastructure including quayside and mobile cranes, rail mounted gantries, hardstand areas and an administration building; and
- Bulk Liquid Precinct (15 hectares) for the receival, storage, blending and distribution of fuels, including biofuels. It contains buildings and structures including tank farms with steel storage tanks for fuel distribution.

Apart from new roads and rail infrastructure proposed to service the site, the provision of infrastructure and utilities including water, sewer, natural gas, electrical and telecommunications is also required. There are a number of options regarding how infrastructure and services would be provided to the site and this would depend on how the site is developed over time and the coordination of services within service corridors.

The Concept Plan has an estimated capital investment value of $200 million and is expected to generate up to 200 jobs during construction and up to 150 jobs during operation. The key timeframes anticipated for the construction and operation of the five precincts are as follows:

Precinct	Operation (from construction)
NPC operations	5-10 years
Bulk and General	2-10 years
General Purpose	2-25 years
Container Terminal	13-25 years
Bulk Liquid	2-5 years

The project is consistent with the aims and objectives of relevant State policies, including *NSW 2021*, *NSW Ports Growth Plan* and the *Lower Hunter Regional Strategy*. The Concept Plan would ensure that future development of the site would be undertaken in a coordinated manner and ensure sufficient lands are available in strategic locations to accommodate growth in port-related industries and businesses. It would also diversify the State's ports facilities and increase options for users.

The Environmental Assessment for the project was placed on public exhibition from 4 August to 6 September 2010 and the Department received 89 submissions on the project, and an additional 93 submissions following the exhibition period. Of the 182 submissions received, 172 submissions were from special interest groups, private organisations or from the local community. Ten submissions were received from government agencies.

Key issues raised in submissions relate to traffic and access, noise and vibration, consultation, air quality, social and economic impacts, water management, hazards and risks, infrastructure/services, heritage and cumulative impacts from the adjoining Intertrade Industrial Park.

The Proponent prepared a Submissions Report in response to the submissions received. The Report, which included a final Statement of Commitments, was publicly exhibited between 15 February and 18 March 2011. Of the total 28 submissions received on the Submissions Report, seven were from government agencies and 21 were from the local community. Similar issues were raised to those made during the exhibition of the EA. In response to further issues raised by the Roads and Traffic Authority, Department of Transport and the Department of Planning and Infrastructure, the Proponent provided additional information to address outstanding traffic and transport issues, which was also placed on the Department's website. Based on its assessment, the Department is satisfied that the Proponent has undertaken an appropriate level of assessment of the potential impacts associated with the Concept Plan.

Traffic impacts, including traffic generation and the capacity of the existing transport infrastructure, are considered to be the key issue in relation to the Concept Plan. In light of the capacity and performance of the road system and the number of containers and vehicle movements predicted to be generated, in conjunction with the potential cumulative traffic impacts from the adjoining Intertrade Industrial Park, the Department has recommended restrictions on the movement of container freight by road. Movements will initially be restricted to 200,000 TEU, with potential increases up to 700,000 TEU per annum, subject to the review of the performance and capacity of the road and rail network and the identification of required infrastructure and service measures. This restriction is reflected in the recommended terms of approval.

The Department has undertaken a comprehensive assessment of the Concept Plan, including an assessment of the cumulative impacts resulting from the adjoining Intertrade Industrial Park. The Department considers that the environmental issues associated with the Concept Plan have been adequately addressed and can be managed to acceptable levels, subject to the Department's recommended future requirements and modifications to the Concept Plan. On this basis, the Department considers the proposal to be in the public interest and has recommended approval accordingly.

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1. BACKGROUND

Newcastle Port Corporation (the Proponent) proposes to redevelop a portion of the former BHP Steelworks site in Mayfield, along the South Arm of the Hunter River in Newcastle for port related activities. The Proponent has lodged a Concept Plan application for the proposed redevelopment of the site.

The Port of Newcastle, together with Port Botany and Port Kembla, are identified as State significant sites in Schedule 3 of the *State Environmental Planning Policy (Major Development) 2005*. The site lies within the Newcastle Port State significant site boundary and is therefore governed by the SEPP. The SEPP protects the port from future incompatible land-uses and provides lands zoned for port activities, including maritime, industrial and bulk storage facilities.

1.1 Location

The land which is the subject of this proposal is also referred to as the Mayfield port-side land, formerly known as the Closure Area, as shown on Figure 1. The land, which comprises an area of approximately 90 hectares, is located on the former BHP Steelworks site. The site is located in an existing industrial area of the Port of Newcastle, adjoining the South Arm of the Hunter River and is approximately seven kilometres north west of the Newcastle Central Business District.

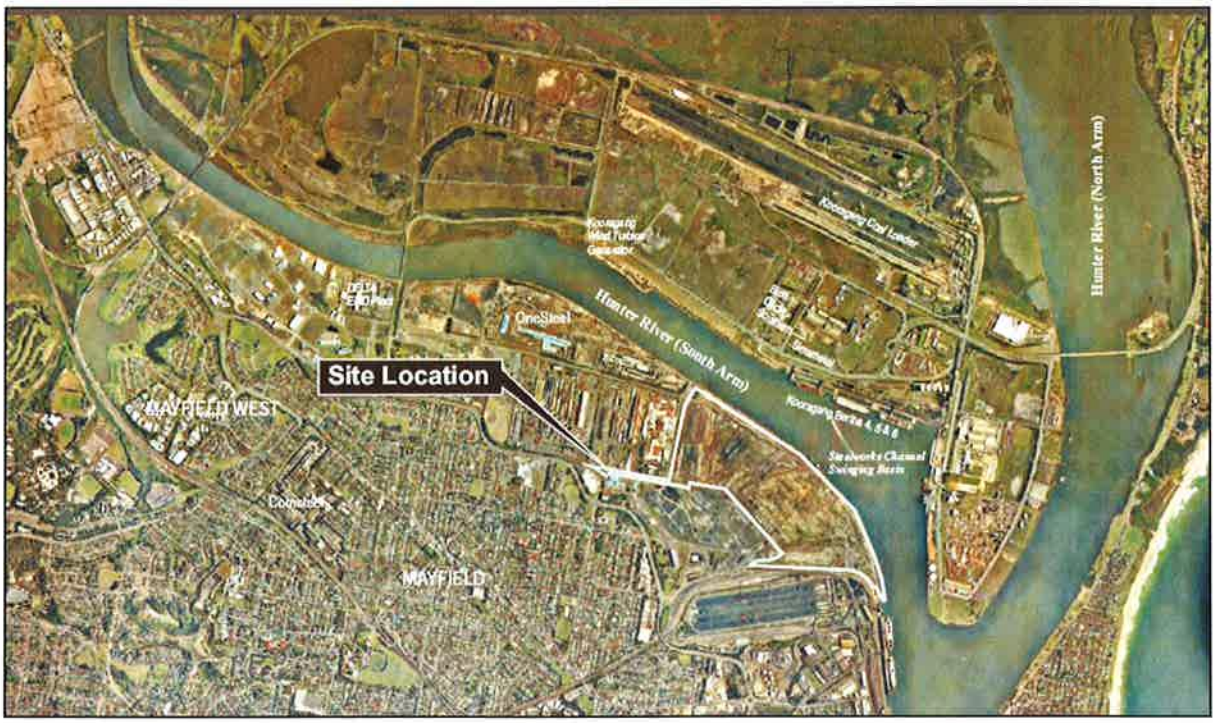

Figure 1 - Site Location. (Source: AECOM, 2010)

1.2 The Site and Surrounding Land Uses

Newcastle Port is one of the three main trade ports in NSW; the others being Port Botany and the Port of Port Kembla. The Port of Newcastle is Australia's largest port in terms of bulk trade and primarily handles the export of commodities. More than 90 million tonnes of exports worth more than $10 billion was handled at the Port during 2007-2008, which was the equivalent of 13.6 percent of Australia's total export volume. In 2008, Newcastle posted a trade value of $17 billion and further export growth is expected in the future through the implementation of the *NSW Ports Growth Plan* (October 2003), which aims to distribute the benefits of port growth more equitably between Sydney, the Hunter and Illawarra regions of

NSW, and provide long term capacity for containers, bulk goods and general cargo to enhance the economic efficiency of NSW ports. A core direction of this Plan is for the former BHP steelworks site at Newcastle Port to be secured for port use.

The site has a long history of industrial use and was formally used for copper smelting from 1866 to 1893, followed by iron and steelmaking by BHP between 1915 and 1999. Steelwork operations ceased in 1999, and development consent was issued in 2001 for the demolition of the Steelworks and the removal of heritage structures, remediation of the Closure Area and the staged development of a Multi Purpose Terminal on the site.

The site is currently used by NPC and Koppers for port-related activities (Figure 2) in conjunction with ongoing site remediation activities to facilitate redevelopment of the former BHP Steelworks, which commenced in 2006 and are scheduled for completion in 2012. NPC operates a general cargo handling facility, known as the Mayfield no. 4 berth, which began operations in December 2009 and provides facilities for the import and export of a range of cargo types. The facility comprises a wharf structure with one berth, mobile cranes, a hardstand area, demountable buildings and an access road.

Figure 2: Existing activities on site. (Source: AECOM, 2010)

Koppers has a plant located to the north west of the site, consisting of two continuous tar distillation units and a naphthalene still. Ancillary facilities to the plant include the ex-BHP no.6 berth for unloading coal, tar and pitch products and an aboveground pipeline which runs east to west across the northern portion of the site. In the short term, Koppers would continue to utilise its existing pipeline infrastructure and ex-BHP no. 6 berth, but the facilities would ultimately be relocated to the Bulk Liquids precinct where it would have access to a new berth (which does not form part of this proposal), located at the north western corner of the site.

The site is accessible by road, rail and via the shipping channel associated with the South Arm of the Hunter River. The main road access is from Selwyn and Ingall Streets via Industrial Drive, which connects to the Pacific Highway and New England Highway to the north west. Access via rail is available via the Morandoo Sidings and Port Waratah Loop to the south, via a level crossing over Selwyn Street.

The main land uses surrounding the site are industrial and port related (Figure 3) and include:

- North - Kooragang Island industrial area including Kooragang Island shipping berths, Port Waratah Coal Services Kooragang coal loading terminal, Newcastle Coal Infrastructure Groups coal export terminal and HiFert fertiliser dispatch facility and distribution centre;
- South - Port Waratah Coal Services Carrington Coal Terminal and Dyke Berth nos. 4 and 5;
- East - the southern tip of Kooragang Island comprising various industrial land uses including ammonium nitrate production (Orica), alumina and coke unloading and storage facilities, fertiliser storage and despatch facility (Incitec Pivot); and
- West - OneSteel and Koppers.

Land located immediately west and south-west of the site is associated with the future Intertrade Industrial Park (as shown on Figure 3). Whilst the site the subject of the Concept Plan is located within an existing predominantly industrial port area, residential development associated with the suburbs of Mayfield, Tighes Hill, Carrington and Stockton are located nearby. The nearest residential receivers to the site are located along Industrial Drive, Mayfield, approximately 900 meters to the south west and opposite the future Intertrade Industrial Park.

1.3 Previous Approvals

Planning for the Mayfield port-side land commenced with the closure of the main site associated with the former BHP Steelworks. A remediation strategy was developed for the site together with a redevelopment proposal for a Multi Purpose Terminal. The Multi Purpose Terminal (incorporating the adjoining Intertrade Industrial Park site) was proposed to be developed in stages, with Stage 1 comprising a Container Terminal and General Cargo Handling Facility and Stage 2 a Bulk Handling Terminal (Figure 4). The then Minister for Planning granted staged development consent for the development in April 2001 (DA No. 293-09-00). Stage 1 included the following:

- remediation of the BHP Closure Area, including the demolition and removal of structures;
- development of a Multi Purpose Terminal, including a container terminal and general cargo handling facility and associated road, rail and wharf infrastructure; and
- dredging of the South Arm of the Hunter River.

The consent limited container movements to 350,000 containers per annum and required further approval for Stage 2 subject to the Director-General receiving further detailed information.

Remediation works have been conducted at the site since 2006 in accordance with the consent. The remediation activities are to be undertaken in two stages (1a and 1b and 2), based on a strategy of containment through capping and groundwater control with some hotspots of containment excavated and treated. Stage 1 works have been completed and focused in an area which contains the most highly contaminated material found on-site, whilst stage 2 works are scheduled for completion in 2012.

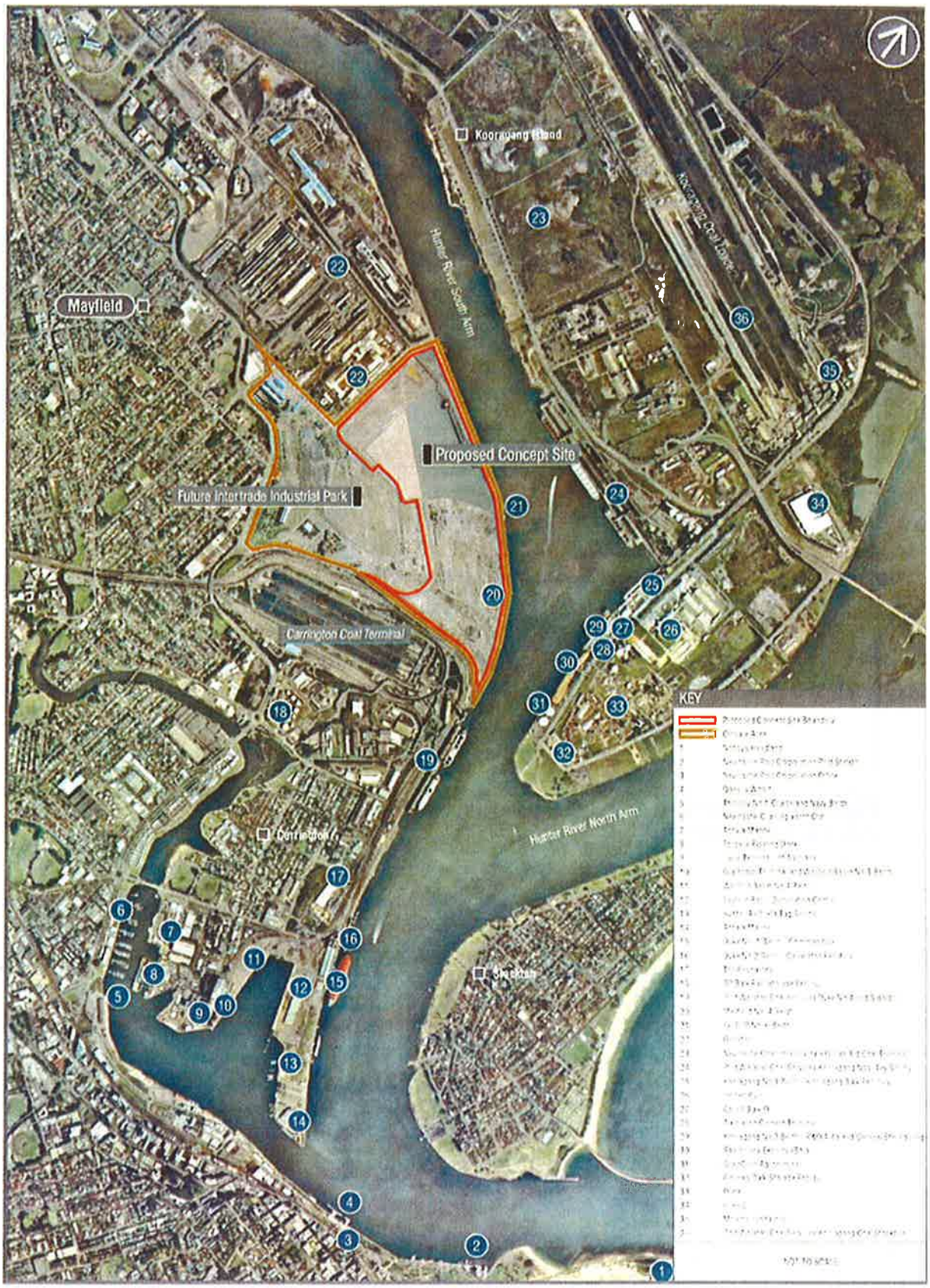

Figure 3: The site and surrounding uses. (Source: AECOM, 2010)

The development consent for Stage 1 of the site recognised a site concept layout plan for generic port related activities. Whilst a number of modifications have been granted to amend the consent, the Proponent considers that the approval does not reflect the current approach to the development of the site or the proposed arrangement for road and rail infrastructure. The Proponent considers that a Concept Plan approval would provide a current and coordinated environmentally sustainable approach to the development of the site, which would accommodate current trade forecasts.

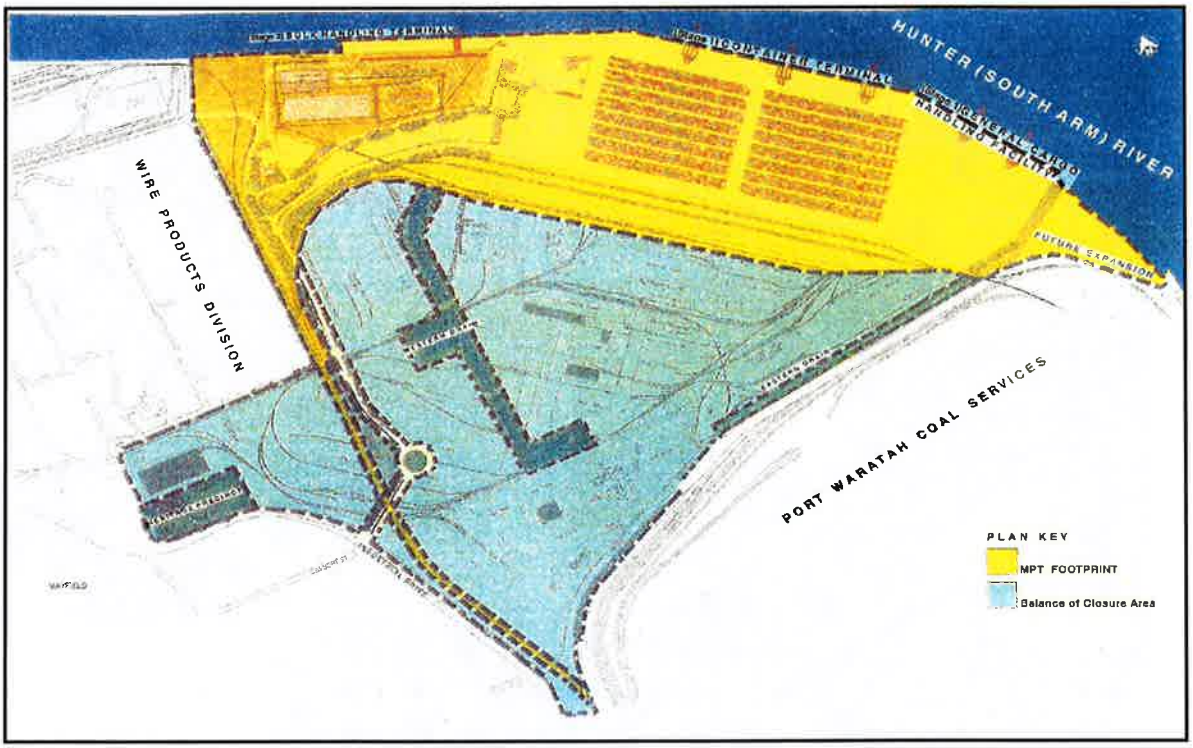

Figure 4: The Closure Area and Multi-Purpose Terminal.
(Source: URS, 2000)

2. PROPOSED CONCEPT PLAN

2.1. Project Description

The Proponent is seeking concept approval for the development of port-related activities on the Mayfield site. The project has been described by the Proponent conceptually, and includes a layout plan, as shown in Figure 5, which identifies the arrangement of port-related land uses within five key precincts, which are proposed to be developed progressively to reach peak operations by 2034, as follows:

- NPC Operational Precinct (3 hectares) for managing operations by NPC within the Port of Newcastle. It contains various administrative buildings and small-scale facilities, including vehicle and marine equipment maintenance areas;
- Bulk and General Precinct (12 hectares) to be used for handling and storing non hazardous dry bulk products. It contains various buildings and infrastructure, including covered storage areas, storage silos, conveyor systems and office buildings;
- General Purpose Precinct (25 hectares) for handling and storing cargo containers, heavy machinery, break bulk and Roll On Roll Off cargo. It contains various buildings and infrastructure, including covered storage areas and areas of hardstand. This area includes the General Cargo Handling Facility constructed as part of the 2001 consent;
- Container Terminal Precinct (35 hectares) for the storage and transfer of containers. Operations within the precinct are planned to reach up to 600,000 Twenty Foot Equivalent Units (TEU) by 2024 and a peak of one million TEU by 2034. It contains buildings and infrastructure including quayside and mobile cranes, rail mounted gantries, hardstand areas and an administration building; and
- Bulk Liquid Precinct (15 hectares) for the receival, storage, blending and distribution of fuels, including biofuels. It contains buildings and structures including tank farms with steel storage tanks, fuel distribution pipelines and administration buildings.

The boundaries of the precincts are indicative and approximate, subject to changes in the future to accommodate future trade needs and demands. New road and rail infrastructure to service the above precincts is also proposed.

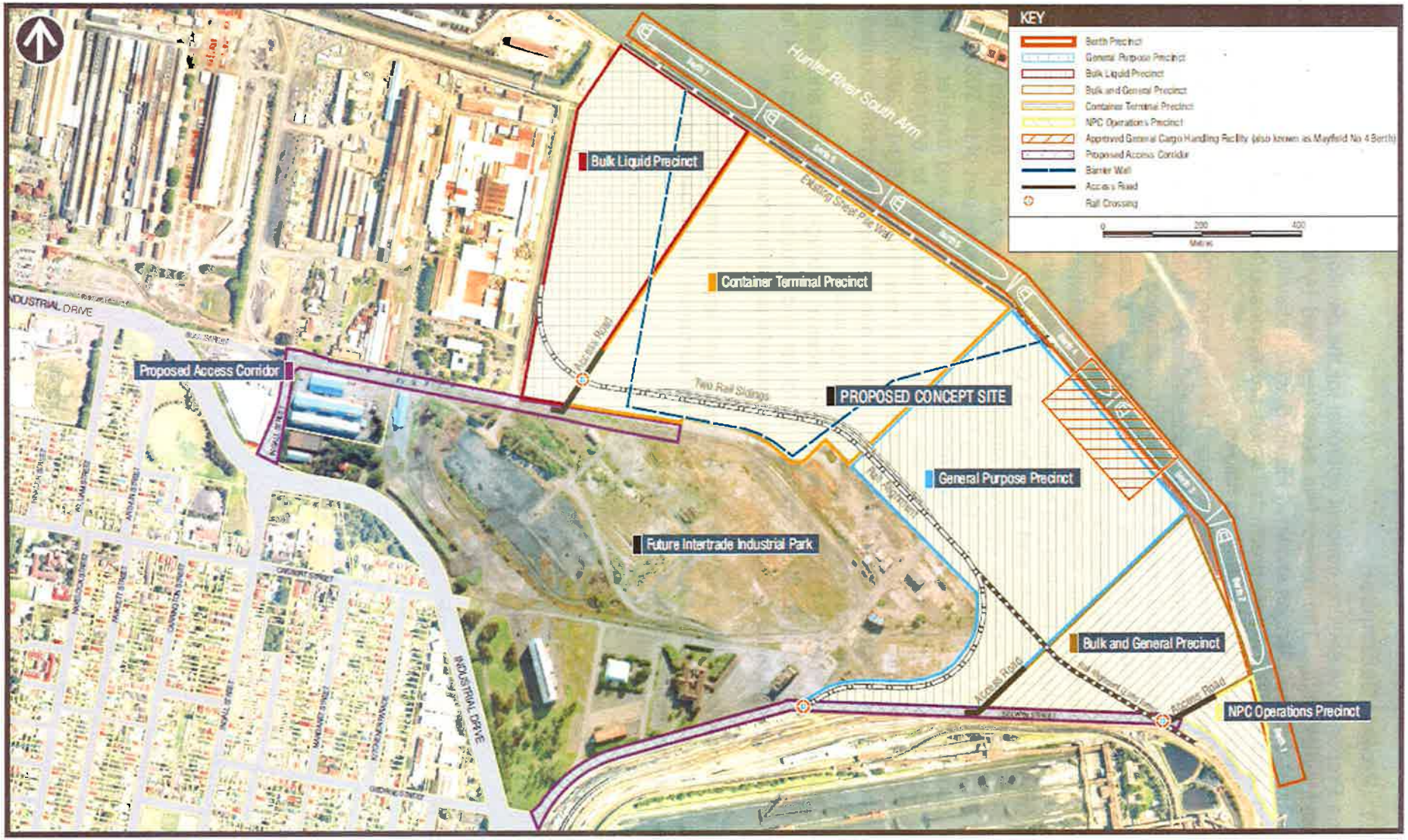

Figure 5: Mayfield port-related activities Concept Plan. (Source: AECOM, 2010)

A berth precinct is also envisaged for the site, and although this precinct is described in the Environmental Assessment (EA), it does not form part of the Concept Plan. Based on the maximum trade volumes for each precinct, the maximum number of ship movements for the development is approximately 560 per annum.

