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Stolthaven Bulk Fuel Terminal - Stage 3

Environmental Impact Statement - SSD_7065

Prepared for Stolthaven Australia Pty Ltd
19 February 2016

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Prepared by Simon Murphy

Reviewed by Catherine Brady

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Stolthaven Bulk Fuel Terminal - Stage 3

Environmental Impact Statement - SSD_7065

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Declaration under Part 3, Schedule 2 of the Environmental Planning and Assessment Regulation 2000

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Name	Catherine Brady
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Qualification	Bachelor of Arts (Geography and Economics)
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Address of the Land to which this EIS Applies

The land subject to this EIS is located on Steelworks Road, Mayfield within the Newcastle local government area on Lot 1 DP 1177466, Lot 2 DP 1177466, Lot 36 DP 1191723, Lot 37 DP 1191723, Lot 38 DP 1191723, Lot 39 DP 1191723 and Part Lot 4 DP 1184514.

Description of the Project to which this EIS Applies

This EIS examines the works that would be required for the Project. The key Project elements include:

- The ongoing operation of the existing Facility approved under Project Approval SSD_6664 as modified;
- The construction and operation of 17 additional fuels storage tanks for diesel, petroleum, ethanol and jet fuel storage;
- An increase in annual throughput from the currently approved 1,300 ML pa to a total of 3,500 ML pa; and
- The construction of ancillary infrastructure including: control and administration building; staff amenities and parking; additional truck loading gantry with six truck filling bays and parking; pump and pipe systems to manage fuels and transfer them from the berth; tank bunding; safety and fire systems; and stormwater runoff control, capture testing and release systems. The existing Development Consent SSD 6664 issued under Part 4 of the EP&A Act would be surrendered and a new State Significant Development consent issued covering the entire Facility and its ongoing operations.

Assessment of the Environmental Impact of the Project

An assessment of the environmental impact of the Project is contained in this Environmental Impact Statement.

Declaration

Pursuant to clause 6(f), Part 3, Schedule 2 of the Environmental Planning and Assessment Regulation 2000, I declare that this Environmental Impact Statement:

a) Has been prepared in accordance with the requirements of the Environmental Planning and Assessment Act 1979 and the Environmental Planning and Assessment Regulation 2000;

b) Contains all available information that is relevant to the environmental assessment of the Project to which this Environmental Impact Statement relates; and

c) Contains information that is neither false nor misleading.

Simon Murphy

February 2016

Catherine Brady

February 2016

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Executive Summary

Introduction

This Environmental Impact Statement (EIS) has been prepared by AECOM Australia Pty Ltd (AECOM) on behalf of Stolthaven Australia Pty Ltd (Stolthaven) for a State Significant Development (SSD) application for the expansion of an existing fuel storage facility (the Project) at Mayfield, NSW. Stolthaven is seeking approval for an additional 17 fuel storage tanks for both flammable and combustible fuel types, as well as the construction and operation of an additional truck loading gantry and associated ancillary infrastructure, and connective pipelines to the future Mayfield Berth Number 7, being constructed under a separate approval. The Project also includes an increase in annual throughput from the approved 1,300 ML per annum (pa) to 3,500 ML pa. As part of the Project, Stolthaven is proposing to relinquish the existing Development Consent for the existing Facility issued under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and have a new SSD consent issued which would cover all the existing and proposed elements.

Consent is now being sought under Division 4.1 of the EP&A Act. AECOM has prepared this EIS pursuant to the requirement of the EP&A Act and the *Environmental Planning and Assessment Regulation 2000*. The EIS also addresses the Secretary's Requirements (SEARs) which were issued to the proponent on 30 June 2015.

Site and Context

The existing Facility is located on part of the former BHP steelworks site, approximately 5 km northwest of Newcastle CBD on Lot 2 DP 1177466. The land on which the Facility is located is leased from the Port of Newcastle (PON), and is currently subject to concept approval 09_0096 by PON (Mayfield Concept Approval). The nearest residential area is located at Mayfield, with the closest receptors approximately 500 m from the Site. Neighbouring industries include OneSteel (Arrium) and Kopper's Coal Tar Products.