Table 1 provides the key timeframes anticipated for the construction and operation of the five precincts and the ship numbers per annum anticipated for the corresponding precincts. The Proponent envisages that the site would be developed over a period of 23 years with development commencing in 2012 and peak operations being reached by 2034.

Table 1: Precinct development scenarios

Precinct	Operation (from construction)	Trade volumes	Maximum ship numbers
NPC operations	5-10 years	N/A	N/A
Bulk and General	2-10 years	2.4 million tonnes per annum (MTPA)	100
General Purpose	2-25 years	1.35 (MPTA)	
Container Terminal	13-25 years	600,000 annual TEU (initial operations) 1 million annual TEU (final operations)	420
Bulk Liquid	2-5 years	1,010 Mega litres	40

Note: Condition 2.3 of the 2001 consent limits the trade volumes of the container terminal to be no more than 350,000 containers per annum, whilst the proposal is for a maximum of 1 million TEU at final operations.

The Concept Plan would require the provision of infrastructure including water, sewer, natural gas, electrical and telecommunications. There are a number of options regarding how infrastructure and services would be provided to the site and this would depend on how the site is developed over time and the coordination of services within service corridors. This is further discussed in Section 5.6.2.

NPC has stated that the project is proposed to be developed progressively and therefore a high level of flexibility is required due to likely changing port technology over time. Given this, the Proponent is not able to outline the subdivision of land expected for the site as this will depend on the successive activities that are attracted to the site.

The Proponent envisages that future activity proposed on the site would be the subject of separate development applications to fit within the overall framework outlined by the environmental capacity of the site as determined by the current concept application.

The capital investment value of the project is estimated at $200 million and it is expected to generate up to 200 jobs during its construction and up to 150 jobs during operation.

2.2. Project Need and Justification

Current operations at the Port of Newcastle are constrained by the lack of suitable port facilities and there is also insufficient capacity to cater for future growth demands for anticipated trade forecasts. As stated in the *NSW Ports Growth Plan 2003*, Newcastle Port is expected to grow further and provide long term capacity for containers, bulky goods and general cargo to enhance the efficiency of NSW ports. A core direction of the *NSW Ports Growth Plan* is to secure the former BHP Steelworks site for port use, where the Port of Newcastle was identified to become the state's second major container facility, after Port Botany.

The proposed Concept Plan is aimed at ensuring future development of the site would occur in a coordinated manner and accommodate future growth. In 2006/2007 the total volume of commodities imported and exported through the Port of Newcastle was 85.5 million tonnes, representing a trade value of $8.3 billion; whilst in 2008/2009, the total volume of commodities increased to 95.8 million tonnes, a growth rate of 12%. NPC states that current operations at the Port of Newcastle do not have sufficient capacity to accommodate all growth indicated in the trade forecasts, neither would the existing operations have capacity to facilitate expansion into strategic sectors. The Concept Plan is designed to align development of the precincts with the anticipated trade forecasts for the Port of Newcastle.

By 2035, container trade through the NSW Ports is expected to grow in the order of 6.5 million TEU per annum. Based on the approved expansion at Port Botany, there is a need to expand the Port of Newcastle in order to cater for imminent and future growth for port facilities in NSW and meet its strategic role of becoming the State's second major container facility as identified in the *NSW Port Growth Plan*.

An analysis undertaken by NPC of export and import cargoes within the broader Port of Newcastle catchment area found that currently, containerised exports and imports that either originate from or are potentially destined for the Hunter, Central Coast, Mid North Coast and North West regions of NSW are forced to travel extra distances either by road or rail to Port Botany with associated extra time and costs. The provision of a container terminal at Mayfield would result in time and cost savings to a market that already exists within the broader Newcastle catchment area.

The Concept Plan, prepared in acknowledgement of the *NSW Ports Growth Plan* and NPC's strategic plan for the site, would ensure that future development of the site is undertaken in a coordinated manner and ensure sufficient lands are available in strategic locations to accommodate growth in existing and future port-related industries and businesses. It would diversify the State's ports facilities and increase options for users, and enhance the economic development of NSW through the provision of a container terminal.

The *Lower Hunter Regional Strategy* (2006) identifies the need to ensure local planning provisions reflect and promote the role of Port of Newcastle as identified in the *NSW Port Growth Strategy,* as the site for a second container port facility for NSW. In this respect, the proposed Concept Plan envisages receiving the site for port related uses in anticipation of future growths in the Port, and facilitate economic growth in the Lower Hunter Region by increasing land and waterfront infrastructure available for port-related activities.

The *Metropolitan Plan for Sydney 2036* included specific objectives which are relevant to the Concept Plan, specifically, objective E6.3 states '*plan for long term capacity improvements for Port Kembla and Port of Newcastle as part of the NSW Freight Strategy and NSW Ports Strategy*.' Further, the recently release *National Port Strategy* prepared by Infrastructure Australia and the National Transport Commissions (2010) identifies the importance of ports in Australia and their role in expanding international trade and economic growth. The Strategy has been developed to plan for efficient, sustainable ports and related freight logistics.

The site is zoned SP1 – Special Activities in the *State Environmental Planning Policy (Major Projects) Amendment (Three Ports) 2005*. The project is consistent with the objectives of this zone, specifically Part 20, Division 2, Clause 11 (1) (c), (d) and (e), which encourage development that is in keeping with the special characteristics of the site or its existing or intended special use, and minimise any adverse impacts on surrounding land; maximise the use of waterfront areas to accommodate port facilities and industrial, maritime industrial and bulk storage premises that benefit from being located close to port facilities; and enable the efficient movement and operation of commercial shipping and to provide for the efficient

handling and distribution of freight from port areas through the provision of transport infrastructure.

A number of alternatives were considered to the proposed Concept Plan. The options investigated included the development of other existing ports, development of a new port, developing alternative sites within the Port of Newcastle including Kooragang Island, Walsh Point and Carrington Basin, development of the original Multi Purpose Terminal and the do nothing option. These options were deemed unsuitable and were eliminated as an alternative to the chosen proposed Concept Plan.

Given the scale and multiple components of the development, a Concept Plan approval would avoid a fragmented and ad hoc planning process for the site, and would also provide sufficient flexibility for the Proponent to consider project options within an overall envelope. Retaining some flexibility in the later stages of the development would ensure that future development opportunities on the site remain responsive to market demands and the freight handling capacity of the Port. Further, a staged development approach would be suitable as it provides greater certainty for the planning and development for port-related activities and secures long-term capacity in handling containers, bulk goods and general cargos, and thereby enhancing the economic efficiency of the NSW port system.

3. STATUTORY CONTEXT

3.1. Major Project

The project is declared to be a major project because it is development of a kind that is described in Schedule 1, Group 8, clause 22 of *State Environmental Planning Policy (Major Development) 2005,* namely development for the purpose of shipping berths or terminals or wharf side facilities (and related infrastructure) with a capital investment value of more than $30 million.

On 16 April 2009, the Director-General, under delegation of the then Minister for Planning, formed the opinion that the project met the requirements of the then in place Major Development SEPP and thus declared the project to be a major project under Part 3A of the *Environmental Planning and Assessment Act 1979* (the Act) for the purposes of section 75B of that Act. The project is therefore required to be determined by the Minister for Planning and Infrastructure. The Director-General, under delegation of the then Minister for Planning, also authorised the submission of a Concept Plan under section 75M(1) of the Act.

Part 3A of the Act, as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A to the Act, continues to apply to transitional Part 3A projects. Director-General's environmental assessment requirements (DGRs) have been issued in respect of this project and the environmental assessment report was lodged prior to 1 October 2011. The project is therefore a transitional Part 3A project.

Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated regulations, and the Minister for Planning and Infrastructure (or his delegate) may approve or disapprove of the carrying out of the project under section 75O of the Act.

The delegation functions of the Minister for Planning and Infrastructure cannot be exercised under this Concept Plan, as more than 25 public submissions in the nature of objections were made on the development.

3.2. Permissibility

The site is subject to the provisions of Schedule 3 – Part 20 (Three Ports Site) of the *State Environmental Planning Policy (Major Development) 2005* and is permissible with development consent within the SP 1 Special Activities zone. The objectives of the SP 1 zone include: to enable the efficient movement and operation of commercial shipping, and to provide for the efficient handling and distribution of freight from port areas through the provision of transport infrastructure, to facilitate development that by its nature or scale requires separation from residential areas and other sensitive land uses, and to encourage employment opportunities. This Concept Plan is consistent with the objectives of these zones.

Notwithstanding the above, the proposal is permissible without development consent by virtue of clause 68(1)(a) of the *State Environmental Planning Policy (Infrastructure) 2007*, which states that development for the purpose of port facilities may be carried out by or on behalf of a Port Corporation or the Maritime Authority of NSW without consent on land in a prescribed zone or on any other land, providing the development is directly related to an existing port facility.

3.3. Environmental Planning Instruments

Under Sections 75I(2)(d) and 75I(2)(e) of the Act, the Director-General's report for a project is required to include a copy of, or reference to, the provisions of any State Environmental Planning Policy (SEPP) that substantially governs the carrying out of a project, and the provisions of any environmental planning instruments that would (except for the application of Part 3A) substantially govern the carrying out of the project and that have been taken into

consideration in the assessment of the project. The Department's consideration of relevant EPIs, in addition to those identified above, is provided in Appendix F.

3.4. Objects of the EP&A Act

Section 5 of the Act details the objects of the legislation. The objects of the Act are:

(a) to encourage:
- *(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment;*
- *(ii) the promotion and co-ordination of the orderly and economic use and development of land;*
- *(iii) the protection, provision and co-ordination of communication and utility services;*
- *(iv) the provision of land for public purposes;*
- *(v) the provision and co-ordination of community services and facilities;*
- *(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats;*
- *(vii) ecologically sustainable development;*
- *(viii) the provision and maintenance of affordable housing; and*

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State; and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

Of particular relevance to the EA and eventual determination of the subject Concept Plan by the Minister, are those objects stipulated under section 5(a). Relevantly, the objects stipulated under sections (i), (ii), (vi) and (vii) are significant factors informing determination of the application (noting that the proposal does not raise significant issues relating to land for public purposes, community services and facilities or affordable housing). With respect to ecologically sustainable development, the Act adopts the definition in the *Protection of the Environment Administration Act 1991*, including the precautionary principle, the principle of inter-generational equity, the principle of conservation of biological diversity and ecological integrity, and the principle of improved valuation, pricing and incentive mechanisms.

It is important to recognise that whilst the Act requires that the principles of ecologically sustainable development be encouraged, it provides other objects that must equally be included in the decision-making process for the subject proposal. The Department's assessment of the Concept Plan has considered the principles of ecologically sustainable development, and the need to balance these principles with other social, economic and environmental factors, as considered in Section 5 of this report.

The agency and community consultation undertaken as part of the assessment process as outlined in Sections 3 and 4 of this report address objects 5(b) and (c) of the Act.

3.5. Minister's Approval Power

The Proponent submitted an EA to the Director-General in June 2010. Pursuant to Section 75H and 75I(2)(g) of the Act, the Director-General was satisfied that the EA had addressed the Director-General's requirements issued for the project on 29 May 2009. A copy of the EA is attached in Appendix A.

The EA was placed on public exhibition from 4 August 2010 to 6 September 2010 and submissions invited in accordance with Section 75H of the Act. The EA was also made publicly available on the Department's website.

Following the exhibition period, the Director-General directed the Proponent to respond to the issues raised in submissions. The Submissions Report prepared by the Proponent is

attached in Appendix C. This report was also exhibited and made publicly available on the Department's website.

The Department has met all its legal obligations so that the Minister can make a determination regarding the project.

4. CONSULTATION AND SUBMISSIONS

4.1. Exhibition

Under section 75H(3) of the Act, the Director-General is required to make the EA publicly available for at least 30 days. After accepting the EA, the Department publicly exhibited the document from 4 August 2010 until 6 September 2010 (34 days) on the Department's website, and at the following locations:

- Department of Planning, Sydney;
- Nature Conservation Council of NSW, Sydney;
- Newcastle City Council;
- Newcastle Library;
- Mayfield Library; and
- Stockton Library.

The Department also advertised the public exhibition of the EA in the Newcastle Herald on 4 August 2010 and again on 18 August 2010 and advised relevant state and local government authorities regarding the exhibition in writing.

Following the close of the exhibition period, submissions were collected, collated and issues raised reviewed by the Department. A total of 89 submissions were received during the exhibition period. Many submissions indicated that the consultation undertaken by the Proponent was limited and therefore the majority of the residents in the surrounding area were only made aware of the project towards the last few days of the exhibition period. In response to the issues raised regarding the consultation process, the Proponent held a public meeting to brief residents about the proposal and provided a commitment to consider any submission received regarding the proposal up to close of business on 15 October 2010. An additional 93 submissions were then received by the Department and considered by the Department as part of its assessment of the project.

Submissions were received from State and Local Government authorities, private organisations, special interest groups and the local community. Of the total 182 submissions received, 172 were from special interest groups, private organisations or from the local community. Ten submissions were received from the following government authorities:

- NSW Roads and Traffic Authority (now the Roads and Maritime Services);
- NSW Maritime (now the Roads and Maritime Services);
- NSW Industry & Investment (now the Department of Trade and Investment, Regional Infrastructure and Services);
- Transport NSW (now Transport for NSW);
- NSW Department of Environment, Climate Change and Water (now the Environment Protection Authority);
- NSW Office of Water (now the Department of Trade and Investment, Regional Infrastructure and Services);
- NSW Heritage Branch (now part of the Office of Environment and Heritage - OEH);
- Hunter Development Corporation;
- Hunter Regional Development Committee; and
- Newcastle City Council.

A large number of issues were raised in the submissions received and these have been illustrated in Figure 6. The graph indicates the relevant frequency of a particular issue against all issues raised, rather than as a percentage of submissions raising that issue. The graph indicates that the issues that were most frequently raised in the submissions received were road and rail transport (each representing 10 per cent of the issues raised), the lack of consultation with the community, noise and vibration impacts, air quality and social and economic concerns.

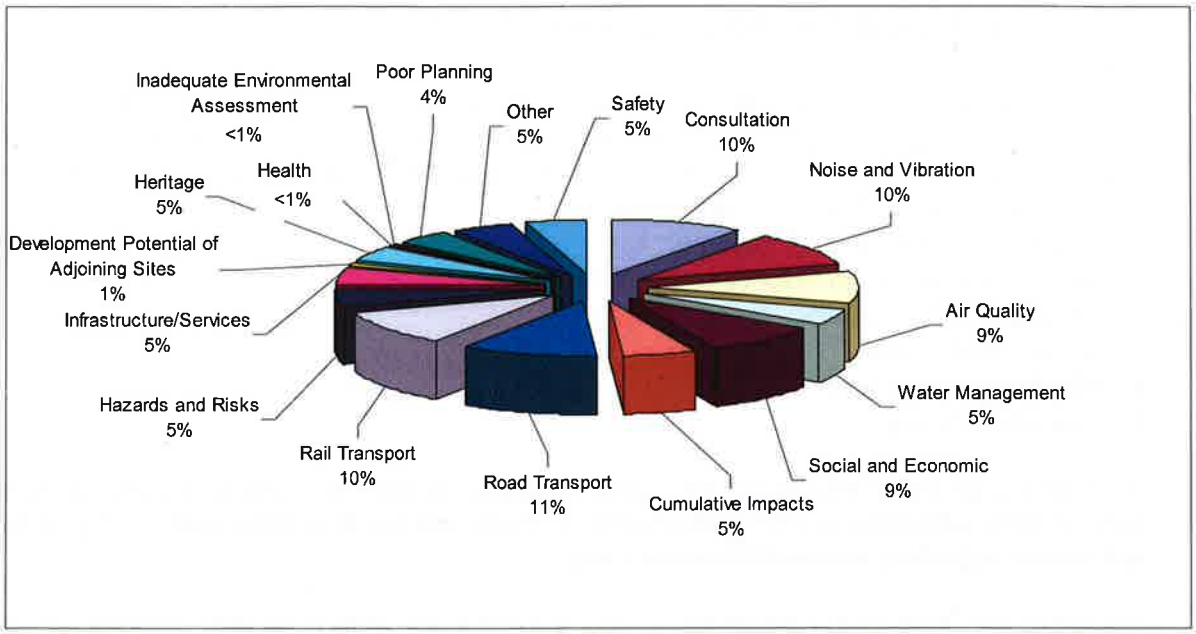

Figure 6: Issues raised in submissions.

In terms of the 172 public submissions received, 83 specifically objected to the project (48 per cent of public submissions received) and two submissions provided project support (1 per cent of public submissions received). The remaining 87 public submissions (51 per cent) did not state a position regarding the project, although they raised issues of concern or raised specific comments regarding the proposal.

4.2. Public Authority Submissions

The issues raised in the submissions received by public authorities are summarised below.

NSW Roads and Maritime Services (RMS) did not object to the project but raised the following issues in the submission:

- a number of deficiencies were identified regarding the traffic assessment undertaken, including an absence of a cumulative impact assessment and the interaction of traffic/transport impacts of adjacent developments, including the Intertrade Industrial Park, as well as calculation errors resulting in an under-estimation of traffic flows and queries related to the trip generation rate and modal spilt used;
- the RMS considered that the growth rate to be adopted in the analysis should be one per cent and a revised traffic assessment be prepared;
- the interaction between proposed rail movements and vehicular traffic should be further investigated;
- requested justification for nominated mode split between road and rail transport given potential competition between coal and normal freight haulage in the Hunter region;
- requested the assessment of construction traffic impacts on surrounding road network;
- adequate access should be provided for emergency vehicles to/from the site as permanent and temporary storage of hazardous goods are proposed; and
- a threshold analysis should be undertaken to determine the timing for any intersection or mid-block upgrade requirements related to the stages of the proposal.

NSW Maritime made no specific comments on the proposal.

NSW Industry & Investment (I&I) did not object to the project but raised the following issues:

- management of spills and stormwater runoff from hardstand areas should be considered as part of the preparation of a Stormwater Management Plan;
- no contaminated material should enter the drains that convey runoff to the Hunter River; and
- I&I should be involved in the final design and construction stages of the project.

Transport NSW (TNSW) did not object to the proposal but raised the following issues:

- the development should have consideration of the *NSW Ports Growth Plan* and the *NSW Freight Strategy,* which are under preparation. TNSW indicated that a potential outcome of the strategy may involve the investigation of a revised rail mode target for containers out of the port and that consultation with TNSW be undertaken on this matter;
- re-investigate the operation capacity limit on the Main North Railway Line and Northern Sydney Freight Corridor project. The available capacity and assertion that freight services would be able to operate unrestricted concurrently with peak passenger operations was incorrect, as was the statement in the Environmental Assessment regarding the length of trains able to operate over the Cowan Bank;
- the 80 freight services per day referenced in the Environmental Assessment to be provided by the Northern Sydney Freight Corridor is substantially beyond current estimates for the committed Stage 1 works of that project;
- indicated that the transport assessment should be revised in accordance with issues raised by the RMS;
- identified rail network issues raised by RailCorp, including the assumed availability of the current capacity of the rail network, which did not factor in additional growth from other passenger and freight traffic currently in the corridor and the efficient operation of trains to maximise volumes on restricted number of train paths; and
- RailCorp also advised that the possibility of utilising Broadmeadow yard or any other part of the rail network for the purposes of the consolidation of trains would not be supported and recommended a revised site configuration for efficient uni-directional operation of maximum length trains with minimal shunting, amalgamation and division requirements be considered.

NSW Heritage Branch OEH did not object to the project and recommended conditions of approval in relation to excavation, archaeology and reporting to reflect the State significance of the site. In particular, the Heritage Branch stated that the conditions of the existing excavation permit should remain in force.

Environment Protection Authority (EPA) did not object to the project and provided comments and recommended conditions of approval, including:

- an Environment Protection Licence under the *Protection of the Environment Operations Act 1997* (POEO Act) would likely be required for subsequent development;
- supported the implementation of best practice dust mitigation measures during the construction and operation phases. Conditions of approval were recommended in this regard. Specifically, a condition which formalises the commitment that berth design will include the allowance for alternative marine power for vessels whilst at berth;
- agreed with the commitment that individual operators would be required to conduct greenhouse gas emission inventories as part of future, individual project applications;
- identified a number of issues with the noise impact assessment, namely:
    - the methodology of deriving the precinct criteria, including limitations associated with the information presented on the ambient acoustic environment of the area, rating background levels and the categorisation of surrounding areas;
    - the consistent application of the *Industrial Noise Policy*;
    - the maintenance of a noise prediction model to ensure cumulative noise impacts are effectively managed;

  - further assessment of either the concept or project application stages of potential 7+ dBA exceedances at Stockton and Mayfield to identify mitigation and monitoring regimes; and
  - noted that off-site rail and road traffic noise has the potential to result in noise impacts to surrounding residences and requested further consideration of these matters.
- the status of the Voluntary Management Proposal (VMP) applying to the site under the *Contaminated Land Management Act 1997* (CLM Act) and its intention to regulate the ongoing maintenance of the site cap, barrier wall and groundwater monitoring under an ongoing maintenance order under the CLM Act. The following advice was provided on contamination issues:
  - agreed with commitments in relation to the management of contaminated land and remediation measures consistent with the existing Contaminated Site Management Plan prepared for the site;
  - advised that groundwater monitoring would be required at the site consistent with the VMP and also when the declaration applying to the site under the CLM Act is lifted and, that it would be preferable for drainage infrastructure to be installed prior to any development of the site;
  - recommended conditions reflecting commitments made and ensuring the implementation of the VMP occurs synergistically with the proposed development and in relation to the construction of underground storage tanks, vapour risk, classification and management of excavated material;
  - recommended standard conditions regarding water pollution, Aboriginal cultural heritage, threatened species and waste; and
  - noted that should the current concept application be approved, the former consent issued in 2001 may need to be modified or superseded by the approval.

NSW Office of Water (NoW) did not object to the proposal but made the following comments:

- an adequate description of the impact on surface water and groundwater was provided (with the exception of waterfront structures);
- NoW raised concerns with the level of assessment undertaken regarding riparian areas and waterfront structures and considered that a detailed description and impact assessment of waterfront structures be undertaken including the need for foreshore reclamation works and the impact of these on the waterway environment (bed and bank stability, water flow and function); and
- groundwater and surface water monitoring should be included in the preparation of the Construction and Operation Environmental Management Plans for the project.

Hunter Development Corporation did object to the proposal but provided advice on the following issues:

- the current status of the adjoining Intertrade Industrial Park site and that the Buildev Intertrade Consortium (Buildev) has rights to purchase and develop Lot 1 (general industrial land) in stages, to lease Lot 2 (intermodal) and is required to construct trunk items of infrastructure such as roads, drainage, new electrical substation and water mains all of which are capable of supporting the NPC Concept Plan;
- the need to consider the cumulative impacts of the proposal and the Intertrade Industrial Park particularly in relation to road and rail transport and other environmental impacts such as air quality, hazards, water management, heritage, infrastructure, contamination issues and socio-economic impacts; and
- the proposed access corridor on Figure 5-1 of the Environmental Assessment is part of Lot 1 and is not proposed to be transferred to NPC but to be developed by Buildev, which is obliged to provide an industrial grade service road.

Hunter Regional Development Committee did not object to the project and raised similar concerns to the RTA and also recommended that alternative transport modes should be promoted.

Newcastle City Council did not object to the proposal but raised the following issues:

- concern with the assessment and identification of mitigation measures associated with the impact of traffic and transport, including:
    - the assessment focussing on the immediate intersections;
    - the impacts of haulage to and from the site and from the development of the Intertrade Industrial Park should be undertaken for the wider road network;
    - that the background traffic growth adopted for the project did not take into account approved or future growth areas and that cumulative impacts be considered prior to the project's determination;
    - the assessment should consider approved future RTA projects and potential rail freight corridor;
    - concerned over potential errors in the trip generation rates and the impact of rail crossings;
    - noted a lack of detail on the proposed internal link road, including timeframe for delivery, responsibility for the construction and management of the access road, identification of future owner(s) and the management of site security for each precinct;
    - there may be a need to upgrade or reconstruct Selwyn and Ingall Streets to accommodate alternate means of access by walking, cycling and public transport;
    - advised that Local Area Traffic Management work may be required and requested that consultation with Council and affected residents be undertaken regarding traffic management devices; and
    - sought advice on the status of freight rail network upgrades such as the North Sydney Freight Corridor project and Newcastle Freight Bypass.
- the project may exacerbate delays at the Glebe Road, Adamstown and Clyde Street, Islington level crossings;
- a comprehensive water cycle management plan with consideration of Council's Development Control Plan 2005 should be prepared and the plan should be retained in the ownership of the respective developments, rather than Council;
- documents regarding land contamination to be provided to Council for records purpose;
- future infrastructure or assets affected by contamination should not be dedicated to Council unless otherwise approved;
- the integration and application of mitigation and management measures for future applications. Council considered that NPC should be responsible for the delivery and monitoring of all proposed mitigation measures;
- a greenhouse gas assessment should be included in the air quality study having regard to the future heavy vehicle volumes associated with the project;
- clarification from NPC on how services would be delivered through the Intertrade Industrial Park; and
- payment of section 94A contributions to Council, in accordance with Council's Development Contributions Plan 2006.

4.3. Public Submissions

Of the total submissions received, 172 submissions were received from the public. Many of the public submissions received by the Department were forwarded via the group known as Correct Planning and Consultation for Mayfield Group, and have been treated as individual submissions.

Other public submissions included submissions from the following special interest groups as well as submissions from Buildev, OneSteel and Port Waratah Coal Services, the latter of which are land users or land holders in the vicinity of the proposal:

- Mayfield East Environmental Action Group;
- Hunter Business Chamber;
- Mayfield Community Garden Organiser;
- Hunter Regional Development Committee;

- Great Lifestyle Wickham (GLOW);
- Islington Village Community Group;
- Realty Partners and LJ Hooker Hamilton;
- Transition Newcastle;
- Mayfield West Demonstration School;
- Hunter Christian School; and
- St Columan's Primary School.

Many of the submissions made by the public were via two different form letters as well as individual letters received by mail and email. The key issues raised in public submissions are outlined in Table 2.

Table 2: Summary of issues raised in public submissions

Issue
Consultation • lack of awareness by residents of the proposal due to the lack of community consultation; • questioned the adequacy of consultation undertaken by the Proponent with neighbouring properties and the level of notification provided. Requested further consultation be undertaken prior to approval; • Mayfield Community Consultative Committee does not appear to be functioning and does not represent the local residents of Mayfield; • a community consultation strategy should be prepared to inform residents of the proposal; and • requests for an extension of time for community consultation.
Traffic, Transport and Access • under-estimation of heavy vehicle volumes and the need to include and consider the traffic generated by the adjacent future Intertrade Industrial Park. Mayfield and surrounding areas will not be able to sustain the increase in traffic from the project; • the capacity of existing infrastructure to handle the transport (road and rail) requirements; • increased truck movements and consequential environmental impacts; • traffic impacts on future urban renewal areas; • the need to explore the greater use of heavy rail (or vessels) to reduce truck movements - new heavy rail routes should be constructed to transport the bulk of the new cargo; • heavy haulage route maps should be provided; • public access to site foreshore should be provided; • consistency of the proposal with State and local government transport policies; • preference to provide access for truck movements to the site via Tourle Street as this would reduce traffic impacts; • impacts of heavy vehicle traffic on residential streets - traffic control devices should be installed to restrict trucks from entering local residential area in consultation with the community. Inadequate mitigation measures given the traffic generation expected; • a Traffic Management Plan should be prepared in consultation with OneSteel, the RTA and Council; and • a Rail Infrastructure Management Plan should be prepared in consultation with OneSteel and the rolling stock and track owners/operators.
Noise and Vibration Impacts • further details should be provided on the noise model; • increase in noise pollution associated with traffic generated by the proposal and from trucks rat-running through local streets; • potential 7 dBA noise exceedances at residential receivers; • uncertainty over the frequency of the occurrence of worst-case meteorological

Issue
conditions; • the number of residents which may be affected by noise should be quantified and the need for further consultation with these residents provided; • adverse noise impacts to existing schools and child-care centres close to the proposal; • questioned the use of Selwyn Street rail connection as this line is already the subject of many noise complaints as trains have to travel through heavily populated areas; • the efficacy of the proposed mitigation measures; • sound barriers along perimeter of Hunter Christian School should be considered; and • noise reduction measures suggested for houses on Industrial Drive are required for many streets and must not reduce quality/amenity of the residence - rebuilding/ soundproofing houses was considered unacceptable for noise abatement as it reduces quality of life.
Social and Health Impacts • no assessment of social impacts; • impact on the revitalisation of Newcastle; • major amenity and safety impacts including from traffic and rail freight transport (increased risk of accidents); • increased traffic will result in health issues for sensitive people in the community, including an increase in stress-related health problems; and • Statement of Commitments should include measures to improve areas where impacts are expected.
Economic Impacts • the proposal would provide benefits to the economy including employment; • the proposal would devalue properties; and • increased trucks would deter people shopping in Mayfield leading to retail closures.
Cumulative Environmental Impacts • the application should consider the cumulative impacts from the proposal on adjoining development, particularly the Intertrade Industrial Park.
Hazards • a full hazard and operability risk assessment report should be provided; • concern over the risk of transporting hazardous goods; • questioned the need for another bulk liquids terminal when there are three in close proximity; and • ongoing remediation should be conducted in a manner to adequately protect adjoining sites.
Air Quality Impacts • modelling of air quality based on assumptions should be subject to review by a suitably qualified specialist with expertise in port operations; • dust impacts from the proposed boutique coal loading area; and • increased air pollution from heavy vehicle traffic.
Infrastructure and Services • proposed access corridor is partially situated on land not owned by the Proponent; • an Access and Service Management Plan to be prepared; • provision of infrastructure, specifically road and freight rail transport; and • interaction of infrastructure and services, including corridors and transport access arrangements between the site and Intertrade Industrial Park.
Development potential of adjoining sites • development should be designed and operated in a manner so as not to restrict the development potential of adjoining sites.
Other Issues • adequacy of the EA in addressing the Director-General requirements;

Issue
• the EA should be referred to the NSW Planning Assessment Commission regarding the inadequate justification for the heavy reliance on road transport; • decline in crude oil imports; • odour impacts; • lighting impacts; and • consideration of alternative locations to achieve greater efficiencies for the operational stage.

The Department has considered the issues raised in the submissions received in its assessment of the project as outlined in Section 5 of this report.

4.4. Proponent's Response to Submissions

On review of the submissions received, the Department directed the Proponent to prepare a response to the submissions received and the issues that were raised. The Proponent submitted a Submissions Report in December 2010, attached in Appendix C, which included a final Statement of Commitments. The Submissions Report was made publicly available on the Department's website and forwarded to agencies for comment.

The Submissions Report was also publicly exhibited for a period of 32 days between 15 February and 18 March 2011 inclusive. The Department received 28 submissions on the Submissions Report and the issues raised in these submissions have also been considered as part of the assessment of the Concept Plan in Section 5.

Of the submissions received on the Submissions Report, seven were received from government agencies (NSW RMS, NSW Office of Water, Hunter Development Corporation, Transport for NSW, EPA, Heritage Branch OEH and Newcastle City Council) and 21 were received from the local community including a submission from the Buildev Group. One of the 21 public submissions received on the Submissions Report was a collaborative effort authored by 16 residents of Mayfield and immediate surrounding suburbs who are parents of children who attend Mayfield East Public School. Four of the 21 submissions received were in the form of a proforma letter submitted by parents of children that attend Mayfield East Public School with specific concerns raised by each submitter.

4.4.1. Public Authority Submissions on Submissions Report

A summary of the issues raised by government authorities regarding the Proponent's response to the issues raised in submissions is provided below.

- RMS considered that there were outstanding issues with the transport assessment that needed to be addressed. Specific comments provided included:
  - number of trips generated by the proposal needed to be reviewed and revised with adequate justification on the traffic generation rates adopted;
  - to address a lack of certainty in relation to the proposed road/rail mode split, a worst-case scenario with all transport being via road should be included as a sensitivity test to determine impacts on the road network and required infrastructure improvements;
  - emergency access, clear of any rail level crossing is required to be provided given the proposal for hazardous goods storage on the site; and
  - works required to maintain safe and efficient vehicular access along Industrial Drive, when considering the cumulative impacts of the Intertrade Industrial Park site, need to be determined in consultation with the RMS and Council – this includes mid-block capacity upgrades as well as intersection improvements. A threshold analysis should be provided to determine the timing of these works.
- On the basis of the information provided to date, the RMS provided a preliminary list of requirements for road improvements that would be considered by the Department as part of any conditions. In addition, the RMS indicated that a Voluntary Planning Agreement (or similar) with the Proponent of the Intertrade Industrial Park may be required to detail the

additional infrastructure works required, the timing of implementation and the apportionment of costs between the Proponents.
- An efficient internal road system should be provided connecting to the adjacent development to minimise the number of trips required to use Industrial Drive.
- Pedestrian/cycle facilities should be provided from Industrial Drive to/from the site to promote alternate transport modes for employees.

NSW Office of Water was satisfied that the details relating to the land and water interface would be addressed as part of subsequent project applications. NoW stated that the Submissions Report provided appropriate assurances that necessary groundwater monitoring would be undertaken as part of the project and that Groundwater Management Plans would be prepared as part of future project Environmental Assessments and Construction Environmental Management Plans.

Hunter Development Corporation
- HDC is omitted from the list of stakeholders to be further consulted and should be included.
- Concern about the practicalities and the demands on infrastructure where individual proponents of the portside lands would arrange their own infrastructure needs. Advocated the preparation of a site wide trunking main and servicing strategy prepared by the overall site proponent.
- There remains some outstanding assessment issues relating to cumulative impacts and assumptions utilised in analysis should be based on best estimates for the intended uses of the site.
- Development of the Intertrade Industrial Park will occur before the total development of the port-side lands, however the cumulative traffic assessment does not reflect the timing of the proposed development.

Transport for NSW
- Additional work and consultation is required to ensure that the impacts on rail and broader road networks are adequately understood and addressed;
- Transport for NSW requested that a number of issues should be resolved prior to the determination of future project application(s), as follows:
  - an assessment on the road and rail networks taking into account future growth scenarios for container movements, guided by mode share targets adopted for Port Botany and more recently, Port Kembla's Stage 1 Outer Harbour development;
  - the strategic justification of the project, taking into account the potential growth in container throughput at Port Botany;
  - a rail capacity assessment in consultation with RailCorp so that rail movements to support the facility can be accommodated; and
  - further road network analysis to assess and address traffic impacts on the wider road network to and from the port extending to the Newcastle Link Road, the F3 Freeway and the New England Highway to the west of Hexham. Sensitivity tests should be conducted based on 90 and 100 per cent road mode share.
- A rail mode share target based on Port Botany and informed by discussions with Transport for NSW, the RMS and RailCorp, including an analysis of appropriate train lengths and configurations.
- The assumption that there would be sufficient train paths to accommodate the proposed mode share of containers on the Northern Sydney Freight Corridor has not been verified and requires to be substantiated through consultation with RailCorp and ARTC. Only funding of Stage 1 has been committed to by the Australian Government to date. The creation of additional freight paths as part of the Northern Sydney Freight Corridor are envisioned to be utilised by the interstate not the intra-state freight market. The Proponent should be asked to provide a train plan agreed to by RailCorp and the ARTC that identifies the rail capacity to service the development.

- No improvement works are planned for the gradient of the Cowan Bank despite the assertion made in the Submissions Report.
- Transport for NSW was concerned about the impact of the additional road freight movements on the wider state road network should development proceed and the assumed rail mode share is not achieved.
- The Department of Planning and Infrastructure should be cognisant of strategic planning initiatives, including a review of 3.2 million TEU container freight capacity limit imposed on Port Botany and the NSW Ports Strategy and NSW Freight Strategy under development.

EPA

- Revision of the noise assessment in accordance with EPA's recommendation indicates that the noise criteria exceedances of up to 7 dBA at night in Mayfield and Stockton remain unchanged.
- EPA considers the approach proposed by the Proponent to establish sound power level criteria for four precincts in the area of the Concept Plan to have merit as the noise emissions cannot be estimated with any certainty at the Concept Plan stage.

Newcastle City Council

- The revised traffic assessment is not considered satisfactory with regard to assessing and mitigating the impact of traffic nor does it address all of the matters raised in Council's submission. The revised assessment shows that Industrial Drive will fail by 2024 having regard to both mid-block and intersection capacity and given this Council considered that significant impact could also occur on other roads and intersections not immediately adjacent to the site.
- The haulage route for heavy vehicles needs to be identified to ensure that it is able to adequately cater for the expected traffic volumes. This route should be modelled between the subject site and the F3 Freeway to determine the adequacy and capacity of existing roads and to determine whether other upgrades are required and for the further consideration of noise impacts.
- The link road is proposed to occur "within or external to the site", however the Submissions Report does not address timing, responsibility, ownership or security management nor identify whether an agreement has been reached with an external party.
- It is unclear how the Proponent proposes to determine who will be responsible for the construction of road and intersection or rail upgrades and how the cost sharing of these works would be divided between future individual projects.
- Funding and delivery of key infrastructure upgrades is the responsibility of the Proponent.
- Council considers that NPC should be required to undertake road and rail upgrade works as well as the construction of the link road and the implementation of noise mitigation measures prior to any of the five precincts becoming operational.
- NPC should commit to providing future LATM controls or funding to Council to implement works on local streets as required in addition to works associated with the potential future grade separation of road and rail movements.
- Reports on contamination have yet to be provided to Council as requested.
- Recommends that NPC be made responsible for delivery and ongoing monitoring of proposed mitigation measures via appropriate conditions.
- The Concept Plan is not exempt from payment of s94A contributions. A condition should be imposed requiring the current proponent or proponents of individual projects within the Concept Plan to make full payment of their respective contributions in accordance with Council's Section 94A Development Contributions Plan 2006.

Upon review of the Submissions Report and submissions received on the Submissions Report, the Department requested the Proponent to provide a further response to several key issues relating to transport and access impacts of the project, including those raised by Council, RMS and TfNSW. The Department's consideration of the issues raised are discussed in section 5 of this report. In particular, the Department accepts that there are

constraints on the road network and has further considered this matter in the context of future development occurring on the adjacent IIP site and has recommended requirements that:

- require future development applications to undertake a comprehensive transport assessment and include intersection upgrades and the provision of a link road;
- limit container freight traffic volumes until adequate infrastructure is provided in accordance with a Transport Infrastructure Strategy endorsed by TfNSW and the RMS;
- traffic is managed to protect residential amenity through the preparation of traffic management plans that would enforce defined heavy vehicle access routes;
- rail access to the site is configured to maximise rail mode share; and
- there be ongoing transport monitoring and review.

In relation to section 94A contributions, the Department agrees that future development should be subject to these charges and has recommended a requirement to this effect.

NSW Heritage Branch OEH indicated that the Proponent did not provide sufficient justification to modify the conditions of the existing Excavation Permit (2005/S140/041) issued for the site, but its commitment to adhere to the conditions of the Permit and the adoption of the approved Research Design and Methodology were considered positive. The Heritage Office provided recommended conditions for the proposal in relation to the Permit and potential and unidentified archaeological deposits.

4.4.2. Public Submissions on Submissions Report

Of the 21 public submissions received, similar issues raised as part of the exhibition of the Environmental Assessment were identified as well as a number of issues not previously discussed. The comments made have been summarised below:

- continued comments regarding the adequacy of the assessment of road and rail freight movements;
- revised traffic assessment has not provided an assessment of other intersections, only the two in the vicinity of the site or attempted to investigate other rail options (for example, constructing a rail line on the river-side of Industrial Drive travelling west and joining the Sydney North line at Mayfield West/ Warrabrook;
- unacceptable cumulative traffic impacts have been identified; however no mitigation measures or arrangements for how an equitable split of responsibility for the management of impacts with the Buildev Group has been provided;
- conflicting information was provided by NPC between the information in the EA and the Submissions Report (for example, number of exits from the site and the destination of container traffic is not consistent – the EA stated 66 per cent would be bound for Sydney and the Submissions Report indicates that the majority of containers would be locally bound);
- no information on freight origin and destination;
- shipping details, needs and threats have not been addressed;
- it is not possible to ascertain whether the proposal will facilitate the orderly and economic use and development of land in accordance with the objects of the EP&A Act until an adequate level of strategic planning has been provided;
- NPC should be considering an intermodal facility – no consideration made of the Black Hill-Stoney Pinch intermodal which is a similar distance (18 kilometers) from the port as Enfield is to Port Botany or the interaction between the proposal and the intermodal proposed at the adjacent Intertrade Industrial Park;
- as any number of private companies would operate a range of facilities on the site, it is unrealistic to assume that a co-ordinated approach to environmental management and compliance can be achieved across the site. There needs to be a mechanism to detail how the components of the ultimate development will not exceed the levels set for the whole site for issues such as noise, dust, light, vibration, fumes and traffic;

- a Port Master Plan is required to be prepared for the port for the next 20-50 years and the proposal should form part of this overall strategy;
- the Submissions Report has been written in a way that is difficult for ordinary members of the community to understand and has often missed issues raised;
- the Submissions Report did not specifically respond to questions raised in submissions received and provided a tokenistic response to issues raised;
- the Submissions Report dismisses the safety concerns raised by Mayfield residents and is silent on any form of compensation or benefits of the proposal to residents. Suggestions made include improvements to schools, street beautification programs and upgrades to playground equipment;
- the community want infrastructure built to move goods by rail and measures put in place to reduce the safety hazards from the proposal and to protect the environment;
- in recent consultation the Proponent suggested that the Mayfield East Public School would probably have to close and relocate to escape the negative impact of the proposal, the Submissions Report has not addressed the impact of noise from the proposal on the school; and
- restriction of operating hours, for example no movements from 11 pm to 5 am, should be considered.

5. ASSESSMENT

The Department has considered the EA, the submissions received from its public exhibition, the Proponent's Submissions Report and revised Statement of Commitments, and the subsequent submissions received from the exhibition of the Submissions Report and identified the following key environmental issues associated with the Concept Plan proposal:

- transport and access;
- noise and vibration;
- hazards and risks;
- air quality; and
- water quality.

5.1. Transport and Access

Issue

Road Traffic

The north western portion of the site is connected to the regional road network through Industrial Drive via Ingall Street and Bull Street, whilst the southern portion is connected to Industrial Drive via Selwyn Street and George Street. Figure 7 below shows the strategic and local road network surrounding the site.

Industrial Drive connects with the broader strategic road network, including the following key roads:

- F3 Freeway (Sydney – Newcastle Freeway) – the F3 links Sydney to the Central Coast, Newcastle and Hunter Regions;
- Pacific Highway – this is a major route which links Sydney and Brisbane along the east coast of Australia;
- New England Highway – the Highway connects to the Pacific Highway at Hexham and travels west towards Maitland. It is an alternative inland route to the Pacific Highway travelling between Sydney and Brisbane;
- Cormorant Road – this is located on the opposite side of the South Arm of the Hunter River, on Kooragang Island; and
- Tourle Street - the continuation of Cormorant Road over the South Arm of the Hunter River to the southern mainland. Tourle Street provides a direct route between Newcastle, the industrial area and Newcastle Port facilities on Kooragang Island.

The majority of truck movements generated from the development will be travelling between Sydney and Newcastle, via the main arterial road network as shown on Figure 7. It is anticipated that approximately 90% of traffic from the development would travel north west along Industrial Drive and then connect either to Kooragang Island via the Tourle Street Bridge, or the Pacific Highway at Hexham via Maitland Road or the F3 Freeway at Beresfield via the New England Highway and John Renshaw Drive, whilst the remaining 10% of traffic would travel south east towards Newcastle and the surrounding urban area and then further south via the Pacific Highway.

Traffic Generation and Intersections Performance

The traffic assessment focused on local traffic impacts and access to the site via two main intersections - Industrial Drive/George Street and Industrial Drive/Ingall Street (Figure 8). Further assessment was also undertaken on mid block saturation on Industrial Drive and on the strategic road network in response to submissions made during exhibition and in response to Departmental queries.