The Project would involve the expansion of the existing Facility onto the adjoining Lots 1 and 2 DP1177466, Lots 36, 37, 38, 39 DP 1191723 and Part Lot 4 DP 1184514, including the extension of a pipeline connecting the Project to the future M7 berth location and the associated loading infrastructure on M7 including Marine Loading Arm.

Project Description

The Project includes the following elements or actions:

- The ongoing operation of the existing Facility comprising the following elements:
  - Seven 18 ML diesel storage tanks;
  - One 0.5 ML biodiesel storage tank;
  - One 4.2 ML biodiesel storage tank;
  - One 0.5 ML additive storage tank;
  - A four bay truck loading gantry;
  - Pumps, wharf pipeline, fire safety, workshop and operating systems;
  - All other associated ancillary infrastructure, including pipeline connection to Mayfield Berth No. 7; and
  - Continued receipt of fuels by ship, transfer to the Facility by pipeline and distribution of fuels by truck from the Facility.
- The construction and operation of 17 additional fuel storage tanks for a variety of fuel types as follows:
  - Six 12 ML[1] petroleum storage tanks;
  - Two 18 ML petroleum storage tanks;
  - Two 9 ML petroleum storage tanks;
  - Two 18 ML diesel storage tanks;

[1] Storage tank volumes have been rounded to the nearest ML of usable tank volume

- Two 23 ML diesel storage tanks;
- One 12 ML diesel storage tank;
- One 2 ML ethanol storage tank; and
- One 2 ML jet fuel storage tank.

Note that the quoted tank storage amounts represent gross volume. The usable volumes of the tanks are slightly less minus deadstock space.

- The increase in annual throughput from the currently approved 1,300 ML pa to a total of 3,500 ML pa;
- The construction of ancillary infrastructure including:
  - Pipeline connection to and infrastructure on, Mayfield Berth No. 7, including a Marine Loading Arm for ship unloading;
  - An additional control and administration building including all automated control systems, offices and staff amenities as well as staff (light vehicle) parking;
  - An additional truck loading gantry with six truck filling bays and associated six off-road parking spaces for trucks waiting to enter the gantries;
  - Pump and pipe systems for the transfer and management of fuels and connection to bulk liquids berth via new 400 mm diameter pipelines;
  - Tank bunding, safety and fire systems including fire water storage tanks, tank cooling and foam systems;
  - Installation and operation of a Vapour Recovery Unit; and
  - Stormwater runoff control, capture testing and release systems.
- The surrender of the existing Development Consent SSD 6664 issued under Part 4 of the EP&A Act, and the issue of a new SSD consent covering the entire Facility and its ongoing operations; and
- Decommissioning and removal of the existing pipeline connection between the existing Stolthaven terminal and Mayfield Berth No. 4 when Mayfield Berth No. 7 is operational and import of combustible fuels is no longer required through M4.

Statutory Planning

The Site is located within the Newcastle City local government area which is governed by Newcastle Local Environmental Plan (LEP 2012). However, the Site is located within the boundary of the Port of Newcastle Lease area pursuant to *State Environmental Planning Policy (Three Ports) 2013* (Three Ports SEPP). Pursuant to the Three Ports SEPP, the site is zoned SP1 Special Activities zone, in which the Project is permissible with consent.

Pursuant to Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011*, the Project is classified as a major hazard facility and is therefore deemed a State Significant Development for assessment under Part 4, Division 4.1 of the EP&A.

Being declared as an SSD, the provisions of the LEP 2012 do not apply to the Site. The Project is nevertheless consistent with the provisions of local, regional and State planning instruments and strategies which would otherwise apply to the Project, including:

- *State Environmental Planning Policy (State and Regional Development) 2011*;
- *State Environmental Planning Policy (Three Ports) 2013;*
- *State Environmental Planning Policy 33 – Hazardous and Offensive Development*;
- *State Environmental Planning Policy 55 – Remediation of Land*;
- *State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP);*
- *State Environmental Planning Policy 71 – Coastal Protection (SEPP 71); and*
- *Lower Hunter Regional Strategy*.

Identification of Issues

An assessment of the likely environmental issues and associated level of risk was made for the Project based on issues raised during the planning for the existing Facility, the SEARs and in consultation with agencies and the communities during previous environmental assessments for the Facility. The assessment identified that the prioritisation of environmental issues and therefore the focus of environmental assessment for the Project should be as follows:

- High: hazard and risk;
- Medium: air quality, traffic and transport, noise, social and economic and consultation; and
- Low: utilities, visual amenity, soil and water, greenhouse gas, waste, heritage (indigenous and non-indigenous), and ecology.