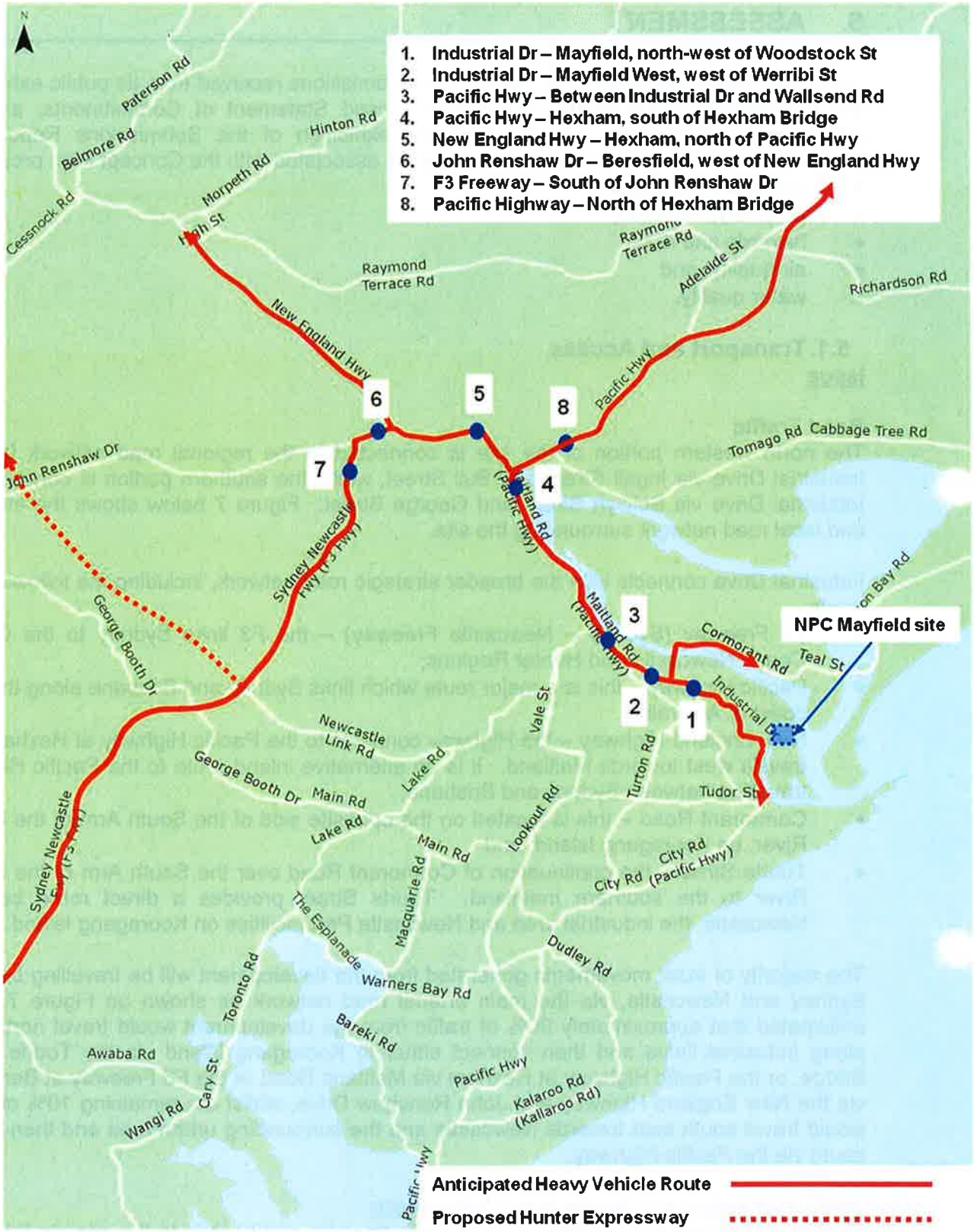

Figure 7: Strategic Road Network and Heavy Vehicle Routes. (Source: AECOM, 2011)

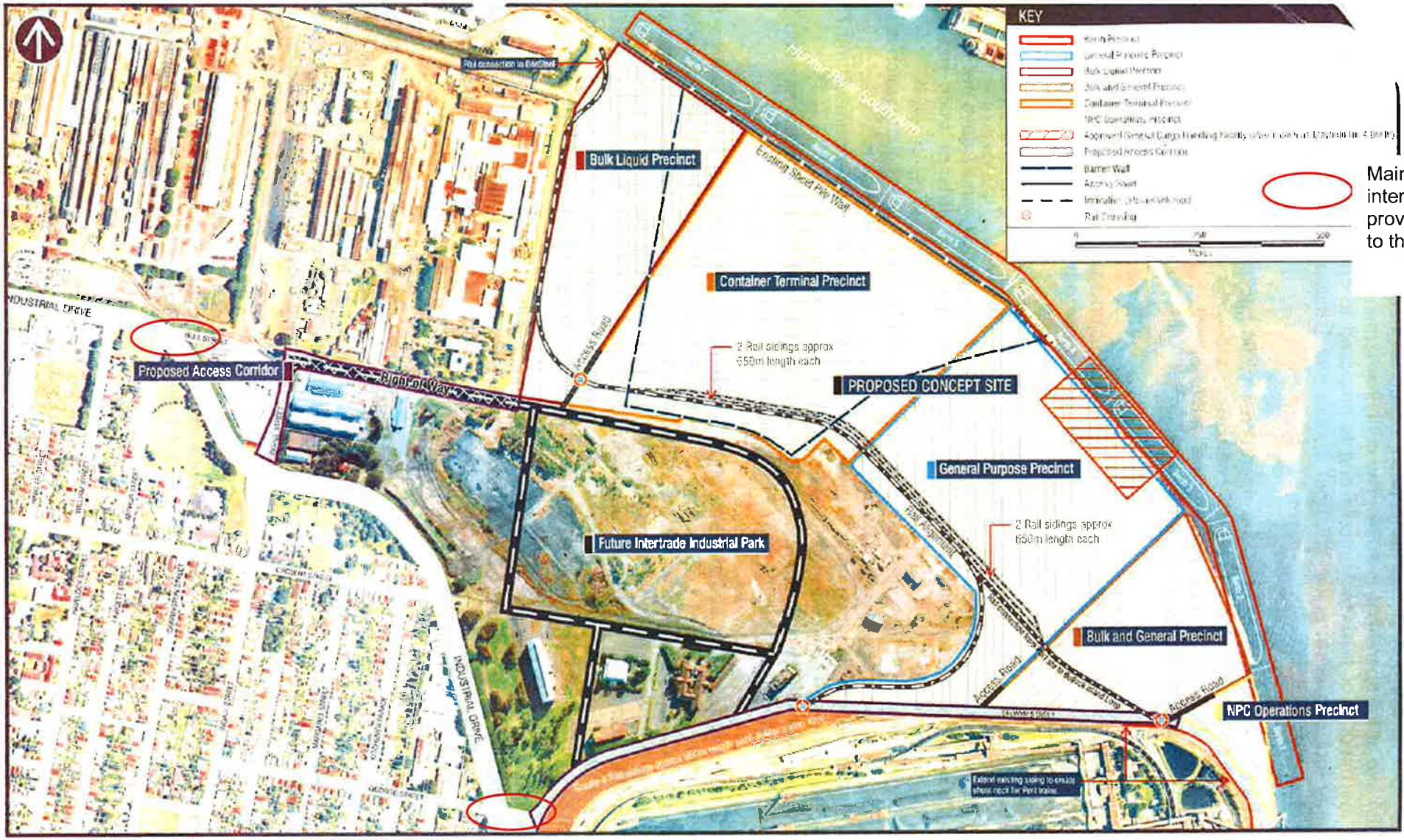

Figure 8: Road and rail transport access. (Source: AECOM, 2011)

The assessment considered the impacts based on trade forecasts at initial operations in 2024 and at full operations in 2034. The container terminal has been identified as the source of the majority of truck movements and is proposed to operate at a capacity of 600,000 twenty foot equivalent units (TEU) per annum and 1 million TEU per annum in 2024 and 2034, respectively.

As part of the assessment of the operational traffic implications of the development, the Proponent has estimated the capacity saturation and levels of service for current and future scenarios, both with and without the development. Modelling was undertaken to contextualise the increase in traffic associated with the project under initial and full operations:

A range of assumptions were applied to the model, including:

- modal split - a range of modal splits for various cargo types, including a container road and rail modal split of 80% and 20%;
- average truck loading and road trip generation rates – bulk (35 tonnes), general cargo (25 tonnes), containers (1.8 TEU) and bulk liquids (18 ML);
- hours of operation of the proposed terminal – 24 hours per day and 7 days per week, with 75% of truck movements occurring during the day and 25% of truck movements occurring at night;
- background traffic growth rate - a growth rate of 1 per cent per annum (which is higher than the average observed rate of 0.2%);
- employee vehicle movements – a vehicle occupancy rate of 1 was assumed, and 75% of movements will occur during the day and 25% at night; and
- peak hour vehicle movements – 70% / 40% of traffic will be entering the site and 30% / 60% leaving the site in the AM / PM peak, respectively.

The traffic assessment showed that prior to operations, the Industrial Drive/George Street intersection performed at LoS B* and C† in the AM and PM peak hours respectively, and operated with spare capacity. The Industrial Drive/Ingall Street intersection performed at LoS B during both the AM and PM peaks, with the PM peak experiencing a higher degree of saturation compared to the AM peak, but continuing to perform satisfactorily. Midblock capacity on the strategic road network was generally satisfactory, with a minor exceedance of two-way am peak saturation on Industrial Drive, north west of Woodstock Street.

The traffic assessment also considered performance of the road network in the years of 2024 and 2034, without the proposed development. It shows that in both 2024 and 2034, the Industrial Drive/George Street intersection would continue to perform at an average LoS B during both the AM and PM peaks and operate with spare capacity.

The Industrial Drive/Ingall Street intersection would continue to perform at LoS B during the AM peaks in both 2024 and 2034 respectively, but operate at a LoS D and F in the PM peak in 2024 and 2034, respectively, with through movement on Industrial Drive in the westbound direction responsible for the poor LoS of this intersection. The assessment suggests that by 2034, the Industrial Drive/Ingall Street intersection would require upgrading to accommodate background traffic growth.

The midblock saturation analysis of strategic routes also demonstrated a deterioration of service along Industrial Drive, in the absence of the project, with Industrial Drive north west of Woodstock Street becoming saturated in both the AM and PM peak periods. In the longer

* Level of Service (LoS) B indicates that the overall performance of the intersection as good with acceptable delays and spare capacity.

† LoS C indicates the overall performance of the intersection as satisfactory.

term, 2034, saturation of other strategic routes is expected during peak periods, including Industrial Drive, west of Werribi Street and the Pacific Highway south of Hexham Bridge.

The traffic assessment presented in the EA effectively represents the worst case traffic generation scenario during operation of the development. These are summarised below.

In 2024

During proposed initial operations in 2024, the development will generate approximately 159 truck movements during the daytime peak hours and a maximum of 200 employee vehicles per day. Total truck movements per day are 2120 and employee vehicle movements per day are 400. With the inclusion of traffic generated from the project, the traffic analysis found that at the:

- **Industrial Drive/George Street intersection** - the development will have minimal effect on this intersection in relation to LoS and capacity, over and above the current situation and background growth. Minimal change in the spare capacity was noted, and therefore no specific mitigation measures are proposed; and

- **Industrial Drive/Ingall Street intersection** - the most significant effect of the development will be at this intersection during the afternoon peak, where the LoS will deteriorate from D to F, with the intersection operating beyond the theoretical maximum capacity of the intersection, with a degree of saturation of 1.107 v/c[‡]. This means that drivers are likely to experience long delays and a 95th percentile queue in the order of 1,199m.

The results show that the project would have a detrimental impact on the Industrial Drive/Ingall Street intersection, particularly during the afternoon peak. In order to address this, a link road either on the site or on the adjoining Intertrade Industrial Park (IIP) site would need to be constructed to allow a redistribution of truck movements between the two intersections. The link road would provide an alternative route for access from the Container Terminal Precinct and therefore channel traffic from the Industrial Drive/Ingall Street intersection to the Industrial Drive/George Street intersection. As a further mitigation measure, the Proponent proposes the addition of a short left turn slip lane from the Ingall Street southern approach. With these measures in place, the intersection would perform at a LoS C.

The impacts of this measure on the George Street intersections in terms of performance and spare capacity were also assessed. The results show that in 2024, the George Street intersection would perform within capacity and at a LoS of B for both the AM and PM peaks, with the provision of the link road.

With respect to mid block capacity, the analysis identifies that with the development, capacity along Industrial Drive would deteriorate generally consistent with the 2034 base case and that the road would be full and beyond saturation during peak periods. The degree of saturation on other strategic roads would be below full saturation, except for the Pacific Highway, south of Hexham Bridge, which would be at saturation levels in the PM peak.

In 2034

At full operations, the development will generate approximately 232 truck movements during the daytime peak hours and 300 employee vehicles per day, with a total of 3094 truck movements per day and 600 employee vehicle movements per day. With the inclusion of traffic generated by the development, and the implementation of the mitigation measures undertaken in 2024, the traffic analysis found that at the:

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‡ Values over 0.85 are typically regarded as suffering from traffic congestion, with queues of vehicles beginning to form.

- **Industrial Drive/George Street intersection** - would be operating near capacity and at a LoS of C during both the AM and PM peak hour; and
- **Industrial Drive/Ingall Street intersection** – would be operating at capacity and at LoS F in the PM peak. To alleviate this impact the Proponent proposes the addition of a short right turn lane from the Ingall Street northern approach, which would improve the LoS to D, although the intersection would still be operating at capacity.

The Proponent contends that, in 2034, the Industrial Drive/Ingall Street intersection would perform poorly even without the development, and would operate at lower capacity than that predicted with the development and inclusion of the proposed mitigation measures. The results suggest that the intersection requires upgrading regardless of the predicted traffic generated by the development.

Analysis indicates that exceedances of mid block capacity are primarily due to background traffic growth, where midblock capacity at these areas are already close to reaching or exceeding capacity. The assessment also found that the number of truck (heavy vehicles) and employee vehicle movements generated by the proposal in 2034 will be between 7.1% to 7.5% of the total traffic movements on the broader road network, which the Proponent considers to be a small proportion and minimal impact on the arterial road network.

The Department notes that the RMS has advised that Industrial Drive is fully developed and that no further upgrades are planned at this time, and that the existing road reserve for Industrial Drive has no provision for future widening, except for a small parcel opposite the Tourle Street junction. The Proponent states that should widening be necessary, this matter may need to be addressed as part of the future development proposals, where property acquisitions or dedication of land may be required.

Additional modelling

In response to specific issues raised by the RMS and the Transport for NSW on the traffic analysis undertaken, further traffic assessments were carried out. These examined a number of scenarios varying the road/rail modal split, direction split of traffic and background traffic growth rates on Industrial Drive and trip generation for the port. Specifically, the variables considered were as follows:

- road/rail modal split – 80/20 and 90/10;
- direction split at Industrial Drive (north/south) – 80/20 and 90/10;
- growth rate on Industrial Drive – 0.27% and 1.0%; and
- port hourly truck loading – peak hour and average hour.

In comparison to the results noted in the original traffic analysis, similar traffic impact trends are noted at the Industrial Drive/Ingall Street and Industrial Drive/George Street intersections and at mid block locations on Industrial Drive. The assessment indicates that the change in directional and modal splits has resulted in minimal changes to the peak hour traffic flow and demonstrates that the changes in intersection performance and mid-block capacity between the scenarios are predominately associated with above historical background growth rates. A difference of approximately 1500 trips per hour is noted due to variations in the utilisation of different historical background growth rates.

This analysis also confirms that Industrial Drive would operate over capacity at 2024 in both the AM and PM peaks, even in the absence of the development, primarily due to background traffic growth.

Cumulative Impacts

An assessment on the cumulative traffic impacts of the adjoining IIP site was undertaken based on the existing development consent and the draft Masterplan for the site. An assessment on the performance of the industrial Drive/George Street and Industrial

Drive/Ingall Street intersections in 2024 was undertaken and indicates that the intersections would perform poorly during the AM and PM peak periods; both intersections would perform at LoS F and operate over capacity. This indicates that the intersections are unable to operate satisfactorily with the cumulative traffic impact from the project and development of the IIP site.

The Proponent outlined a suite of untested potential mitigation measures which may be adopted to improve the performance of the intersection, but stated that these did not form part of this proposal. These measures are as follows:

- additional lanes on Industrial Drive, which may require land acquisition or dedication of land as part of future developments;
- upgrade of the Industrial Drive/George Street intersection to improve its capacity such as by adding longer or additional turning lanes;
- partial or full grade separation of the Industrial Drive/Ingall Street intersection and/or Industrial George Street intersection; and
- creation of an additional intersection mid-way between George Street and Ingall Street as part of the IIP development.

Rail Transport

The Port of Newcastle is served by the Kooragang Island and Port Waratah rail loops. Kooragang Island is connected via the Kooragang Island Junction to the Main North Rail Line and the Sandgate grade separation, whilst Port Waratah is connected to the Main North Rail Line via the Islington Junction and connected to a number of sidings and facilities, including the Morandoo and OneSteel sidings, and two roads, the Morandoo Arrival Road and Storage Road 1.

The site is currently connected to Port Waratah via the OneSteel Arrival Road siding (Figure 8), which operates as a single siding with no signalling control or separation for trains within the siding and is currently used by OneSteel which operates up to three trains in and out of their site per day.

The Port is connected via the abovementioned rail loops to the Main North Line that is currently heavily utilised by freight and passenger trains in and out of Sydney. The actual capacity along the Main North Line is not certain. However, the assessment has indicated that up to 10 train paths are available in each direction on the Main North line between Newcastle and Sydney, before Stage 1 of the Northern Sydney Freight Corridor (NSFC) project, most of which are available outside of the peak curfew period. After Stage 1 of the NSFC, five of the ten train paths are expected to remain available in each direction. , though these will be prioritised to interstate freight and passenger services. As a result of constraints on the rail network, ie. the availability of train paths on the Main North line between Newcastle and Sydney, a greater reliance on road transport is expected for the earlier stages of the development.

It is proposed to use up to three 1,300m length trains to service the Port each day between 7pm and 5am, which would take up 3 of the 5 train paths potentially available on the Main North line, to transport a total of 214,500 TEU per annum, a 21% mode split to rail. NPC has advised that there is capacity on both the Port Waratah and Bullock Island loops to accommodate additional train movements and that the operations are not dependent on the NSFC project.

Following consultation with Transport NSW and the ARTC in response to submissions received during exhibition, NPC revised on and off-site rail configurations to facilitate the above mentioned rail movements, which include:

a) a new rail line extending between the One Steel line and the Bullock Island loop to provide direct access to the site for Port trains and the provision of at least two x 650m length rail sidings to service 1,300m length trains (an intermodal compatible standard);
b) the use of an extended shunt neck on the Bullock Island loop approximately 700m beyond the new rail entry to the Port to provide for trains entering and exiting the site; and
c) the reconfiguration of the Morandoo Yard (road numbers 1 to 5) to provide a total of four x 650m length rail sidings to hold two separated Port trains whilst a third train is within the rail sidings within the development site.

This operational arrangement is designed to avoid direct impact on train operations on the OneSteel, Port Waratah and Bullock Island loops. Accordingly the OneSteel line would be available to service the IIP site.

In 2024
The demand for freight is primarily generated from the transport of containers into and out of the Newcastle Port. In the short / medium term whilst the container freight volumes are building up it is possible that train operations could start with only one 1,300m length train per day. Alternatively smaller trains of around 800 m length could be used to service the site. The above mentioned rail configuration would support either of these two scenarios.

In 2034
In the longer term, when more trains are to be catered for, additional rail sidings within the site and adoption of gantry style loading/unloading operations may be required. For example a fourth 1,300 m long train could service the port if two additional 650 m long sidings are provided on site.

Access Interdependencies
The Department notes that access interdependencies exist between the Concept Plan and IIP sites and notes that future access and infrastructure connections from the IIP site to the port land and the waterfront could be provided via easements or similar. In recognition of the access interdependencies that exist between the lands and works on the two sites, the Department understands that a Project Coordination Deed has been established between NPC, HDC, State Property Authority and Buildev, which provides a framework for coordination of development and consultation between the parties.

On and off site rail level crossings
The Concept Plan proposes two new on-site railway levels crossings – the western crossing adjacent to the Bulk Liquids and Container Terminal precinct and a new eastern crossing at Selwyn Street, adjacent to the Bulk/General and NPC Operations precinct. An analysis based on the number of train movements and length and travelling speed of the trains at these crossings and an estimate of queuing at each level crossing was undertaken for final operations in 2034. The assessment found the queue lengths to be reasonable and manageable without unduly impacting other traffic flows and access to adjacent properties. Nonetheless, to manage impacts on the performance of the road network in the immediate vicinity of the site, grade separation of one of the crossings may be necessary in the medium to long term. The need for and timing of providing this grade separation is proposed to be assessed in future development.

Trains travelling to and from the site will utilise a number of rail crossings, of which two of these are at grade. The Proponent contends that as only 4 additional train movements between the hours of 7pm and 5am are scheduled, and each crossing would remain closed for approximately 3 to 5 minutes, the Concept Plan would not unduly impact on the efficiency and safety of both road and pedestrian movements at these crossings.

Consideration

Traffic and access was a key issue raised in submissions by the public, State agencies and Council. In particular, submissions drew attention to additional traffic generation, suitability of heavy vehicles utilising Industrial Drive, capability of the road system to accommodate the number of vehicles predicted to be generated by the proposed modal split and cumulative impacts from the adjoining IIP site.

Modal Split and Rail Traffic

Council, the RMS and Transport for NSW raised concerns with regards to the veracity and achievability of the proposed modal split, given the potential competition between coal and freight haulage in the Hunter Valley region and inaccuracies in the assumptions made in relation to the timing of completion and outcomes of the NSFC project. Transport for NSW recommended that the modal share target be developed based on the adopted target for Port Botany (container freight movement by rail out of Port Botany is to increase to 40 percent), whilst the public requested that a higher modal split in favour of rail (and/or ship) be proposed to reduce container truck movements on the road system.

The modal split for the project has been adopted having regard to a range of factors, including the modal split currently achieved at other ports, cargo type and distribution, site constraints, and available train paths on the Main North Line and required infrastructure improvements to both the regional rail network and on the Mayfield site (as discussed above). The Department notes that a higher modal split to rail may however be possible in the medium/long term with the progression of the NSFC project; however, the Department notes that this is outside the scope of this project and is dependant on a range of external factors, including the allocation and prioritisation of train paths for development in the Hunter Valley and Newcastle regions and additional train paths which may be created by subsequent stages 2 and 3 of the NSFC project, in particular during daytime curfew period. The Department recognises the limitations posed by the existing rail system and infrastructure and notes the Proponent's justification in adopting a conservative rail mode split target, and also notes design changes that improve the operability of rail logistics on and within the vicinity of the site. In particular, the Department is satisfied with the proposed rail access and configuration, as it allows trains to enter and leave the site without interfering with other train operations, including the OneSteel line, the Port Waratah loop and the Bullock Island loop.

Further, the Department is satisfied that there is adequate rail capacity to accommodate the project within available train paths. The proposal will utilise existing train paths available on the Main North line outside of the peak curfew period, and does not rely on additional train paths that may eventuate in stages 2 and 3 of the NSFC project. In this respect, the Department is satisfied that the mode split proposed could be achieved within existing rail network constraints. However, future demonstration of the availability of train paths and potential impacts on the current rail operating patterns on the Port Waratah and Bullock Island loops is considered crucial for future development applications. Accordingly, the Department has recommended the inclusion of assessment requirements to address these matters.

The Department also notes the benefits of a higher rate of rail transport, as it would alleviate traffic on the local and regional road network, but is cognisant of uncertainties in the future rail operating environment, as well as the physical infrastructure and service constraints associated with the Main North Line. Notwithstanding, the Department notes that mode share is a factor of total volume of cargo handled. In this respect, the Department considers that there is scope to increase rail mode share, particularly in relation to container movements, as a consequence of reducing the total volume of cargo handled at the port, and this matter is discussed further in the next section.

Traffic Generation and Road Traffic

Analysis of the existing and future operation of Industrial Drive and the George and Ingall Street intersections shows that additional traffic movements associated with the development would adversely impact the operation of the intersections, particularly at the intersection of Industrial Drive/Ingall Street, during the PM peak period in both 2024 and 2034. In recognition of the impacts on these intersections, the Proponent proposed a suite of measures encompassing road traffic enhancements to be undertaken in stages, subject to the movement of containers (TEU) from the container terminal precinct.