Hazard and Risk

Two detailed Preliminary Hazard Analyses (PHAs) were prepared for the Project to assess the hazards associated with the operation or the fuel storage terminal, as well as to assess potential transport hazards associated with transport of fuels from the terminal on the road network. The PHAs were prepared in accordance with the requirements of *Statement Environmental Planning Policy No. 33 - Hazardous and Offensive Development,* the Hazardous and Offensive Development Application Guidelines and DP&Es Hazardous Industry Planning Advisory Papers.

Both PHAs analysed the Project using both qualitative and quantitative risk assessments as to determine the potential risk levels of the Project. When assessed against DP&Es risk assessment criteria it was found that all assessed scenarios met the relevant risk criteria. In addition a sensitivity analysis was undertaken which saw the risk factors increased by a factor of ten and then reassessed against the same risk criteria. Again none of the risk criteria were exceeded.

Whilst the terminal design would include a number of measures to manage the potential risks associated with a Project of this nature, a range of management plans would also be prepared to minimise the potential for, or the consequences of, a hazardous incident occurring at the terminal. This includes a site specific Emergency Management Plan, Fire Safety Study and providing input into the Port of Newcastle's Port Emergency Management Plan.

Air Quality

An air quality impact assessment was prepared by AECOM for the Project. The assessment considered impacts associated with the operation of the Project. Consistent with the previous terminal assessments, odours associated with the Project would be as a result of Volatile Organic Compounds emissions, and as such, the assessment of Volatile Organic Compounds (benzene, cumene, toluene, ethanol, and xylenes) was considered to adequately address both air quality and potential odour impacts.

As the Project is located within the Mayfield Concept Plan Approval area, impact modelling was undertaken using the Mayfield Concept Plan Air Quality Model developed by the Port of Newcastle. The results of the modelling predicted that all pollutant concentrations would be less than the NSW Environment Protection Authority guideline criterion at all sensitive receiver locations.

Traffic and Transport

Constructions activities would generate up to 55 light vehicles (110 light vehicle movements) and up to 10 heavy vehicles (20 heavy vehicle movements) per day over the construction period. Construction traffic would have minor impact on the operation of the road network.

During operation of the Project, daily traffic movements would consist of fuel tanker, employee and visitor movements. The primary source of operational traffic would be up to 109 trucks (218 truck movements) accessing the Facility each day in addition to traffic already generated by the operating Stolthaven terminal. As there are currently 75 trucks (150 movements) per day generated by the existing facility this equates to a cumulative Project total to 184 trucks or 368 truck movements per day. Due to the nature of the Facility, movements would be spread throughout the day.

The Project would be serviced by an addition 55 new ships per year accessing M7. When combined with shipping generated by the existing facility (57) it is expected that approximately 112 ships would be accessing M7.

Intersection analysis found that the main site access point at the Industrial Drive and Ingall Street Intersection would continue to perform at acceptable Levels of Service during both construction and operation of the Project. It was concluded that no infrastructure upgrades to roads or intersections would be required as a result of the Project.

Noise

A Noise and Vibration Impacts Assessment was prepared by AECOM to examine the noise and vibration impacts of the construction and operational phases of the Project, as well as the cumulative impacts which may result from noise generated form the Mayfield Concept Plan Area.

The assessment utilised acoustic measurements of residential areas in the vicinity of the Project to determine the background noise levels. Noise modelling was undertaken for a number of atmospheric and operational scenarios and concluded that under all scenarios, for day and night activities during both construction and operational phases, there would be no exceedance of the site specific noise criteria. A minor exceedance of 1dB(A) was noted as potentially occurring of the site Mayfield Concept Plan noise criteria. It was found however that this exceedance would occur as a result of traffic noise and not the operation of the facility. Due to the minor nature of this exceedance it is considered that it would have a negligible impact on sensitive receivers.

Other Environmental Considerations

Other issues that were considered include impacts to soil, water quality, existing site contamination, waste and visual impacts, social and economic, ecological and heritage impacts. Overall it is considered that the Project would have only minor or negligible impacts provided the recommended mitigation measures are in place. Furthermore it was concluded that the Project would have a number of positive benefits particularly in relation to economic development in the Hunter region and through the improved efficiencies in the fuel supply chain.

Environmental Management

A range of environmental management measures have been recommended for the Project. These have been compiled on an issues basis, as informed by the EIS and the environmental risk analysis. Notably Stolthaven already has in place a range of environmental and safety management plans and controls for the existing facility. Where necessary these management plans have been prepared in consultation with relevant stakeholders. These would be updated to include the additional measures identified in this EIS for the management of the Project. Additional consultation would take place with relevant agencies during the preparation/update of these plans.

Consistency with Mayfield Concept Plan

The Site lies within a larger area to which the Port Terminal Facilities Mayfield Concept Plan (09_0096) applies. This Concept Plan was approved by the Minister for Planning and Infrastructure on 16 July 2012. The Concept Plan environmental assessment included provision for bulk fuels terminals, such as that currently operated by Stolthaven, in addition to a range of potential port related industries. This EIS has examined the Project against the range of management plans and documents put in force by the Concept Plan approval and found the Project is consistent with the requirements of the Concept Plan Approval. In addition the Concept Plan Approval included the requirement for PON to develop site air quality and noise models. These models have been used to assess the potential impacts of the Project including the assessment of potential cumulative impacts of the Project and existing operations in the Concept Plan area. From the review of Mayfield Concept Plan conditions of approval, it has been concluded that the Project is consistent with the Concept Plan Approval.

Project Justification

The Project would provide economic benefits to the local, regional and State economies, in particular through improved efficiencies and access to fuels for the mining sector and wider economy in the Hunter Valley and northern NSW. The Project would introduce greater diversity and competition in the fuel market, which may result in increased competition and therefore potentially lower fuel prices for end customers. The Project would enable the expansion and continued operation of an established facility which has demonstrated minimal environmental impacts to the environment and community during its operation. The Project is therefore considered justified.

Conclusion

This EIS describes the Project, its possible alternatives, and provides a review of the potential environmental impacts from construction and operation. Where potential impacts have been identified, management measures have been recommended to minimise impacts to acceptable levels. This EIS has also demonstrated that the Project is both permissible and would have a range of benefits that, when considered relative to potential impacts, justify the Project proceeding.

Part A – Project Background

This Part describes the background to the project and location, existing approvals and the environmental impact assessment process for the Project.

1.0 Introduction

1.1 Overview

This Environmental Impact Statement (EIS) has been prepared by AECOM Australia Pty Ltd (AECOM) on behalf of Stolthaven Australia Pty Ltd (Stolthaven) to construct and operate additional fuels storage tanks for both flammable and combustible liquids on land adjoining its existing Facility (the Project). Stolthaven owns and operates a fuel import, storage and dispatch facility on the former BHP steelworks site at Mayfield, NSW. The Facility is located on a parcel of land leased from the Port of Newcastle Pty Ltd (PON), in the Port of Newcastle.

The existing Facility operates under Development Consent SSD 6664, as approved by the Minister for Planning (the Minister) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) on 16 April 2015 (SSD 6664). The most recent modification (MOD1) was approved by Department of Planning and Environment (DP&E) to increase the throughput of the Facility to 1,300 ML.

Stolthaven is now seeking to construct and operate an additional 17 fuel storage tanks for both flammable and combustible liquids on land adjoining the existing Facility given a high level of demand in the market for bulk liquids. An additional truck loading gantry, control room, pump and pipe systems, tank bunding, safety and fire systems, vapour recovery unit, administration, amenities, as well as stormwater management systems are also proposed.

Pursuant to clause 10 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) the Project is a State Significant Development(SSD) as it can be defined as a Major Hazard Facility (MHF).

Following confirmation from the Minister on 30 June 2015 that the Project could be assessed as SSD, the Secretary General of the DP&E issued the Secretary's Requirements (SEARs) for the Project EIS. The SEARs form the basis of the preparation of this EIS.

1.1.1 Background

With the ongoing reduction of refinery capacity in the Sydney basin and across Australia more generally, there is an increasing reliance on imported refined fuels to supply the NSW market. NSW fuel imports are typically taking place through terminal facilities in Port Botany.