These road improvements have been further considered by the Department and the RMS, and a number of enhancements to the measures proposed by NPC were identified. The Department supports the implementation of these works as they address limitations of the existing traffic conditions, and would assist in maintaining the efficiency of the intersections at an acceptable level despite additional traffic movements to be generated. Accordingly, the Department has recommended modifications to the Concept Plan, requiring implementation of the road works recommended by the RMS. Such works include road upgrades to the Industrial Drive intersections (Ingall and George Streets) and at the George Street/Selwyn Street intersection, and include reconfiguration of existing intersections, the provision of signalised pedestrian crossings, slip lanes and central raised concrete medians/islands, intersections designed to accommodate the turn paths of B-Doubles and the provision of street lighting.

In relation to queries associated with the assumed trip generation rates, the Proponent has demonstrated that the rates adopted for the various precincts are generally comparable to those observed at Port Botany. The Department is therefore satisfied that the rates used are acceptable for the purpose of the traffic analysis undertaken.

Notwithstanding, the Department has significant concern about the volume of traffic to be generated and its impact on the local and broader road network, including Industrial Drive intersections and mid block capacity, particularly when considered with the potential cumulative impacts of the adjoining IIP site. Of particular concern are the traffic volumes associated with container movements of a one million TEU per annum facility, which when combined with other cargo movements would result in the following truck and employee vehicle movements as identified in Tables 3 and 4 below. The Department also notes that the proposed volume of TEU is far in excess of the current limit of 350,000 per annum.

Table 3: Proposed final operations (2034) truck movement scenarios.

Precinct	Trucks per year	Trucks per day	Trucks per daytime hour	Truck movements per daytime hour	Truck movements per daytime peak hour
Bulk and General	58,714	161	8	16	24
General Purpose	40,857	112	5	11	16
Container Terminal	444,444	1,218	61	122	183
Bulk Liquid	20,481	56	3	6	9
Total	**564,496**	**1,547**	**77**	**155**	**232**

Table 4: Proposed final operations (2034) employee vehicle movements.

Employee vehicles per day	Employee vehicles during daytime	AM Peak Hour Vehicle Movements		PM Peak Hour Vehicle Movements	
		In	Out	In	Out
300	225	90	0	0	90

The Department also notes that the development would be responsible for approximately 7.5% of traffic volume along Industrial Drive and considers this to be excessive when considering the traffic catchment of Industrial Drive.

Whilst the Proponent demonstrated that Industrial Drive/Ingall Street would operate poorly in 2034 regardless of whether the site is developed or not, the Department considers that the number of vehicles generated by the proposal would unreasonably deteriorate road network performance. This is evident from the mid block capacity analysis, which demonstrates the failure of the road system, in particular along Industrial Drive closest to the site.

These impacts would be further exacerbated through the development of the adjoining IIP site. The NPC indicated that the IIP site could generate up to 1,775 trips during peak hour based on an estimated ground floor area of 110,000m², which is approximately 7.6 times the number of truck movements proposed under the Concept Plan (yet the size of the IIP site is two thirds the size of the Concept Plan site). In response, NPC identified that significant road infrastructure works would be required as previously discussed; however, the timing for implementing these works was not identified and would be subject to future assessment in subsequent development applications.

To overcome the potential excessive traffic generation from the site and inequities presented in the assessment, and in recognition that the Concept Plan is a high level analysis, the Department considers it necessary to limit and apportion capacity between the Concept Plan and IIP site based on the following assumptions:

- as a consequence of expected mid block capacity being reached or exceeded on the local and regional network by 2024, limit traffic generation between the two sites to the proposed 2024 volumes;
- to apportion the traffic generation volumes between the two sites on a land area basis in noting the uncertainties of future development on the IIP site, ie a 60/40 split in favour of

the Concept Plan site (the two sites have a total land area of 150 ha; the development comprises an area of 90 ha and the IIP site is approximately 60 ha); and

- to limit container movements as a proportion of the revised traffic volumes for the development site, in recognition that these movements are a significant generator of traffic.

In considering the above matters, the Department has recommended a requirement restricting, in the first instance, the volume of road container freight movements to a total of 200,000 TEU per annum by road (this represents a road/rail modal split of 50/50). This restriction will result in a combined total of 461,000 traffic movements across the four precincts (excluding the operations precinct). This volume of traffic has been assessed as being acceptable, subject to the implementation of road work upgrades recommended by the RMS.

Notwithstanding, the development of the Concept Plan is anticipated to occur over a relatively long timeframe (20 plus years), and assumptions regarding development across each precinct, adjoining development, and traffic growth rates, are likely to vary from that assessed. In considering these variables and the conservative assessment assumptions (such as above average background traffic growth rates, alignment of peak hour traffic rates and the absence of major road upgrades such as the Hunter Expressway (under construction) and the proposed F3 to Raymond Terrace extension), the Department considers it prudent to allow a level of flexibility in the above requirement to respond to changes in the freight market, road transport demand and land use change.

It is therefore recommended that a mechanism be incorporated to allow an increase in container freight movements by road from 200,000 TEU up to 480,000 TEU per annum. This level reflects the 2024 development potential of the site in the absence of the IIP site. Such increases would be considered in future development applications and would require consideration of traffic impacts on the local, regional and State road network, the apportionment of unused freight movements from other activities on the site to container freight movements, and land use changes within the immediate locality, including on the IIP site.

In addition to the above, the ability for the Proponent to progress to a limit of 700,000 TEU is also recommended. This is equivalent to the proposed 2034 volumes with a 70/30 road/rail modal split, which is considered achievable in the long term. Such levels would be assessed in future development applications and require further traffic assessment and the preparation and implementation of a Transport Infrastructure Strategy, which is to be endorsed by Transport for NSW and the RMS, having consideration to local, regional and State road and rail infrastructure improvements or traffic management measures necessary to meet forecast road and rail freight demand.

The Transport Infrastructure Strategy would address a range of matters including:

- the demand for freight movements, including a demand and supply analysis for the Concept Plan;
- identification and alignment of road and rail movements with required road and rail infrastructure and service improvements or management measures required to meet forecast road and rail freight demand;
- the feasibility of port freight movements utilising existing and identified infrastructure and service provision measures for the proposal; and
- identification of how and when the required infrastructure and service improvements or management measures will be delivered, including parties responsible for the funding and implementation of the works.

The performance of the local and regional road network will also be monitored and reviewed throughout the development of the Concept Plan and subsequent development applications.

The aim of the monitoring and review is to assess the performance of the road network, the effectiveness of management measures as identified in the Traffic Management Plan and if necessary, inform the timing of road and rail infrastructure upgrades.

To ensure that the proposed traffic impacts and limits are addressed in future development applications , environmental assessments will be required to consider the traffic performance and functionality of the local and regional road network and site access, including the consideration of development within the vicinity of the Concept Plan site that will influence the capacity and performance of the network and access to the site, such as the cumulative impacts from the adjoining IIP site.

A number of submissions also raised concern about the implementation of a link road between Ingall and Selwyn Streets, which will be used to distribute traffic between the precincts in order to improve traffic flow at the two intersections, including its location within the Concept Plan site or the adjoining IIP site, and maintenance of access during emergencies associated with rail movements. At a conceptual level the Department is satisfied that the exact location of a link road is not required to be defined and that with the revised rail infrastructure, that access would be restricted only over limited time periods. Notwithstanding, the Department does acknowledge the need for the link road to distribute traffic between the different precincts of the site whilst providing access for emergency vehicles. Accordingly, the Department has recommended that the link road be provided prior to the operation of any development associated with this Concept Plan. The Concept Plan will also be subject to a Port Emergency Response Plan and future development applications will be required to include a comprehensive hazards and risks assessment and identify emergency access requirements.

Road and rail infrastructure upgrades should be provided in a timely manner to ensure the performance of the road and rail network is not adversely affected by the proposal. Nonetheless, the timing and scope of these infrastructure upgrades should also be responsive to freight movements, particular container freight movements and changes to the operational environment and market. In recognition of this, the Department has provided a framework in which the timing, staging, scope and design of the transport infrastructure upgrades are to be reviewed, subject to the consideration of matters to be undertaken in consultation with the relevant transport agencies, Council and adjoining land owners.

A further issue raised in submissions relates to heavy vehicle routes; the capacities of the proposed routes and associated local and regional traffic impacts. The Proponent advised that the majority of heavy vehicles will travel north west along Industrial Drive to the Pacific Highway or F3 Freeway travelling via the New England Highway. The Department acknowledges this advice and apart from the constraints identified earlier in this assessment, the Department is satisfied that the proposed routes are acceptable as they utilise key arterial routes.

The movement of port related traffic to/from the road network is a key issue which forms the Department's consideration of the Concept Plan. In addition to the limitations placed on the number of TEU leaving the site, and in order to facilitate the orderly movement of port related traffic, the Department recommends the Proponent prepare and implement a Traffic Management Plan which includes specific management measures to minimise impacts to the road network. This will include the identification of management measures on heavy vehicle transport routes, measures to minimise heavy vehicles accessing residential areas and port freight movements inside AM and PM peak traffic periods and measures to encourage non-vehicular employee access to the site.

The EA has not assessed the impact of construction traffic, which is appropriate at this level of concept assessment. Further detail in relation to construction traffic impacts will be provided in specific development proposals. Notwithstanding, the Proponent has estimated

that the anticipated daily construction traffic volumes are not likely to exceed 148 truck movements and 60 employee vehicle movements in the worst case peak hour. This level of traffic capacity was shown to be within the capacity of the two main intersections.

Summary

The assessment undertaken to date was prepared in consultation with key transport agencies, based on the utilisation of conservative assumptions, which presented the worst case traffic generation scenario during operation of the development.

The Proponent has demonstrated via a range of analysis undertaken, that potential impacts relating to road and rail impacts by 2024 are acceptable, subject to the implementation of appropriate upgrade and improvement works and management measures.

The proposed rail arrangements and operations are satisfactory as interference with other train operations would be minimal whilst existing train paths could be utilised, outside of the peak curfew hours, thus assisting in the efficient cycling of trains between the Port and Sydney. In contrast, the road network would operate under a more constrained environment, where the development could have an adverse impact on the road network in the vicinity of the site, especially when considered in conjunction with the potential cumulative impacts from the adjoining IIP site. Consequently, the Department has recommended restrictions on the movement of container freight by road, at different increments, to ensure the performance and capacity of the road network would not be adversely impacted by the development.

The recommended terms and modifications of the Concept Plan aim to provide a framework which outlines traffic assessment matters which must be considered in future developmentt applications, and also identifies road and rail infrastructure improvements required to meet NPC's operational demands without resulting in unacceptable environmental impacts.

The Department is therefore supportive of the development, subject to the recommended terms and modifications.

5.2. Noise and Vibration

Issue

Nearby residential areas potentially affected by noise from the site include Mayfield, Carrington and Stockton, the latter suburb which is located adjacent to the North Arm of the Hunter River. All of the suburbs close to the site are affected by industrial noise from nearby industrial operations with Mayfield receivers also being located in close proximity to Industrial Drive and therefore also subject to traffic noise impacts.

As part of the noise assessment, background noise monitoring was undertaken at three locations during March and September 2009, two of which were located in Mayfield and the third in Carrington. A summary of measured noise levels is presented in Table 5.

Table 5: Summary of measured noise levels

Noise Monitoring Location	Rating Background Level (dBA)			$L_{Aeq,period}$ (dBA)		
	Day	Evening	Night	Day	Evening	Night
A – 1 Arthur Street, Mayfield	46	47	46	53	53	50
B – 2 Crebert Street, Mayfield	49	42	40	69	65	60
C – 32 Elizabeth Street, Carrington	44	43	39	57	54	46

Source: Table 9-39 of the Environmental Assessment (AECOM, July 2010)
Notes: Day – 7am to 6pm, Evening – 6pm to 10 pm and Night – 10 pm to 7am.

In addition, based on previous assessment of noise impacts from industry on Stockton, the rating background noise levels adopted for the assessment of this location were 41, 43 and 43 dBA for day, evening and the night-time period respectively.

The noise assessment was undertaken in accordance with the *Industrial Noise Policy,* which indicated that potentially affected residences in Mayfield and Stockton would be classified as "urban" and therefore the relevant recommended amenity criteria for the $L_{Aeq,period}$ would be 60, 50 and 45 dBA for day, evening and night-time periods respectively at these localities. The affected residences in Carrington were identified as being in an area which would be classified as "urban/industrial interface" where the relevant amenity criteria for the $L_{Aeq,period}$ would be 65, 55 and 50 dBA for the respective noise periods.

The study also assessed sleep disturbance, traffic and rail noise associated with the Concept Plan based on the relevant criteria applicable to each.

The sleep disturbance criteria used in the assessment was based on the $L_{A1,1minute}$ noise level not exceeding the background noise level by more than 15 dBA where the $L_{A1,1minute}$ noise level represents the maximum noise from transient events such as container handling clashes and noise from horns. The sleep disturbance criteria are provided in **Table 6**.

Table 6: Sleep disturbance screening criteria

Noise Monitoring Location	Rating Background Noise Level (dBA)	Sleep Distrubance Screening Criteria $L_{A1,\ 1\ minute}$ (dBA)
A – 1 Arthur Street, Mayfield	46	61
B – 2 Crebert Street, Mayfield	40	55
C – 32 Elizabeth Street, Carrington	39	54
D - Stockton	43	58

Source: Table 9-41 of the Environmental Assessment (AECOM, July 2010)

Road traffic noise criteria was based on day ($L_{Aeq,15hr}$ 60 dBA) and night time levels ($L_{Aeq,9hr}$ 55 dBA), as specified in *Environmental Criteria for Road Traffic Noise* (EPA, 1999) which also states that where the criteria are already exceeded, as is the case for traffic noise levels at residences along Industrial Drive, that the traffic arising from the development should not lead to an increase in existing noise levels of more than 2 dBA. For rail noise, the applicable criteria are specified in the *Interim Guidelines for the Assessment of Noise from Rail Infrastructure Projects* (DECCW, 2007) whereby day and night-time noise trigger levels are outlined. The noise trigger levels used in the assessment are based on "redevelopment of an existing line" as residences residing in the vicinity of the rail line are already exposed to railway noise. The applicable rail noise trigger levels used in the assessment are outlined in Table 7.

Table 7: Airborne rail traffic noise trigger levels for residential land uses

Type of Development	Day (7am to 10 pm)	Night (10 pm to 7am)	Comment
Redevelopment of existing rail line	Development increases existing rail noise levels and resulting rail noise levels exceed		An "increase" in existing noise levels is taken to be an increase of 2dBA or more in L_{Aeq} in any hour or an increase of 3 dBA or more in L_{Amax}.
	65 $L_{Aeq(15hr)}$ 85 L_{Amax}	60 $L_{Aeq(9hr)}$ 85 L_{Amax}	

Source: Table 9-43 of the Environmental Assessment (AECOM, July 2010)

A typical worst-case scenario was modelled as part of the noise assessment based on the site being at its peak capacity under three different weather conditions (calm for daytime, north-westerly winds at three meters per second and a night-time temperature inversion, which is considered the worst case for noise impacts). A construction noise assessment was not undertaken due to the Proponent only seeking Concept Plan approval and the lack of available information, but was committed to as forming part of future development assessments.

Table 8 presents the predicted noise levels from the Concept Plan for the representative sensitive receivers together with the relevant applicable day/evening/night noise criteria.

Table 8: Predicted 2034 noise levels at residential receivers (LAeq,15 minutes)

Location	Assessment Condition			Maximum Predicted Noise Level (dBA)	Day/Evening/ Night Noise Criteria (dBA)
	Neutral (dBA)	Wind NW (dBA)	Temperature Inversion (dBA)		
A – 1 Arthur Street, Mayfield	40	37	45	45	51/52/43
B – 2 Crebert Street, Mayfield	45	45	50	50	54/47/43
C – 32 Elizabeth Street, Carrington	39	44	44	44	49/48/44
D – Stockton	39	44	44	44	46/47/37

Source: Reproduced and amended to include evening criteria from Table 9-45 of the Environmental Assessment (AECOM, July 2010)

The results indicate the following based on the maximum predicted noise levels from the site:

- noise levels would not affect the amenity of residential receivers in the vicinity of Arthur Street, Mayfield during the day and evening periods but would result in an exceedance of the night-time criteria by up to 2 dBA;
- noise levels would not result in exceedances of the criteria for residences represented by 2 Crebert Street, Mayfield during the daytime period and 32 Elizabeth Street, Carrington during day, evening and night-time periods. Exceedances of the criteria are predicted to occur for residences in the vicinity of 2 Crebert Street, Mayfield by up to 3 dBA in the evening period and up to 7 dBA during the night-time period; and
- noise levels are expected to result in exceedances of up to 7 dBA above the night-time criteria for residences in Stockton.

The Proponent has indicated that the assessment undertaken should be considered to be conservative as it assumed that day and night-time activities would operate at the same level

of intensity, which is unlikely. Noise levels from the site are predicted to comply with the sleep disturbance criteria at all residential receiver locations.

A noticeable change in night traffic noise was predicted to be experienced in the area north of Ingall Street, Mayfield and in the vicinity of Crebert Street, Mayfield due to the increase in heavy vehicle movements expected during peak operations. Traffic noise levels were modelled to increase by 3.3 dBA over and above already high traffic noise levels from traffic along Industrial Drive of 64.4 dBA during night-time periods and by up to 1.3 dBA during the day above predicted traffic noise levels of approximately 72.1 dBA at these locations.

The results of the noise modelling indicated that the addition of two trains on the Port Waratah Rail Loop during the night-time period is predicted to result in a $L_{Aeq(9hr)}$ noise level of 55.9 dBA at residences adjacent to the rail line which is below the night trigger level of 60 dBA as detailed in the *Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (DEC and DoP,2007)*. Vibration levels from increased train movements were not predicted to result in any exceedances of the vibration dose values at residences located in close proximity to the tracks.

As a result of the noise levels predicted from the proposal, potential mitigation measures were identified to minimise adverse noise impacts from the site during the night-time period. Mitigation measures recommended for consideration included:

- careful design of loading and unloading facilities (with noise reductions in the order of 5 to 10 dBA predicted);
- the use of silencers on noisy equipment and plant such as Intra Terminal Vehicles or the use of acoustically treated motors (typical reductions of up to 10 dBA predicted);
- the strategic location of buildings and storage sheds to provide maximum shielding or constructing enclosures/buildings around high noise sources (with noise reductions of up to 20 dBA expected); and
- minimising the operation of site vehicles at night where practical and feasible and the use of "squawkers" (broadband reversing alarms) instead of reversing beeper alarms to minimise sleep disturbances.

To mitigate the identified night-time noise impact from traffic noise, the Proponent recommended that façade treatments could be implemented to approximately 20 residences in the vicinity of the site (i.e. the front row of residences along Industrial Drive) to ensure that the internal acoustic amenity of these residences is preserved during night-time operations. This could include improved glazing on windows facing Industrial Drive as well as the installation of mechanical ventilation. The Proponent recommended that further detailed noise assessment be conducted for each subsequent development application to confirm the need for, timing and extent of mitigation required.

The Environmental Assessment provided environmental performance criteria for the site and in relation to noise, outlined precinct sound power levels that would be required to be complied with by site operators, as outlined in Table 9, in order to comply with the development specific noise criteria established for nearby residential receivers.

Table 9: Precinct noise criteria

Precinct	Sound Power Level (dBA) – total for precinct
Bulk and General Precinct	119
General Purpose Precinct	118
Container Terminal Precinct	117
Bulk Liquid Precinct	114

Source: Table 11-5 of the Environmental Assessment (AECOM, July 2010)

The Proponent has indicated that an overall site noise model would be established and that Applicants of individual development applications would be required to input applicable sound power levels for their respective developments (and any applicable noise control measures) to assess whether an acceptable noise outcome could be achieved at surrounding receivers. This approach would also determine whether the cumulative noise from the site is in compliance with the overall specific site criteria.

Consideration

The Department has reviewed the information in the Environmental Assessment and the submissions received and notes the predicted increase in night-time noise from the proposal without mitigation and in particular the resultant impact on adjacent residential receivers in the suburb of Mayfield, which is already subject to noise impacts from nearby industry and high traffic volumes from traffic on Industrial Drive. Whilst the Department acknowledges that the site is suited to industrial port uses, it considers that the Proponent has a responsibility to ensure that the site is developed to minimise, where reasonable and feasible, noise impacts to the surrounding community.

Site Noise

The Department has reviewed the submissions received on the proposal and the Proponent's Submissions Report.

With respect to matters raised by DECCW (now Environment Protection Authority, EPA), in particular the noise assessment methodology, the Proponent has clarified that the assessment was undertaken in accordance with the *Industrial Noise Policy*. The Proponent identified that the rating background noise levels for Stockton were derived from a noise study undertaken by Orica in 2009 and in relation to EPA's concerns regarding the categorisation of Stockton as urban and Carrington as urban/industrial interface, the Proponent revised the development specific noise criteria to reflect the correct classifications. However, given that the most stringent criteria was used as part of the original noise assessment, the predicted noise levels as presented in the Environmental Assessment remained the same. For clarification, Table 9-3 of the Environmental Assessment has been reproduced below as Table 10 with the revised development specific criteria provided to clearly show the exceedances that can be expected as a result of the proposal. Changes made to the table have been highlighted in bold text.

Table 10: Predicted 2034 noise levels at residential receivers (LAeq,15 minutes) – revised criteria

Location	Assessment Condition			Maximum Predicted Noise Level (dBA)	Day/Evening/ Night Noise Criteria (dBA)
	Neutral (dBA)	Wind NW (dBA)	Temperature Inversion (dBA)		
A – 1 Arthur Street, Mayfield	40	37	45	45	51/**49**/43
B – 2 Crebert Street, Mayfield	45	45	50	50	54/47/43
C – 32 Elisabeth Street, Carrington	39	44	44	44	49/**44**/44
D – Stockton	39	44	44	44	46/**37**/37

Source: Reproduced from Table 9-3 of the Environmental Assessment (AECOM, July 2010) and revised

As part of the Proponents response, two diagrams were provided in the Submissions Report indicating the noise levels that can be expected from the proposal on the surrounding residential area under two scenarios – daytime noise levels under neutral weather conditions and night-time noise levels under temperature inversion conditions (worst-case conditions for

noise). Whilst not providing actual numbers of affected residential receivers, these diagrams provide a satisfactory indication of the noise levels that could be expected at nearby residential areas, particularly during worst-case meteorological conditions.

The Department notes that the assessment is conservative with respect to operational scenarios and meteorological conditions and that the maximum predicted noise levels and the resultant exceedances of the criteria would only be realised without the implementation of noise mitigation measures. Accordingly, it is confident that there are a range of mitigation measures that could be implemented by development applicants on the site to reduce noise impacts from operations and that the noise impacts from the Concept Plan could be mitigated to acceptable levels. In relation to cumulative noise impacts from the operation of the adjacent IIP, whilst these noise impacts were not quantified, the Department considers that this future development, based on a multi-purpose facility, has the potential to provide shielding to the adjacent residential areas as demonstrated by the revised noise impact diagrams.