The increased throughput capacity sought by this Project would allow additional volumes of refined fuels to be imported directly to Newcastle and the Hunter Valley reducing congestion between Sydney and Newcastle and improving supply chain efficiencies by reducing double-handling of fuels. Fuels imported directly to Newcastle would have lower transport costs when servicing Hunter Valley customers compared to trucking fuels from Sydney. The Project would also support the diversification in fuels sources and therefore increase security of supply to businesses in the Hunter Valley.

1.1.2 Existing Operations and Approval

The Facility was originally approved under the now superseded Part 3A of the EP&A Act. Project Approval MP08_130 made allowance for three diesel storage tanks, and 300 ML per annum of diesel and biodiesel throughput. Subsequent modifications to that original Project Approval included:

- MOD 1 – Two additional 18 ML diesel tanks, one additional 4.2 ML biodiesel tank and an additional 100 ML pa throughput. Approved 26 July 2013;
- MOD 2 – Paper modification to the wording of Condition 6 to remove reference to the Department of Health. i.e. no changes to the composition of the approved Facility. Approved 15 November 2013; and
- MOD 3 – Increase throughput to 400 ML pa to a total of 500 ML pa. No additional tanks or infrastructure. Approved 10 July 2014.

Development Consent SSD 6664 issued on the 16 April 2015 transferred the Facility from a Part 3A Project Approval to an SSD consent under Part 4 of the EP&A Act. It also permitted the Facility's capacity to be increased through an additional:

- Two 18 ML diesel storage tanks; and
- Throughput to a total of 1,010 ML pa.

The most recent modification to SSD 6664 (Mod 1) was approved by DP&E on 28 September 2015 to increase the throughput of the Facility to 1,300 ML for operational reasons.

1.2 Project Outline

The Project includes consideration and assessment of the existing Facility and approved modifications collectively as a single Project. In addition to those elements previously assessed and approved, the Project also proposes to:

- Construct and operate an additional 17 storage tanks for a variety of fuel types as listed in **Section 6.4.1**;
- Increase throughput of combustible and flammable fuels to approximately 3,500 ML per annum;
- Increase imports of fuel by ship and increase in fuel dispatch from the facility by truck;
- Construct and operate ancillary infrastructure including:
    - A control and administration building with staff amenities and parking;
    - An additional six bay truck loading gantry and associated off-road parking;
    - Pump and pipe transfer systems for internal fuels management as well as connecting to the bulk liquids berth;
    - Tank bunding, safety and fire systems including fire water storage, tank cooling and foam systems;
    - Install and operate a Vapour Recovery Unit; and
    - Stormwater runoff control, capture testing and release systems.

Full details regarding all elements of the Project including the relationship between approved and proposed elements is provided in **Part D**.

1.3 Location and Setting

The Site is located on part of the former BHP steelworks site in the suburb of Mayfield, approximately 5 km northwest of the Newcastle CBD (refer **Figure 1**). The Project is located on the following parcels of land:

- Lot 1 DP 1177466;
- Lot 2 DP 1177466;
- Lot 36 DP 1191723;
- Lot 37 DP 1191723;
- Lot 38 DP 1191723;
- Lot 39 DP 1191723; and
- Lot 4 DP 1184514.

Lot 2 contains the existing fuel terminal operations. Lots 36, 37 and 38 are currently vacant and maintained as sealed hardstand areas. Lot 39 is the landside parcel of land associated with the future M7 berth with Lot 4 to include pipeline connecting infrastructure and Marine Loading Arm on the future M7 Berth, noting the berth is subject to a separate approval under the complying development provisions of *State Environmental Planning Policy (Three Ports) 2013*. Lots 37 and 38 are separated by a rail line and associated access track which are fenced off in a separate corridor. The rail line lies within Lot 38. A drainage swale runs parallel to the rail line in Lot 37 which directs runoff from hardstand areas to the western truck drain (refer **Section 3.4.3**).

1.4 The Proponent

Stolthaven is a bulk liquids logistics company, which specialises in handling fuels, hazardous bulk liquids and edible oils. Stolthaven has gained a global reputation for excellence in the storage and handling of bulk liquids. Stolthaven, formally operating as Marstel, has been operating since 1987 and is a national leader in the business of bulk liquid storage, with a highly valued customer base, including numerous multi-national companies. Stolthaven has operations across Australia (Victoria, Queensland and NSW) and New Zealand.