The Department also notes that no specific assessment was provided in the Environmental Assessment on other sensitive receiver locations in the vicinity of the site, such as schools and child care centres. In response to a submission made by the community, the Proponent advised that the closest school to the site, the Hunter Christian School is approximately 1.5 kilometers to the west of the site and approximately one kilometer to the north-west of the Crebert Street, Mayfield noise monitoring site where the daytime noise level was calculated to be 45 dBA. Given this external noise level, the Proponent has calculated that this would translate to an internal noise level of 35 dBA with the classroom windows open which would comply with the applicable acceptable criteria for school classrooms of 35 dBA and therefore no adverse noise impacts were anticipated.

To manage the ongoing staged development of the site and associated cumulative noise impacts, the Department concurs with the Proponent's commitment of setting sound power for each precinct and the establishment of an overall noise model for the site. The Department notes that the EPA also considered that this approach has merit for this type of development where the noise emissions cannot be estimated with any certainty at this Concept Plan stage of development and has recommended conditions to reinforce this commitment. The Department has also recommended that a Noise Verification Monitoring Program be implemented for the site as a whole to outline how noise impacts of development associated with the Concept Plan would be monitored and managed to ensure that the development specific noise criteria at each residential receiver is met.

Road Noise

The Department has considered the level of traffic increases on the surrounding road network and the subsequent associated increased traffic noise impacts to surrounding residences as a result, many of which are already subjected to relatively high traffic noise levels of 72.1 dBA during the day and 64.4 dBA at night which is considered to be beyond acute levels of noise (acute noise is defined as noise levels over $L_{Aeq(15hour)}$ 65 dBA (day) and over $L_{Aeq(9\ hour)}$ 60 dBA at night).

The Proponent revised its traffic noise assessment as part of its Submissions Report and has predicted that daytime and night-time traffic noise levels at the worst-affected locations (north of Ingall Street and in the vicinity of Crebert Street, Mayfield) would increase by between 1.2 dBA during the day and 3.3 dBA during the night. Whilst the relative increase in traffic noise levels during the day is not expected to be noticeable, the increase predicted at night-time is expected to be noticeable and would add to high traffic noise levels for residences along Industrial Drive and in the immediate vicinity. The predicted traffic noise level increases would result in traffic noise levels of approximately 73.4 dBA and 67.7 dBA during the day and night periods, respectively. The additional operation of the adjacent Intertrade Industrial

Park is expected to further increase noise levels and adverse noise impacts to residential receivers along Industrial Drive.

The *Environmental Criteria for Road Traffic Noise* (EPA, 1999) currently states that where the traffic noise level criteria of $L_{Aeq,15hr}$ of 60 dBA and $L_{Aeq,9hr}$ of 55 dBA are already exceeded, traffic arising from development should not lead to an increase in existing traffic noise levels by more than 2 dBA. The revised noise assessment has indicated that traffic noise levels, especially at night would exceed existing traffic noise levels by approximately 3.3 dBA and therefore the Department would expect that feasible and reasonable mitigation measures would be implemented to reduce traffic noise levels to protect existing residential amenity to the greatest extent possible. Based on its experience in assessing infrastructure projects, the Department is confident that this level of noise exceedances can be mitigated. The Department has therefore specifically required that each development application associated with the Concept Plan assess road noise impacts in accordance with relevant guidelines.

The Department also notes the community desire for the implementation of specified mitigation measures such as noise walls, however, considers that the identification of mitigation measures should reflect current reasonable and feasible practice. The *NSW Roads Noise Policy*, which became effective on 1 July 2011, stipulates noise assessment criteria and measures that can be applied to minimise road traffic noise and its impacts. This policy will be applied in the assessment of future development applications.

The greatest generation of traffic movements and associated road noise from the site would originate from the container terminal precinct. Whilst the impacts of road noise will have decreased as a result of the Department's recommendations in relation to total truck movements, it considers that the community should be protected from the outset and not in a piecemeal fashion over a number of years. Accordingly, the Department considers that it is reasonable for traffic noise mitigation measures to be implemented prior to the commencement of operations within this precinct so that traffic noise level increases are effectively managed and has recommended a requirement to this effect.

Rail Noise

The Department has also assessed the potential rail noise impacts associated with the Concept Plan and notes that the resultant noise levels would be below the night trigger levels as detailed in *Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects* (DECCW, 2007). Vibration levels from increased train movements were not predicted to result in any exceedances of the vibration dose values at residences located in close proximity to the tracks. Whilst rail noise levels would be acceptable based on the number of train paths nominated in the Environmental Assessment, the Department has recommended that rail noise be assessed as part of future development applications.

Future Development

The Department notes that the Proponent has made a commitment that future development applicants will be required to prepare Noise Management Plans which address the operation of individual facilities in the context of the entire site. The Environmental Assessment states that the key focus of the Noise Management Plans should be to minimise night-time operational noise and traffic noise emissions from the development. The Department agrees with this approach. However, it considers that this information should be provided as part of the assessment of individual development rather than following any approval and has therefore recommended that detailed noise and vibration assessments form part of subsequent development applications associated with the Concept Plan to address worst-case and representative construction and operational noise impacts (including cumulative noise impacts, as relevant).

5.3. Hazards and Risks

Soil Contamination

Issue

The site was previously occupied by the former BHP steelworks. The site housed copper smelters, steelworks and ancillary operations, with waste from site activities, primarily slag, used to fill much of the site. Operations at the steelworks site ceased in 1999, and in 2001, development consent was granted to BHP for the remediation of the site (referred to as the 'Closure Area', shown in Figure 9: The Closure Area.), the demolition of heritage structures and the development of a multi-purpose terminal. A number of conditions in relation to the management of remediation works on site were imposed on the 2001 consent (DA 293-08-00).

Findings of the site investigations undertaken in 2000 indicated that polycyclic aromatic hydrocarbons (PAHs) are the only group of chemicals present in the surface (top 0.5m) of the fill layer which occur in sufficiently high concentrations to warrant remediation prior to redevelopment of the Closure area. There was no evidence of the widespread occurrence of elevated concentrations of volatile organic compounds (VOCs) such as BTEX in surface fill materials, but these were found to occur at depth at the site. The area of PAH and VOC contamination is largely confined to the area known as Area 1 (refer to Figure 10), which abuts the South Arm of the Hunter River. The presence of tar or tar like materials was also found at some locations and asbestos materials were also found.

The Closure Area has had several changes of ownership since August 2002 when the State Government acquired it from BHP. In 2003, the former Regional Land Management Corporation (RLMC) was established to manage the remediation, site preparation and development of the site. In 2007, the State Government transferred ownership of the Closure Area to the Hunter Development Corporation (HDC), which continues to be responsible for undertaking remediation works on the Closure Area.

The site has also been declared to be a remediation site and is subject to a Voluntary Remediation Agreement (VRA) under the *Contaminated Land Management Act 1997*. The declaration identified significant risk of harm to both the environment (principally via offsite migration of contaminated groundwater) and site occupants (principally via potential exposure to site soils and volatile gases). The VRA identifies the remediation proposal for the site, including the agreed remedial goals and the scope and timing of remediation works to be implemented through the Voluntary Remediation Proposal prepared by the RLMC. The objectives of the remediation are to:

1 ensure that the contamination in the soil and groundwater at the site does not pose a significant risk of harm to human health and the environment as identified in the EPA's declaration number 21022 under Section 21 of the *Contaminated Land Management Act;*
2 prevent, as far as practicable, the off-site migration of contaminants in surface water and groundwater which are impacting on Hunter River; and
3 manage areas of the site to ensure suitability for commercial/industrial development and that human health risks are reduced to levels appropriate for the proposed final land use.

This proposal also identifies a range of actions and works required for remediation of the site, including a Remedial Action Plan and the requirements of the development consent. Groundwater monitoring is also an integral part of the proposal and is to continue until the EPA is satisfied that either there is no significant risk of harm or there is equilibrium in the groundwater conditions.

The remediation works consist of three stages (1a, 1b and 2) and are based on a strategy of containment of contaminants through capping and groundwater control (refer to Figure11). Stage 1 works cover Area 1, which correlates with the most highly contaminated parts of the site associated with previous steelmaking activities, and area 2, which includes the balance of the Closure Area (which overlaps with part of the land subject to this Concept Plan and the IIP site), as well as the existing Commercial Area to the southern corner of the site off Selwyn Street. Remediation of Area 1 was completed in 2008 whilst remediation works at stage 2 have commenced and are targeted for completion in 2012. Stage 1 works consist of priority remediation activities, including the installation of low permeability capping to reduce the infiltration of rainwater, recontouring the site, installation of major stormwater drains to the east and western ends (known as the Eastern and Western Drains), and installation of a subterranean barrier wall to three sides of Area 1 which is up to about 49m deep and 1.5km long to reduce groundwater flow to the Hunter River.

To facilitate the remediation and redevelopment of the Closure Area, HDC prepared a Contaminated Site Management Plan (CSMP), a framework which identifies the procedures required to manage and mitigate the potential impacts and risks associated with contamination, remediation and redevelopment works at the site and to ensure compliance with the development consent and conditions of approval.

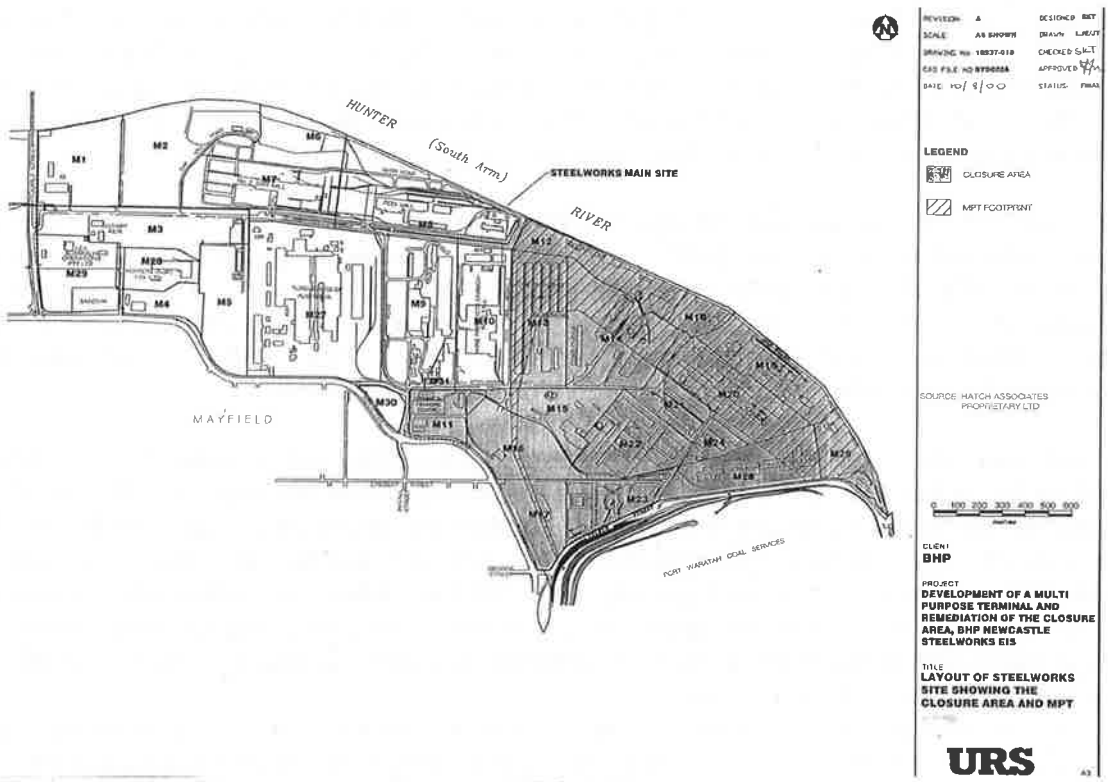


Figure 9: The Closure Area. Source: URS, 2000

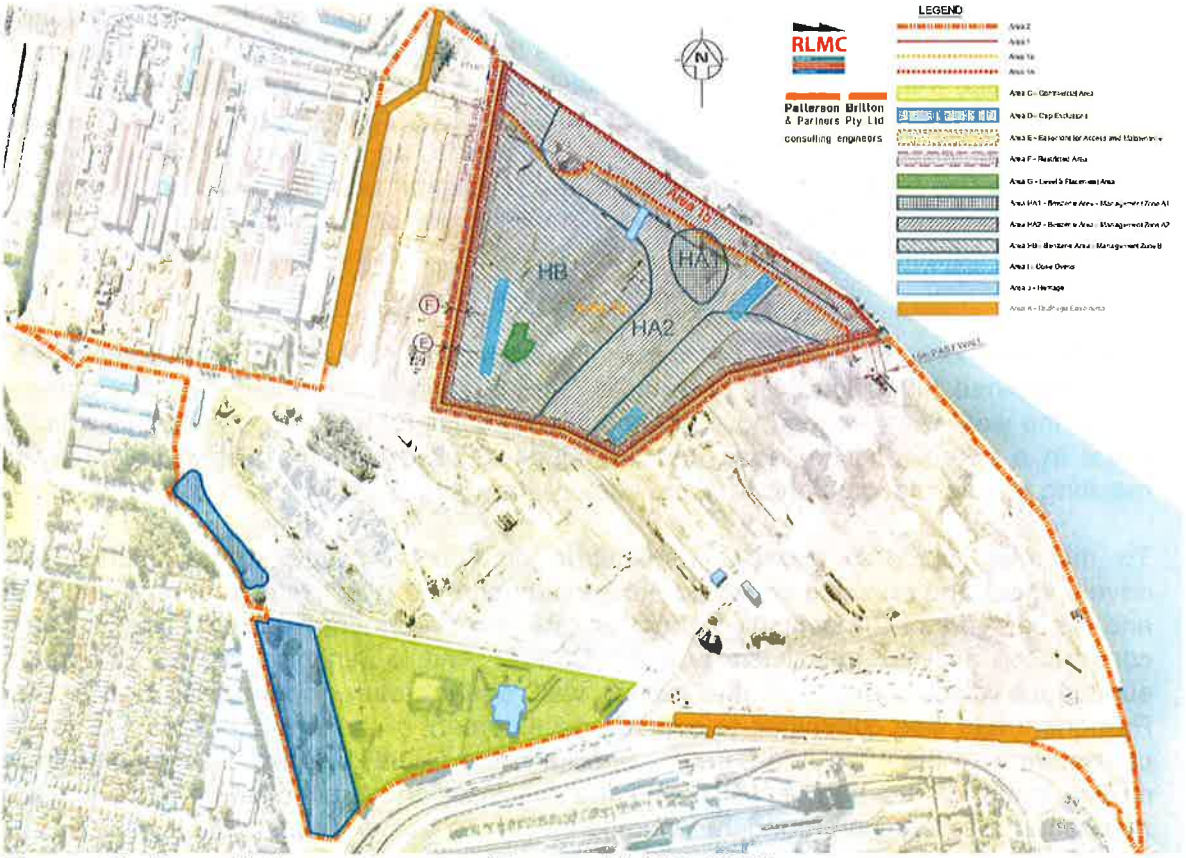


Figure 10: Remediation work areas. (Source: RLMC, 2008)

Figure11: Remediation works on the Closure Area. (Source: ADW Johnson Pty Ltd, 2009)

Future construction activities have the potential to disturb soil, capping materials and underlying contaminated soils and compromise the integrity of the subterranean barrier wall. In this respect, the Proponent noted the likelihood of exposing contaminated soils would be minimised by conducting construction activities in accordance with the CSMP. It is also noted the cap located across area 1a (refer to Figure 10 and Figure11 above), may not meet the load bearing surface requirements of the operational activities which may occur at the site, particularly the stacking of containers in the Container Terminal Precinct. In this case, the existing capping system may have to be replaced or reinforced where higher design loads are needed.

During operations, there may be a risk of surface and subsurface displacement resulting from sustained future loadings of the site, both laterally and vertically, on the barrier wall. Whilst the wall was designed to accommodate a sustained traffic load, activities which could result in a combination of dead and live loads in excess of the design load may occur, resulting in deformation of the wall and compromising its integrity.

To minimise potential impacts from future construction activities associated with the development and ensuring works do not impact upon the effectiveness of remediation works and the integrity of the capping system on site, the Proponent has committed to undertake construction activities consistent with the CSMP. And to minimise the risk of surface and subsurface displacement of the barrier wall during future operations of the site, the Proponent has also committed to oversee development of the site to ensure it is carried out consistent with the VRA and CSMP. Specially, the CSMP outlines 6 requirements on the management of the barrier wall, including the creation of an easement for access and maintenance extending around the entire length of the barrier wall.

Consideration

The management of contaminated land and the integrity of existing remediation measures were the main concerns raised in submissions received by the Department. In general, the public requested that ongoing remediation be conducted in a manner that adequately protects adjoining sites, whilst the EPA recommended conditions to ensure the implementation of the Voluntary Management Proposal occurs synergistically with the Concept Plan and future development.

The Department notes that the existing consent issued in 2001 granted approval for remediation of the Closure Area and redevelopment of the site for future works, and that the site is subject to a Voluntary Remediation Agreement. These processes assessed contamination risk and have identified the preferred approach to remediation and future development of the site, including the maintenance and monitoring of remediation works to facilitate proposed future land uses generally consistent with those proposed under the Concept Plan and with State Environmental Planning Policy No.55 – Remediation of Land (see appendix F).

The Proponent has identified the potential impacts associated with soil contamination and disturbance and has committed to ensure development on the site is carried out in a manner so as to preserve the remediation outcomes as set out in the VRA and achieve an acceptable level of risk to the environment and human health. This will be achieved by carrying out development in accordance with the VRA, the development consent and the CSMP.

The Department supports this approach as these requirements provide a comprehensive management system for remediation works and has in place principles and design features to mitigate the risks presented by contamination on future development. Accordingly, the Department has recommended that the Concept Plan clearly articulates that future contamination works and the maintenance and monitoring of these works continue to be

subject to the requirements of DA 293-08-00 and that the Concept Plan does not limit or affect the requirements of the VRA.

The Department acknowledges that the Proponent's assessment and mitigation measures are limited to impacts from the Concept Plan, and therefore specific impacts resulting from subsequent development applications have not been detailed but notes that future development would need to address contamination risks and reflect and protect remediation works. In this respect, the Department notes the Proponent's commitment to link the 2001 consent in relation to remediation and site preparation works with future development applications. Accordingly, the Proponent has committed to the following management measures:

- obtain confirmation from the Site Auditor that the design of individual facilities complies with the requirements of the VRA and CSMP prior to the commencement of any works;
- construction activities would not commence until approval from the EPA is obtained; and
- works are to be carried out consistent with the VRA and CSMP.

The Department supports these measures and concurs with the approach adopted by the Proponent in the management of future applications with regards to contamination. Given the scope of the existing approvals for remediation works and the measures proposed by the Proponent, the Department is satisfied that the proposed Concept Plan can generally occur synergistically with the existing remediation works and that adequate measures are provided to protect human health and the environment.

Notwithstanding, the Department considers it prudent that the Concept Plan incorporates a comprehensive set of assessment requirements for future development applications to ensure that potential environmental and human health risks of site contaminates are considered, including impacts on remediation works and the maintenance and monitoring of those works. In particular, the assessment requirements will require future development assessments to demonstrate that:

- the site is or can be made suitable for the proposed use and will not increase contamination risks on adjoining properties;
- the development is compatible with remediation works and the maintenance and monitoring of those works;
- that VOC risks have been assessed and considered in the design of development; and
- that relevant legislation and documents have been considered including the *Contaminated Land Management Act*, SEPP 55, DA 293-08-00 and the VRA.

Hazardous goods

Issue

A Preliminary Hazards Analysis (PHA), including a Multi-level Risk Assessment, was undertaken of the operations of the Concept Plan in accordance with the Department's *Hazardous Industry Planning Advisory Paper (HIPAP) No. 6 Guidelines for Hazard Analysis.* The site will involve activities associated with the storage and handling of various Dangerous Goods, including those identified in Table 11 below.

Table 11: Dangerous Goods Proposed for Storage at the Site

Material Name	Class/PG	Hazardous Properties
Flammable Gas (eg LPG, Acetylene)	2.1	Flammable gases may be heavier than air or lighter than air, depending on the gas stored. LPG/acetylene are heavier than air gases and can tend to accumulate in low lying areas. Ignition of a larger cloud of gas may result in flash fire or explosion.
Toxic Gas (eg Chlorine, Ammonia, Methyl Bromide)	2.3	Toxic gases are generally heavier than air and if released, tend to accumulate on low lying areas being dispersed as they are carried downwind. The gases are toxic to people

		and usually affect the mucus membranes and breathing functions, causing involuntary coughing and eventual restriction of airways. Continued exposure to high concentrations of the gas may lead to fatality.
Flammable (alcohol based liquid ethanol), Petrol and Combustible Liquid (diesel, fuel oil, etc)	3 - II and III (eg Petrol)	Flammable liquids have a flash point below 60.5C. In the event of spill, the liquid may vaporise creating a vapour cloud that if ignited results in a flash fire and pool fire at the spill source. Pool fires may impact adjacent areas causing fire growth.
	C1	Combustible liquid with a flash point greater than 60.5C but less than 150C are classified as C1. Diesel fuel has a flash point of around 90-100C, hence, is classified as a combustible liquid. Under these circumstances, the liquid does not flash (vaporise) readily at ambient temperature, hence, vapour clouds do not form flash fires. Localised heating and minor vapour generation may result in ignition and pool fire which may escalate to larger incidents.
Flammable Solid (matches, metal powders, firelighters, napthalene)	4.1 – II and III	Flammable solids may be ignited and catch fire causing intense local burning in the containers. The spread of fire is limited as the flammable materials would generally burn in-situ and would not spread much beyond the immediate storage.
Flammable Solid (generates flammable gas when wet) eg Dross or Aluminium Smelting byproducts or Aluminium Remelting byproducts	4.3 - III	Dross is a waste product from the aluminium smelting industry. It contains a number of compounds such as aluminium carbide, aluminium nitride and compounds of fluoride. In the event these products mix with water, there is a potential for reaction that could release ammonia (NH_3), acetylene (C_2H_2) and methane (CH_4). With significant water contact with a large volume of dross, sufficient quantity of gas could be generated such that ammonia could reach harmful levels and acetylene and methane could reach the lower explosive limit.
Oxidising Agents Ammonium Nitrate (with not more than 0.2% combustible substances including any organic substance calculated as carbon, to the exclusion of any other added substance)	5.1 - III	Ammonium Nitrate (AN) is a stable solid, molten or in-solution. It can become less resistant to detonation/initiation due to the presence of contaminants or an exposure to high temperatures (eg fire or radiant heat). Other factors may also cause AN to become less stable and increase the risk of detonation, as follows: • exposure to chlorides or metals such as chromium, copper and nickel; • a decrease in pH (ie more acidic); and • formation of bubbles in the molten AN or solutions of AN. Explosion may occur due to string shocks (shockwaves from nearby explosions, high temperatures from adjacent fires, a smaller detonation can trigger a larger explosion).
Toxic Substances (herbicides, pesticides)	6 – II and III	Toxic substances may be stored in solid or liquid form. In the event of release, there is a potential for the substance to escape off-site causing damage to the biophysical environment. The damage severity is dependent on the release quantity and location.
Corrosive substances (acids and alkalis)	8 – II and III	Corrosive substances, such as sulphuric acid, may be stored in solid or liquid form. Like the toxic materials, in the event of a release, there is a potential for the substance to escape off-site, causing damage to the biophysical environment. The damage severity is dependent on the release quantity and location. In some cases, release of corrosive chemicals (eg sulphuric acid)

		may lead to dangerous reactions with other substances (eg water, caustic) causing heating and violent reactions.
Environmentally active substances (battery powered vehicles, ammonium nitrate fertiliser not classified as 5.1)	9 - III	Environmentally active substances may be stored in solid or liquid form. In the event of release, there is a potential for the substance to reach the harbour with potential detrimental effects to the marine species in the harbour.

Source: Table 4.3 of the Preliminary Hazard Analysis, Appendix G of the Environmental Assessment

The PHA identified a range of hazardous scenarios that required analysis to determine incident impacts and zones including:

Bulk Liquids Precinct:
- fuel release at the bulk liquids wharf, ignition and pool fire;
- ignition of fuel in a bulk liquids terminal storage tank, and tank roof fire; and
- release of fuel into a bulk liquids terminal tank bund, ignition and pool fire in the bund.

Container Terminal Precinct:
- flammable gas leak into a container from a gas cylinder, delayed ignition and explosion;
- flammable liquids release, ignition and pool fire;
- flammable solids ignition and fire within the container; and
- toxic gas release and dispersion downwind towards sensitive off-site land uses.

General Purpose Precinct:
- fire in the AN transit area leading to explosion with potential to impact adjacent sites.

NPC Operations Precinct
- fuel release and ignition and fires at this precinct.

The closest residential development is located to the south of the site across Industrial Drive, and at a distance of about 400 meters from the closest site boundary of the Concept Plan, i.e. the bulk liquid storage. The boundaries of the general purpose precinct are approximately 500 meters to the closest residential area. Each incident listed above was assessed in detail in a Consequence Analysis and was assessed for impacts at specific heat rational levels (fire), overpressure (explosion) and toxic gas impact (toxic gas release), as relevant. The Analysis identified that all incidents listed above, with the exception of two, are unlikely to have on and off-site impacts due to adequate distance separation from the site boundary or between the precincts. The two incidents which were carried forward for a Risk Analysis with the potential to impact off-site were:
- leak from a chlorine drum valve leading to the development of a toxic plume which is directed towards the adjacent sites and residential areas by wind; and
- AN incidents (fire, explosion, toxic plume).

The Risk Analysis concluded that the risks of injury/fatality at the closest residential area did not exceed the acceptable risk criteria. Further, potentially hazardous facilities were found to be able to be located within the specific precincts such that the impacts do not overlap and cause an accumulation of risks.

The PHA concluded that the potentially hazardous areas within the site can be located in a manner that do not impact upon adjacent surrounding land uses or exceed the permissible impact levels published in the Department's HIPAPs and the proposal is therefore classified as only potentially hazardous and would be permitted at the proposed location under the provisions of *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*. Nonetheless, a number of recommendations have been proposed to ensure that the potential hazards and risks assessed are minimised. Specifically, the Proponent

committed to prepare a detailed PHA for all subsequent development applications to confirm the results of the PHA for the Concept Plan and to ensure that the detailed site layouts and dangerous goods storage quantities and operations do not result in the acceptable risk criteria being exceeded.

Consideration

A number of submissions raised issues with regard to the storage and handling of dangerous goods and associated impacts on and off-site. Specific concerns raised included:

1. that construction of the underground fuel storage tank and unleaded petrol tank and bowser should comply with the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008* and the Contaminated Site Management Plan (CSMP);
2. the PHA should address risks associated with the transport of dangerous goods to and from the site; and
3. potential impacts to adjoining land users from the storage and handling of hazardous goods and request for a hazard and operability (HAZOP) report to be prepared by the Proponent.

In response to concerns raised in point 1, the Proponent has committed to construct the underground fuel storage tanks within the NPC operations precinct in accordance with the requirements of the relevant guidelines and regulations, including the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008* and the CSMP. The Department is satisfied with this response.

The Department notes that an assessment on the transportation of dangerous goods was not undertaken as part of this Concept Plan and acknowledges the Proponent's justification in not undertaking the assessment. That is, Dangerous Goods would be transported in accordance with the requirements of the *'Australian Code for the Transport of Dangerous Goods by Road and Rail'* and that further assessment should be carried out at the development approval stage. The Department recognises that the specific quantities of dangerous and/or hazardous goods likely to be handled or their frequency of handling at the site is unknown, and these will be determined by individual operators operating at the precincts. As such, the Department recommends that future development applications (where relevant), must undertake an assessment on the transportation of hazardous materials, including details of routes to be used for the movement of vehicles carrying hazardous materials to or from the proposed development.

The PHA undertaken for the Concept Plan demonstrates that the proposal would not pose a significant risk to adjacent facilities on and off site, including cumulative risks, with the handling and storage of hazardous goods able to be undertaken such that they do not significantly impact on adjacent surrounding residential and industrial land uses and can be located within specific precincts such that potential impacts do not overlap causing an accumulation of risks. Based on the PHA, the Department is satisfied that the assessment undertaken on hazards and risks associated with the development is adequate, concurs with the findings of the PHA and supports the safeguards to manage and reduce associated risks.

To reinforce these safeguards, the Department has recommended that all applicable safeguards be implemented as part of future development applications.

Whilst the Department is satisfied that the assessment undertaken to date is adequate on the potential impacts from the Concept Plan, the assessment was based on assumptions around future operation scenarios which may change through time. To ensure that hazards and risk related issues are adequately managed throughout the life of future development, the Department recommends future development be required to undertake updated Hazards and Risk assessments for potentially hazardous development, including the identification of impact distances and buffer zones to prevent impacts on adjoining land uses both within and

external to the development. The intent of these assessments is to identify potential hazards and risks associated with future development and to detail risk reduction measures to ensure risk levels are maintained within acceptable levels.

The Department also acknowledges the need for the on-going management of hazards and risks during operational stages of future development. In this regard, the Department considers that a Port Emergency Response Plan should be prepared for the site which would consider Safety Management Systems prepared for individual development and safety procedures for people on and off-site who may be at risk from the development and cumulative impacts. The Department has also recommended the implementation of a comprehensive Hazard Audit regime for future development, with audits required to be prepared twelve months after the commencement of operations of future development and every three years thereafter. These audits provide a mechanism to verify the integrity of the safety systems and that future facilities/plants are operational in accordance with the relevant guidelines and procedures.

In conclusion, the Department considers that the identified potential hazards and risks associated with the Concept Plan can be appropriately managed in the design and management of future development.

5.4. Air Quality

Issue

Regional air quality is influenced by major industry located in the vicinity of the Port of Newcastle and from motor vehicle emissions on the surrounding road network. Industrial sources of air emissions in the locality include OneSteel and Smorgan at Mayfield, the Orica and Incitec facilities on Kooragang Island, the aluminium smelter to the north at Tomago and pollutant sources from coal and grain terminals on Kooragang Island, Carrington and fuel storage facilities in Newcastle.

The air quality assessment examined likely sources of air pollution, including dispersion modelling for the operational phase based on the land use proposed as part of the Concept Plan and included emissions from ships at berth, train and truck movements, the stockpiling of bulk materials and the operation of a bulk liquid precinct. The worst-case assessment, which utilised local topography and meteorological conditions, included predicted air quality impacts to sensitive receivers located at Mayfield East (900 meters to the south west), Stockton (about two kilometers to the north east) and Tighes Hill (about two kilometers to the south). The potential effect on commercial receptors was also assessed.

Air pollutants associated with the operation of the proposed land uses were identified as follows:

- fuel combustion emissions, including carbon monoxide, nitrogen dioxide and sulfur dioxide, from delivery and removal of cargo and the operation of diesel fuelled site machinery and vehicles (road, marine and rail);
- particulate matter, including PM_{10} emissions from bulk material stockpiles, conveyors, transfer points and material handling (e.g. grain, coke, cement, coal, soda ash, fertiliser and sand); and
- VOC emissions associated with the transfer and storage of fuels and other bulk liquids;
- fumigant emissions from potential fumigation operations in the Bulk and General Precinct for grain storage and in the General Purpose Precinct and Container Terminal Precinct for dosing containers.

The dominant meteorological and terrain features of the locality were taken into consideration as part of the assessment of air quality. Data such as wind speed and direction, average temperature and rainfall was sourced from the Bureau of Meteorology, and based on the closest station recording long term meteorological data being at Williamtown Airport, located approximately 12 kilometers north west of the site. The air

quality assessment considered meteorological data and the current level of pollutants in the air sourced from the air quality monitoring station in Smith Street, Newcastle (which is five kilometers to the south of the site) and data collected by HDC between 2006 and 2008 in the vicinity of the site.

The results of the air quality modelling indicated that short-term (24 hour) PM_{10} cumulative concentrations during operations would exceed the EPA impact assessment criteria of 50 $\mu g/m^3$ at receptor locations around the site due to existing background levels already exceeding the EPA criteria. Direct impacts from the operations on the site range from 1.5 to 5.4 $\mu g/m^3$. However, longer term annual PM_{10} criteria will continue to be met. The modelling indicated that other pollutant emissions such as oxides of nitrogen, sulphur dioxide and carbon monoxide would meet the relevant EPA criteria at all receptor locations. However, the modelling is considered to be conservative as it is unlikely that all pollutant emitting activities would occur simultaneously during worst-case meteorological conditions and therefore the actual impact on the local community from the project is expected to be less than that predicted by the modelling.

During operation, the Proponent outlined various mitigation measures to minimise fugitive dust, odour, fuel combustion and VOC emissions and indicated that these would be detailed in an operational Air Quality Management Plan. The Proponent also indicated that an air quality monitoring program would be established whereby development applicants would be required to undertake periodic air quality and meteorological monitoring to monitor key pollutants of concern, particularly PM_{10}. The data would be used to establish a rolling data set to assess future compliance against air quality criteria for the site as a whole. Notwithstanding, the Proponent outlined a number of mitigation measures that would be implemented by future development applicants during construction and indicated that these measures would be addressed, as appropriate, in construction Air Quality Management Plans to be prepared for specific development applications. Given that background dust levels already exceed the EPA criteria, the Proponent has indicated that the focus of construction Air Quality Management Plans would be to minimise and manage dust emissions from the site.

Consideration

The Department has considered the results of the Air Quality Assessment and considers that the Proponent has provided an appropriate level of information required for a Concept Plan. The Department also notes that air quality was raised broadly in submissions, specifically by the EPA and through submissions made by the local community in relation to increased dust and heavy vehicle emissions from increased heavy vehicle traffic. The EPA indicated its support regarding the implementation of best practice dust mitigation measures during the construction and operational phase of the proposal.

The Department understands that operational activities could result in potential air quality impacts from fuel combustion emissions associated with the delivery and removal of cargo as well as the operation of machinery and from vessels at berth, VOC emissions associated with the transfer and storage of fuel and other bulk liquids and fumigant emissions from various required fumigation operations such as the dosing of containers or in the area of grain storage. Whilst the Proponent has outlined that best practice measures and methods would be undertaken to ensure that impacts are minimised to the extent possible, the Department has recommended a requirement to ensure that best practice emission control is implemented as part of all future development. Whilst the Concept Plan does not include the operation of the berths, the Department has also recommended a requirement to investigate alternative marine power at the berths for future development with the aim of minimising fuel combustions emissions when a ship is in port.

The Department understands that existing background 24 hour PM_{10} levels exceed EPA criteria and notes that these exceedances can often be attributed to natural sources such as bushfires or dust storms. These results are also consistent with other assessments undertaken by the Department in the locality. The Proponent has indicated that the proposed concept would contribute less than 11 per cent of the assessment criteria. Further assessment undertaken by the Proponent as part of the Submissions Report, with particular reference to the incremental and cumulative 24 hour PM_{10} impacts, indicated that no additional daily exceedances of the criteria at sensitive receptors would occur as a result of the operations of the Concept Plan in 2034 and demonstrated a relatively minor contribution on cumulative 24 hour PM_{10} concentrations from operations.

The Department acknowledges that the development would result in PM_{10} emissions, however, it notes that the background PM_{10} concentrations are the dominant influence on cumulative PM_{10} levels in the local area. The contribution to the 24 hour PM_{10} concentrations from operations is therefore considered to be relatively minor when compared to the background PM_{10} levels. Notwithstanding, the Department considers that the Proponent should implement best practice dust mitigation procedures during construction and operation activities and undertake continuous dust monitoring at the boundary of the site to monitor the dust generated in order to minimise potential adverse impacts on surrounding receptors to the greatest extent possible. The Department notes that the Proponent has committed to undertaking standard dust control measures and to implementing a program of air quality and meteorological monitoring.

To ensure that cumulative air quality impacts are not exacerbated by subsequent development within the Concept Plan, and to facilitate ongoing assessment and review processes for air quality at each development stage, with the objective of minimising air quality impacts (particularly particulate matter), the Department has recommended that the Proponent be required to:

- design, construct and operate development associated with the Concept Plan with the objective of meeting relevant air pollutant criteria;
- develop and implement an Ambient Dust Monitoring Program for the site, including the installation and operation of a meteorological monitoring station; and
- provide a detailed air quality assessment for all future development applications for construction and operation (including a refined assessment of background PM_{10} concentrations) in accordance with the *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW (EPA, 2001).* The assessment would be required to specifically outline the mitigation measures that would be implemented during construction and operational activities to demonstrate best practice air quality management such that dust emissions from the site are minimised to the greatest extent possible with the objective of not increasing dust concentrations beyond the boundary of the site above existing background PM_{10} levels.

5.5. Water Management

Issue

An assessment of key water management issues, specifically surface water (including stormwater and flooding), groundwater, and water quality across the site, was undertaken.

The assessment identified the following to have the greatest potential for adverse impacts to the water environment based on the proposed uses of the site:

- general land-based construction works (earthworks, excavations, road and rail infrastructure, and stormwater drainage works);
- drainage runoff generated from hardstand areas and buildings;
- discharge of contaminated stormwater during construction and operation; and
- spill and leaks during construction and operation.

During operation, potential impacts on hydrology and water quality would occur from stormwater management from buildings and hardstand areas and transport and portside operations. A range of potential pollutants from the built development and operational activities from the precincts (eg heavy metals, sediments and other contaminants) could be generated and mobilised in surface runoff from the site.

At the precinct level, the assessment identified the activities and associated types and sources of pollutants that could be generated at each precinct based on the nature of its designated uses. Examples of such activities and pollutants are presented below:

- **NPC Operations Precinct** – construction of two underground storage tanks could alter the groundwater flows and also affect groundwater quality by mobilising contaminated sediments through intrusive construction works. Runoff from hardstand areas that receive vehicle traffic could contain elevated levels of pollutants such as heavy metals and PAH;
- **Bulk and General Precinct** – potential for spills from plant and machinery, ship loaders/unloaders and malfunction of conveyor systems and pipelines. Also, potential contaminated runoff from uncovered stockpiles in wet weather or blown contaminants during windy conditions;
- **General Purpose Precinct** – activities (eg heavy weight of cranes and machinery) could damage the subterranean barrier wall (part of which is located in this precinct), and result in groundwater or surface water infilitration into the highly contaminated sediments of Area 1. Also, potential for uncontrolled spills and leaks resulting in degradation of water quality;
- **Container Terminal Precinct** – part of the barrier wall is located in this area and potential impacts are similar to those in the General Purpose Precinct. In addition, pollutants generated from the increased volumes of road and rail movements would potentially contaminate surface water runoff; and
- **Bulk Liquid Precinct** – potential for spills and leaks during transfer of liquids from ships to facilities, from damaged hoses and pipelines, corrosion and damage to tanks, and from overfilling of storage tanks.

Surface water

Surface water is currently being managed through the existing stormwater drainage network installed as part of the remediation works at the Closure Area (Area 1) and includes two drains, the Eastern Drain (900m long) and Western Drain (700m long), which are respectively located on the southern and north western boundaries of the site. Incorporated into each main drain is a weir at the downstream end to maintain permanent water (RL 0.1 meter AHD) at low tide. These drains receive runoff from across the site (including the runoff from the ITP) via a series of open drains and trunk stormwater pipes that are connected to the main drains. Stormwater is discharged into the Hunter River from discharge points off the main drains. In unremediated areas (Area 2), stormwater flows unrestricted into the South Arm of the Hunter River or is retained in existing low points across the site and is infiltrated.

Figure 12: Existing Site Drainage. (Source: AECOM, 2011)

With the exception of the main Eastern and Western Drains, the existing drainage system was intended to be temporary until the final use of the site was determined and a permanent drainage system implemented.

To ensure that the installation of stormwater infrastructure for future development is coordinated across the site and to prevent uncontrolled discharges of stormwater into the river, the Proponent has committed to prepare an overarching Stormwater Management System (SMS). The SMS would build on elements in the Preliminary Design Stormwater Strategy that was prepared by HDC for the remediation works, and ensure that stormwater drainage is managed in a holistic manner, whilst also reflecting the specific requirements of each precinct.

Among the proposed elements of the SMS are:

- inclusion of first flush stormwater containment to capture and separate the most contaminated portion of stormwater runoff;
- bunding to capture runoff, and dust and sediment control measures to reduce the potential for stockpiles being the source of contaminated runoff; and
- strict procedures for cargo transfer and regular maintenance of cranes, conveyors and machinery to prevent or minimise spills during operation.

Flooding

The proximity of the site to the Hunter River and its flat terrain means that flooding within the site could occur from local rainfall (rainfall dominated), high water levels in the Port of Newcastle (tide dominated) or a combination of both. The site ground levels range from 1.5 to 5.5 meters AHD, whilst the estimated peak 100 year flood level in the Port adjacent to the

site is 1.35 meters AHD. Changed climate conditions may also affect the site, with impacts from sea level rise and storm surges during extreme weather events and changes in rainfall patterns.

Elements of future development of the site that could contribute to flood risk include:
- increased flow and volumes from buildings and large areas of hardstands;
- construction of road and rail infrastructure could form barriers to surface water flow from one part of the site to another; and
- creation of micro-catchments from bunded areas within precincts.

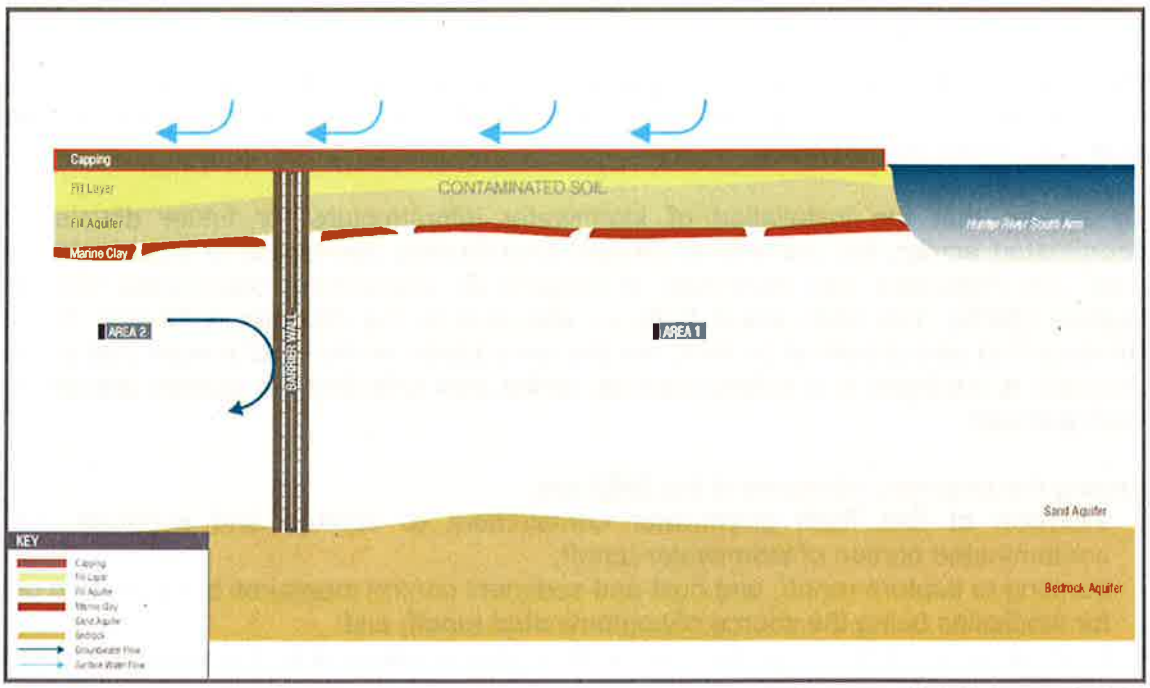
To manage the potential for flooding impacts within the site, proposed measures include installation of appropriately designed culverts under roads to convey flows across the site to main drains and detention basins and incorporating the bunded areas into the stormwater system.

Groundwater

The site is underlain by three distinct groundwater aquifers which generally flow in a north to north easterly direction and have low to very low permeability. Previous investigations within the Closure Area revealed little evidence of tidal interaction with the river and as such, tidal mixing of river water with shallow groundwater is likely to be limited.

Previous and current remediation of the site is based on a strategy of containment through capping and groundwater controls rather than treatment. In 2008, a subterranean barrier wall constructed primarily from a mix of soil and bentonite, was installed in the centre of the site and extends around Area 1 of the Closure Area and 30 to 49 metres deep below the ground. A conceptual diagram of the groundwater environment in the vicinity of the barrier wall is presented in Figure 13.

Figure 13: Conceptual diagram of the groundwater environment. (Source: AECOM, 2011)



Reduced infiltration and groundwater flow diversion around the enclosed area towards the river means that the highly contaminated material emplaced in Area 1 remains in situ and is less likely to be mobilised to discharge to the river. The integrity of the barrier wall is

protected by development restrictions contained in the CSMP for the Closure Area. Soil and groundwater contamination is discussed in more detail in section 5.3 of this report.

The site groundwater is currently being monitored by the HDC in accordance with the VRA entered into with the EPA in 2005, for groundwater levels and water quality through a number of groundwater monitoring wells on the site. HDC is expected to install a low permeability cap to the northern portions of Area 1 and in Area 2 by 2012, which will act to limit groundwater recharge into the contaminated fill.

Consideration

The Department notes that a comprehensive water cycle management plan for the site would be addressed through the proposed SMS. The SMS would be designed in consultation with EPA and Council and in accordance with Council's consolidated *Development Control Plan 2005* and other agreed specific design criteria and design principles set out in the CSMP. Individual operators would retain ownership of water quality and quantity controls and be responsible for maintaining water management infrastructure. This should ensure that there is no uncontrolled stormwater discharge to the Hunter River and that any discharge will comply with an EPL applying to the site. Further, the requirements of the SMS have been specified in the Concept Approval.

In relation to management of flood risk, the Department notes that finished site levels are to be greater than the level of the 1 in 100 year Average Recurrence Interval (ARI) of 1.35 m AHD plus additional freeboard, and that main and minor drains have the capacity to convey the 1 in 100 year and 1 in 20 year ARI respectively. In relation to flooding, the Department has considered the need for future development to consider risks associated with climate change. Future development applications will need to consider these risks, as will the SMS.

In relation to groundwater monitoring, the Department notes that the Proponent has committed to preparing an overarching Groundwater Monitoring Plan (GMP) which would provide the framework for continued groundwater monitoring across the site. As part of the overarching GMP, each development application would be required to prepare individual GMPs in accordance with this overall plan.

Subject to compliance with the above environmental criteria and the committed measures, the Department considers that activities associated with the Concept Plan would have acceptable impacts on water quality and in minimising flood risk. Of particular note are the requirements of the SMS, which include:

- the identification of water management risks (flood risk, water quality and stormwater impacts), the isolation of stormwater from contaminated land and the local groundwater table, and the consideration of climate change and coastal risks;
- design principles, objectives and environmental performance criteria for flooding, ground water, and storm water management;
- conceptual site based flooding, storm water, surface water and water quality management measures, including standards for the protection and maintenance of these measures;
- a monitoring program for surface and ground water and corrective action and contingency measures in the event of exceedances of the relevant environmental performance criteria;
- process for regularly reviewing and updating the Strategy to identify continual improvement to procedures and to reflect ongoing the development of the site; and
- reporting procedures and protocols for evaluating performance.