1.5 Project Need and Benefits

The current Facility provides fuels for major mining operations in the Hunter Valley, and to a lesser extent, retail outlets across the Hunter / Central Coast region. Due to changes in the NSW and Australian fuel market, specifically divestments of assets from major fuel companies, there has been a reduction in Australian supply capacity. In particular refinery closures in Sydney require refined fuels to be shipped into Sydney then trucked to Newcastle and the Hunter. In order to provide security of supply for its customers, it is important that Stolthaven has the ability to meet demand through the importation of refined fuel for direct supply to market.

Stolthaven would supply fuel to:

- Existing customers:
    - Glencore;
    - Viva Energy (formerly Shell);
    - Independent fuel distributors;
- Customers requiring new or additional storage or supply including:
    - Viva Energy (formerly Shell);
    - Puma Energy through a Joint Venture;
    - Retail fuel suppliers; and
    - Independent fuel distributors.

1.6 Environmental Impact Assessment Process

1.6.1 Environmental Assessment Requirements

On 31 March 2014, Stolthaven submitted to DP&E a Scoping Report requesting that it issue SEARs for the Project. In order to inform the SEARs for the Project, DP&E consulted with a number of key agencies for input regarding the assessment methodologies and requirements of the EIS. The Project specific SEARs are detailed in full in **Section 9.1**.

1.6.2 Stakeholder Consultation

During the preparation of this EIS, key stakeholders were consulted in accordance with the requirements of the SEARs. The primary point of community consultation was through meetings with the Correct Planning Group for Mayfield which includes key members from surrounding community groups. In addition key local, State and Federal Government agencies were also consulted. Throughout the preparation of the EIS, these stakeholders have been kept informed of the progress of the Project and have requested certain matters be addressed.

Further details regarding stakeholder consultation are provided in **Section 9.0**.

1.6.3 EIS Exhibition

In accordance with section 89F of the EP&A Act, this EIS will be placed on public exhibition for a period of not less than 30 days. During this time interested parties will be able to review Project documentation and provide feedback for consideration by the proponent and DP&E.

1.6.4 Decisions and Assessments

In accordance with section 89D of the EP&A Act, the Minister is the consent authority for SSD.

1.7 Structure of this Report

This report is generally structured as follows:

Part A – Project Background:

- **Section 1.0** provides an introduction to the Project, including information about the applicant, the Project context, the need for the Project and the approvals regime.

Part B – Location and Context:

- **Section 2.0** provides the Regional and local context and location of the Project; and
- **Section 3.0** describes the site location, site history and ownership of the Project site.

Part C – Project Need and Alternatives:

- **Section 4.0** describes the objectives and needs for the Project, including Project benefits; and
- **Section 5.0** outlines the alternatives considered and preferred option.

Part D – Project and its Management:

- **Section 6.0** describes the Project and provides an overview of its management;
- **Section 7.0** describes the approval pathway for the Project; and
- **Section 8.0** describes the environmental framework within which the Project would operate.

Part E – Issues Identification:

- **Section 9.0** describes the stakeholder consultation process undertaken throughout the EIS process; and
- **Section 10.0** outlines the key environmental issues identified in the risk assessment, PEA, stakeholder consultation and SEARs, and their prioritisation.

Part F – Environmental Impact Assessment:

- **Sections 11.0 – 21.0** provides an assessment of the potential impacts of the Project on a range of environmental issues and outlines mitigation and management measures to be implemented by the Project. A cumulative impact assessment is also provided;
- **Section 22.0** provides an assessment of the potential cumulative impacts of the Project; and
- **Section 23.0** describes the residual environmental consequences of the Project.

Part G – Environmental Management and Monitoring:

- **Section 24.0** summarises the monitoring program to be implemented for both the construction and operation phase of the Project; and
- **Section 25.0** outlines the management measures to be implemented for the Project.

Part H – Project Justification:

- **Section 26.0** details the justification for the Project with respect to the net project benefits and the principles of Ecological Sustainable Development.

Part I – EIS Findings:

- **Section 27.0** provides a summary of the findings and a conclusion to the EIS.

Part J – References.