5.6. Other Issues

5.6.1 Non-Indigenous Heritage

The site was used as an industrial site as early as the mid 19th Century, where it was used for port use, and operation of a copper smelter by the Wallaroo and Moonta Mining and Smelting Co. This use remained for more than 30 years, followed by BHP's purchase of the site and other land along the Hunter River for steelworks operations since 1915. Over the 75 years of operation, a range of structures and steelworks buildings were constructed. Significance of the site is acknowledged to be invested in the process of steelmaking; it holds intangible historical and associative values and has archaeological potential in providing information regarding the early history of the Hunter River Smelting Works and the former Ferro-Manganese Blast Furnace.

The 2001 consent issued by the then Minister of Planning permitted the demolition of heritage structures within the multi-purpose terminal (MPT) footprint subject to conditions. In 2002, the consent was modified where demolition of all heritage structures within the MPT footprint were permitted, with the exception of the remnants of the Blast Furnance No.1, which was buried on site to provide an in-situ preservation of the item. Subsequently, an Excavation Permit was issued to BHP in September 2005, which requires archaeological monitoring in the vicinity of 15 listed items and four identified areas of potential archaeological resource. The Proponent noted that HDC intends to continue with the Excavation Permit to the extent necessary to complete the remediation works, and only those areas to be impacted by remediation works will be archaeologically investigated and cleared under the Excavation Permit.

Previous reports prepared in accordance with the 2001 consent identified 22 items as having heritage significance, archaeological potential, are still extant, or are listed on heritage instruments (in Figure 13). Of these items, the following are noted:

- 15 items are currently listed on the Heritage Schedule of the Newcastle LEP, and have been substantially recorded prior to their demolition;
- two extant items, both currently listed on the Heritage Schedule of the Newcastle LEP, are located more than 100 meters away from the site, and impacts are not anticipated; and
- five items were demolished at various stages prior to the 1990s, but archival recordings were not prepared prior to their demolition. These items are located within the proposed site and are listed in Table 12 below. The significance of these items are assessed accordingly under the NSW Heritage significance criteria and guidelines and are assessed as having archaeological potential based on the lack of site recording prior to their demolition.

Table 12: Heritage potential of items within the concept area

Item	Status	Archivally Recorded	Significance	Assessed Heritage Impact
Hunter River Smelting Co Precinct	Demolished	No	State	Is located within the area to be cut, and therefore archaeologically recorded by HDC as part of the remediation works.
Original No. 1 Pig Mill	Dismantled	No	Local	Is located within the area to be cut, and therefore archaeologically recorded by HDC as part of the remediation works.

No. 1 & 2 Pig Mills	Demolished	No	Local	Potentially by future works but the location is currently covered by Virgin Excavated Natural Material as part of the completed remediation works.
Ferro-Manganese Blast Furnace	Demolished	No	State	Is located within the area to be cut, and therefore archaeologically recorded by HDC as part of the remediation works.
No. 2 Blast Furnace	Demolished	No	Local	Is located within the area to be cut, and therefore archaeologically recorded by HDC as part of the remediation works.

Impacts to heritage items located within the site are not anticipated. The assessment noted that the Ferro-manganese furnace 'Maggie', no. 2 blast furnace, Hunter River Co. Smelting Complex, and Original No. 1 Pig Mill are located within the area to be cut as part of the remediation works, and have therefore been archaeologically recorded by HDC in accordance with the conditions of the Excavation Permit. No. 1 and 2 Pig Mills are noted to be potentially impacted by future works of the Concept Plan though their locations are covered by Virgin Excavated Natural Material (VENM) as part of the remediation works completed under stage 1. On this basis, management measures in the form of archaeological testing, monitoring, recording and salvage are proposed. The Proponent committed to the following to address archaeological impacts of the proposal:

- adherence to the conditions of consent of the Excavation Permit for future development approvals; and
- future development approvals would adopt the Research Design and Methodology approved under the Excavation Permit.

The above commitments would however only be triggered if heritage items are to be impacted by future development and have not already been subject to adequate archaeological assessment, recording and salvage.

Consideration

A total of 20 items located within the site are assessed as having State or local significance for their archaeological potential to provide information regarding the operation of the Steelworks site, which is recognised as the longest enduring and most influential steelworks in the State. All of these items, with the exception of the No. 1 and 2 Pig Mills, are located within the cut area under the existing consent, and are therefore subject to be archaeologically examined by the Hunter Development Corporation (HDC) as part of the remediation works and the Excavation Permit issued by the Heritage Council of NSW. Under this permit, archaeological monitoring in the vicinity of a number of items, including the No. 1 and No. 2 Blast Furnace Precinct, No.1 Pig Mill Precinct and the Ferro-Manganese Blast Furnace, is required.

The assessment notes that the significance of the Steelworks site is in its intangible historical and associated values. The proposed land uses are in keeping with the existing industrial character of this site and would provide a historical link to its industrial past. With regards to the No. 1 and 2 Pig Mills, the location of this site is currently covered by VENM as part of the remediation works on site. Whilst the EA noted that future works are unlikely to uncover archaeological items at this location, there remains potential for this location to be impacted. The Proponent has committed to undertake archaeological testing, monitoring, recording and

salvage should there be impacts in those areas of archaeological potential, as identified in the EA, that have not been investigated by HDC.

Figure 14: Heritage Items (Source: AECOM, 2011)

The Department is satisfied that the impact assessment conducted by the Proponent on historic heritage is satisfactory, and the proposed Concept Plan is compatible with the heritage values of the site. The Department is generally supportive of the mitigation measures proposed by the Proponent, as further archaeological testing and monitoring will contribute to the community's understanding of the operations of the Steelworks.

The Proponent has committed to follow the conditions and methodology of the excavation permit, but only if the items have not already been subject to adequate archaeological assessment, recording and salvage. This measure is considered on the basis that if items which have already been demolished and archivally recorded, further archaeological monitoring or recording is not warranted as archaeological materials are unlikely to add to the current understanding of the items or enhance and compliment existing archival records or provide unique information.

However, the Heritage Council raised concerns with this approach, in particular, the Proponent's understanding of archaeological potential and identified a number of recommendations, specifically, all conditions of approval attached to the Excavation Permit are to remain in force for those areas covered by the permit, and that work must cease should substantial intact archaeological deposits and/or State significant relics not previously identified are discovered.

In this regard, the Department acknowledges that an assessment on heritage items has been undertaken previously for the remediation of the Closure Area and redevelopment of the site for future works, and consent was granted for the demolition of heritage structures within the MPT footprint subject to conditions. The Excavation Permit which was subsequently issued sets out the manner in which archaeological excavation must be carried out. Whilst this permit remains valid and is acted upon by HDC until completion of the remediation works, the Department considers it imperative that all future development applications must ensure that potential impacts to heritage items be considered by way of an archaeological assessment. Accordingly, the Department recommends assessment requirements in which future development assessments must include an Archaeological Assessment prepared by a suitably qualified person and include the following:

- potential archaeological resources within the site (historical archaeological relics);
- assessment of the impact of the development on the heritage significance of the resources; and
- reference to previous archaeological studies completed on the Closure Area.

5.6.2 Socio Economic Impacts

The Hunter Region accounts for 14 percent of Australia's total exports, which are sent to both international markets and other Australian ports through the Port of Newcastle. The port is Australia's largest port in bulk terms and the world's largest coal exporting port and is an important source of employment for the Hunter Region through the activities operating throughout the Port and also through supporting ancillary activities.

The proposed Concept Plan would generate positive economic benefits for Newcastle, the Hunter Region and NSW through the significant capital investment and establishment of port infrastructure. The proposed Concept Plan would support the Lower Hunter Regional Strategy by providing additional infrastructure and job opportunities to cater for the Hunter Region's predicted growth of up to 160,000 people by 2030. During operation, it is estimated that the proposed concept would employ a total workforce of approximately 300 full-time personnel over three shifts in 2034.

Social impacts primarily result from amenity impacts associated with traffic, noise and air quality impacts. These matters have been addressed in previous sections of the report and the Department does not consider that these impacts warrant further mitigation in the form of

community facility enhancements as advocated in submissions. Notwithstanding, the Department does acknowledge that future development would create demand for community services and accordingly, the Department recommends that future development be subject to Council's Development Contributions Plan.

5.6.3 Site Infrastructure

This section outlines infrastructure requirements for the site with the exception of road, rail and stormwater drainage which were previously discussed in Sections 5.2 and 5.4 respectively. Demolition and remediation of the BHP Steelworks resulted in redundant utility services being removed from the site, with limited new services provided to support current site operations.

Existing infrastructure within or adjacent to the site is summarised below:

- potable water - the site is not currently serviced by potable water with the nearest potential connection points to potable water mains located in Ingall Street as well as along Crebert and Selwyn Streets, Mayfield. Potable water to the existing general cargo handling facility at Mayfield Berth No. 4 is provided by a tank located on the site;
- wastewater - Hunter Water Corporation is currently in the process of undertaking upgrading works to the Burwood Beach Wastewater Treatment Plant, which services the Mayfield area. No existing wastewater infrastructure exists on the site with Mayfield No. 4 Berth relying on the collection of effluent from tanks which are emptied on a regular basis and disposed off-site;
- natural gas - Jemena provides natural gas to the local area with a gas main located on Industrial Drive. No gas supply pipelines currently exist within the site;
- electricity - There are various electrical infrastructure components located within the local area. Electricity to Mayfield No. 4 Berth is currently provided via OneSteel through the Koppers site;
- telecommunications - An existing fibre optic cable runs along Steelworks Road and Ingall Street, Mayfield to OneSteel; and
- existing pipelines – Koppers utilises the ex-BHP No.6 Berth and has an elevated pipeline 1 to 7 meters above ground level which is parallel to the South Arm of the Hunter River and runs west to east across the site connecting the Koppers plant to the berth.

The Concept Plan would require the provision of water, sewer, natural gas, electrical and telecommunications infrastructure and the installation of pipelines to facilitate future site operations. General assumptions were made in the EA regarding infrastructure requirements based on the proposed activities to be undertaken in each of the precincts within the site. The Proponent stated that future development applicants would undertake detailed design assessment of service requirements regarding the provision of the necessary service and utility infrastructure at the development application stage.

There are a number of options regarding how infrastructure and services would be provided to the site and these include connection to the Intertrade Industrial Park, connection through OneSteel or connection through existing service providers if coordination of services cannot be achieved through the aforementioned options. The preferred option is to connect the site utilising trunk infrastructure installed within the Intertrade Industrial Park. However, the timing of this will be dependant on the development of the Intertrade Industrial Park. The EA indicates that the design and construction of individual development within the site is likely to be undertaken in parallel as the site develops and therefore each development applicant would need to consider the coordination of services within service corridors.

There is little existing infrastructure on the site that would be impacted by the proposed Concept Plan. Local service providers, namely Energy Australia, Hunter Water Corporation and Jemena have advised that there is likely capacity available to service the proposal. The EA stated that the Proponent would prepare an Infrastructure Plan for the site that would ensure the coordination of service provision to the site and that it would coordinate with

development applicants regarding the provision of services to the site via a services corridor and negotiate a cost-sharing mechanism for the provision of these services. Applicants would be required to individually consult with local service providers regarding the demand and provision of services when further detailed information is available.

A number of submissions received specifically commented on the provision of infrastructure and services to the site. The Hunter Development Corporation's submission indicated the Buildev Group was required to construct trunk items of infrastructure such as roads, drainage, a new electrical substation and water mains, which were capable of supporting the NPC site. The Buildev Group's submission indicated that the Concept Plan did not provide any form of infrastructure corridors to facilitate access from the Intertrade Industrial Park for infrastructure such as conveyors, pipelines and roads between it and the berths in order to ensure the orderly, efficient and economic development of both sites.

A number of submissions received on the Proponent's Submissions Report also raised the coordination of infrastructure as an issue with one submission stating that servicing of the land should preferably be based on a best estimate of major utility demand levels and the development of appropriate site wide trunking main and a servicing strategy should be the responsibility of the overall site Proponent. Other individual submissions made by the local community indicated that a proper infrastructure plan should be developed to support the development of the site and the Department notes that the Proponent has committed to the preparation of this Plan.

The Department has reviewed the EA, the submissions received, the Proponents response to matters raised and further submissions on the Proponents Submissions Report and is satisfied, based on a conceptual assessment of infrastructure needs that adequate facilities and services exist or are being augmented, to enable the development of the Concept Plan. However, it also considers that there is benefit in providing infrastructure and services for the site as part of a coordinated plan to provide for the efficient delivery and management of services and the orderly development of the land.

The Department notes that the Submissions Report provides a commitment that infrastructure investments required to be made by either the Proponent or the adjacent Intertrade Industrial Park should be integrated in a timely and equitable manner to achieve the maximum benefit for all stakeholders. To reinforce these commitments, the Department has recommended that the Proponent be required to prepare a Site Infrastructure and Utility Plan to identify what services will be required for the site and how they will be provided as part of a coordinated strategy in consultation with utility and service providers as well as adjacent landowners.

5.6.4 Visual Impact

The visual character and landform surrounding the site is typical of an active port, and is dominated by port-related industrial and commercial activities with visually prominent structures such as stacks, silos, elevated loaders, conveyors and ships on the northern and southern sides of the Hunter River (South Arm). Except for its north and eastern border which adjoin the Hunter River, the site is bordered entirely by industrial and port-related development. The residential areas of Mayfield, Tighes Hill, Carrington and Stockton are located in areas surrounding the Port of Newcastle, with Mayfield being the closest at 400m to the southwest.

NPC and Koppers currently conduct port-related industrial activities at the site. NPC operates a general cargo handling facility, known as Mayfield no 4 Berth, whilst Koppers utilise the ex-BHP no 6 Berth for shipping. Koppers also operates an elevated pipeline (running east to west across the northern portion of the site) with associated infrastructure for handling coal tar and pitch products. A large portion of the site has been remediated and sealed with asphalt as part of the remediation works for the former BHP steelworks land.

The visual assessment has been based on consideration of the proposed total development and the capacity of the existing landscape to absorb this development. In terms of visibility, viewing distance was divided into three categories:

- immediate vicinity (within one kilometer),
- local area (between one and four kilometers), and
- regional area (greater than four kilometers).

As the site becomes fully developed and operational, the site would be transformed from a relatively vacant parcel of land into a modern facility that is visually consistent with existing port-related industrial facilities. The visual assessment indicated that the operational activities and associated infrastructure would have low to moderate visual impacts on the landscape. The main visual impacts would result from increased port infrastructure such as cranes, elevated conveyors, storage silos, forklifts and gantry lanes, and from increased shipping and rail movements and impacts from lighting to facilitate night time operations.

The Department accepts the conclusion of the visual assessment that the visual impacts to the immediate viewers in Mayfield and Mayfield East would be low to moderate as the views would be largely obscured by the mature roadside trees on Industrial Drive. At the local area, the open views to the site from across the South Arm of the Hunter River at Cormorant Road (used by tourists, residents and commuters into Newcastle CBD) would only be seen at a distance in a transitory manner and would therefore have low to moderate visual impact. From the Stockton residential area, the visual impact would be low due to distance and orientation whilst the impact from the Walsh Point Reserve would be moderate as this area has unrestricted views across the river. From regional locations, due to the low-lying and flat nature of the land, negligible or low impact can be expected as only the tops of the tallest structures (eg bulk liquid fuel storage tanks and grain silos) would be visible and these features would blend into the existing port and industrial landscape.

The Proponent indicated that future development would be state-of-the-art facilities and would result in a positive visual transformation of the site. Whilst it has not developed environmental performance objectives and criteria to guide the overall appearance of the port development, it has committed to require Lighting and Material Finishes Management Plans to be prepared by development applicants for their respective facilities and to review such plans for consistency. The plans are envisaged to include requirements regarding the use of directional lighting to minimise light spill into surrounding areas and the use of suitable colours and materials for the buildings and structures to minimise reflectivity and contrast.

The Department considers that although the proposed new features would be significant, they are typical of the local and wider landscape character and would be consistent with the past industrial use of the site. There are also few visual receivers with direct views of the site. With appropriate lighting and finishing control, the Department considers that the proposed concept development would not have an adverse effect on the visual amenity of the area and is likely to enhance the visual appearance of the site when viewed from public vantage points.

6. RECOMMENDATION

The proposed Concept Plan at Mayfield involves redevelopment of port-side land in the former BHP Steelworks site for port related activities. The Department recognises the justification for the proposal with respect to the need to provide certainty to ensure lands are available in strategic locations to meet anticipated demand and growth in existing and future port-related industries and businesses in the Port of Newcastle. The site is suitable for the purpose of port terminal facilities due to the presence of existing port infrastructure and the availability of land close to berthing facilities, easy access to locations throughout the Hunter Region from the port, growth in industries in the vicinity and a supportive business development environment. In this regard, the Department considers the Concept Plan to be consistent with the aims and objectives of relevant State policies, including the *NSW Ports Growth Plan*, which has a core direction of securing the former BHP Steelworks site for port use.

The Department has considered the Proponent's Environmental Assessment, Submissions Report, Statement of Commitments as well as submissions received from agencies and the public. Based on its assessment, the Department is satisfied that the Concept Plan is consistent with the relevant Government policies and strategies, and considers that the Proponent has generally undertaken an adequate level of assessment of the impacts, including cumulative impacts from the adjoining IIP site.

The key environmental issues associated with the project relate to transport and access, noise and vibration, hazards and risks and air and water quality. Submissions received raised these issues, as well as other concerns including community consultation, social and economic impacts, infrastructure/services, heritage and cumulative impacts.

In relation to the key environmental issue of transport and access, the Department acknowledges that proposed development has the potential to adversely affect the road network, and that the performance of the road network could further deteriorate through the development of the adjoining IIP site. To address the potential traffic impacts resulting from future development, the Department has recommended restrictions on the movement of container freight by road at different increments subject to road infrastructure enhancements, to ensure the traffic performance and functionality of the local and regional road network would not be adversely impacted by the development.

The Department is also satisfied that:

- noise impacts as assessed are generally acceptable, and that noise criteria exceedances will be able to be mitigated. The Department is also supportive of the Proponent's commitment of setting sound power levels for each precinct and the establishment of an overall noise model for the site to address associated cumulative operational noise impacts;
- a comprehensive management system has been proposed for the management of soil contamination, and considers that the development can generally occur synergistically with the existing remediation works and that adequate measures can be implemented to protect human health and the environment;
- development is unlikely to have on and off-site hazard and risk impacts, due to adequate distance separation from the site boundary and between precincts, and notes that the risks of injury/fatality at the closest residential area do not exceed acceptable risk criteria; and
- air quality impacts from the operations would generally not exacerbate existing conditions and can be minimised in future development applications.

The Concept Plan has a relatively long time span, and is to be developed progressively over a period of approximately 25 years. It provides a framework for which future development would operate. In order to ensure that the operation of future development is consistent with the impacts identified under this assessment and key environmental impacts are managed to

acceptable levels, the Department has recommended environmental assessment requirements to be considered in future development applications, as well as modifications to the Concept Plan to ensure the operation of future development, when considered holistically, achieves acceptable environment standards and protects public amenity. These requirements and modifications relate to both key environmental issues as identified in this report as well as those raised in submissions from agencies and the public. Specifically, future development applications must provide an updated environmental assessment on the following:

- a Transport Assessment that assesses the transport, access and traffic impacts;
- an Air Quality and Greenhouse Gas Assessment that assesses emissions and air quality impacts on local and regional receivers;
- a Noise and Vibration Assessment that assesses noise and vibration impacts on and off site;
- a Hydrological Assessment that assesses the potential on and off site hydrological impacts of development;
- a Hazards and Risks Assessment for potentially hazardous development that details a hazards assessment and the identification of risk reduction measures;
- a Contamination Assessment that assesses the potential environmental and human health risks of site contaminants and impacts on site remediation outcomes; and
- an Archaeological Assessment that assesses the potential archaeological resources of the site and the impacts on the heritage significance of these resources.

Based on the above, the Department recommends that the Minister grant approval for the Concept Plan, subject to the terms and modifications of approval.

2.3.12

Executive Director
Major Projects Assessment

15/3/12

Deputy Director-General
Development Assessment & Systems Performance

Director-General

27/3/2012.

APPENDIX A ENVIRONMENTAL ASSESSMENT

See the Department's website at
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=3124

APPENDIX B SUBMISSIONS

See the Department's website at
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=3124

APPENDIX C PROPONENT'S RESPONSE TO SUBMISSIONS

See the Department's website at
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=3124

APPENDIX D DISCLOSURE OF CONTACT WITH LOBBYISTS

Telephone Call (T) / Meeting (M)	Date	Participants	Registered Lobbyist(s) (Name)	Organisation / Individual Represented	Matters Discussed
Email	01/09/11	Chris Wilson	Sean Johnson Government Relations Australia Advisory Pty Ltd	Marstel Terminals Pty Limited	Update on progress

APPENDIX E POLITICAL DONATION DISCLOSURES

See the Department's website at
https://majorprojects.affinitylive.com/public/6b99294cf01d2ede456c22f53fe83cbf/Political%20Donations%20Disclosure%20Statement.pdf

APPENDIX F CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
State Environmental Planning Policy 33 – Hazardous and Offensive Development (SEPP 33) facilitates the consideration and assessment of hazardous or offensive development.

Development considered potentially hazardous or offensive requires a Preliminary Hazard Analysis (PHA) to be undertaken to identify and assess potential effects to both people and the environment.

The proposed concept has been considered in the context of SEPP 33, and a PHA has been prepared. The PHA concluded that potentially hazardous areas within the site could be located such that they do not impact adjacent surrounding land uses (e.g. Onesteel, Carrington Coal Terminal, residential areas, etc.) and that Dangerous Goods storage areas within each precinct can be located such that there is no accumulation of risk. Hence, the proposed concept can be classified as only potentially hazardous and not actually hazardous and therefore would be permitted at the site under the provisions of SEPP 33.

State Environmental Planning Policy No. 55 – Remediation of Land
State Environment Planning Policy 55 – Remediation of Land (SEPP 55) promotes the remediation of contaminated land to reduce the risk of harm to human health or other environmental systems. 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.

The Closure Area is currently being remediated in stages under the 2001 consent for the site in accordance with a VRA under the *Contaminated Land Management Act 1997*. Remediation activities are due for completion in 2012. As part of the proposed concept, synergistic development of the site may occur in conjunction with the remediation activities.

The potential impact of contamination has been assessed and the Department considers that the site in its remediated form would be suitable for the intended port-related uses, and has included specific requirements in relation to land contamination.

State Environmental Planning Policy No. 71 – Coastal Protection
State Environmental Planning Policy No. 71 – Coastal Protection (SEPP 71) aims to ensure a consistent and strategic approach to coastal planning and management.

The Department has considered the proposal against the specific aims of the SEPP and the matters for consideration set out in clause 8 of the policy. Due to the existing and proposed industrial nature of the site and adjoining land uses a limited number of objectives are applicable. Notwithstanding the Department considered relevant matters, including the protection of the economic attributes of the coast, scale of development and visual amenity, protection of the marine environment and water quality, historic heritage, and cumulative impacts.

APPENDIX G RECOMMENDED CONDITIONS OF APPROVAL