Appendices

Part B – Location and Context

This Part describes the location of the Project, the historical land uses, and the context of this location in relation to surrounding land uses

2.0 Regional and Local Context

2.1 Regional Overview

The Site is located within an area generally described as the Port of Newcastle, which is located in the Lower Hunter Valley, NSW. The immediate region around the Port comprises primarily urban land uses of the city of Newcastle (refer **Figure 1**).

2.2 Surrounding Land Use

The Site is situated on the southern bank of the South Arm of the Hunter River. The Site is located opposite and adjacent to established industries on Kooragang Island and in Mayfield and Carrington. The Site and adjoining land is topographically flat and lies at approximately 1.9 m Australian Height Datum (AHD). Lot 2 currently contains the existing Stolthaven operation as described in **Section 1.1.2**.

Land use surrounding the Site primarily comprises industrial development, as shown in **Figure 2** and includes:

- North – Hunter River and Port Waratah Coal Services (PWCS) Coal Loaders;
- South – Currently vacant land. Anticipated future use for industrial/business park uses;
- West – OneSteel operations; and
- East – Current vacant industrial land and Koppers Australia pipeline and pumping station.

The nearest residential area is located at Mayfield (**Figure 2**), with the closest receivers approximately 500 m from the Site boundary. Other residential areas in proximity to the Site include the suburbs of Carrington, Wickham and Tighes Hill.

2.3 Land Use Context

The Port of Newcastle is a major distribution point and activity centre for a number of industries. Whilst the export of coal is the predominant commodity shipped through the Port, approximately 40 other cargo types (e.g. fertilisers, vegetable oils, grains, woodchips and aluminium) are also moved through the Port on a regular basis. The Port of Newcastle also supports other industries such as ship building and repairs in the Marine precinct. The Port is also becoming an increasingly popular location for recreational craft, particularly with the establishment of the Newcastle Cruising Yacht Club.

Industrial land uses dominate the area surrounding the Site to the north and west. A number of Port related land uses also surround the Site. Those areas currently used for industrial purposes have been occupied by heavy industry for significant periods. The nearest residential areas are locations approximately 500m to the southwest.

The nearest area of environmental or ecological significance is the south arm of the Hunter River which is adjacent to the Site. It forms part of the Kooragang Nature Reserve, and constitutes a Nationally Important Wetland. The Hunter River National Park is located around 2.2 km to the northeast of the Site, beyond the coal loaders and the existing industrial areas on Kooragang Island. The Hunter River National Park forms part of the Ramsar-listed Hunter Estuary Wetlands. Between the Hunter River and the Ramsar-listed Hunter River Estuary Wetlands lie the industrial areas of Kooragang Island, notably the coal loading facilities of Port Waratah Coal Services (PCWS) and the Newcastle Coal Infrastructure Group (NCIG).

Figure 2 shows the context of the Site in relation to surrounding land uses.

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AECOM

REGIONAL CONTEXT

Bulk Fuel Storage Facility
State Significant Development - Stolthaven Stage 3

FIGURE 1

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SITE LOCATION

Bulk Fuel Storage Facility
State Significant Development - Stolthaven Stage 3

FIGURE 2

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3.0 Site Location and History

3.1 Site Location and Description

The Site is located within the former BHP Steelworks closure area. The wide closure area has been subject to a significant remediation program which was finalised in 2013. Following the completion of remediation, the entire closure area site was capped with hardstand (Stage 1 remediation area) or 500m clay capping (stage 2 remediation area).

Part of the Site currently contains the existing fuel terminal Facility currently operated by Stolthaven. The remainder of the Site is currently maintained as hardstand area. The existing land uses of the Port of Newcastle are shown on **Figure 3**.

3.2 Ownership and Legal description

The Site is comprised of the allotments detailed in **Table 1** which have been leased to Stolthaven from PON. The land has been leased to PON from its owner the Port of Newcastle Lessor Pty Ltd, a State owned Government Corporation. Lot 4 DP 1184514 includes the future M7 wharf which would be built under a separate approval and occurs over Roads and Maritime Service controlled land.

Table 1 Project Land Parcels

Allotment	Project Element
Lot 1 DP 1177466	M7 connecting pipework
Lot 2 DP 1177466	Existing Stolthaven Facility (Stages 1 and 2)
Lot 36 DP 1191723	Proposed new fuel tank farm and truck loading gantry
Lot 37 DP 1191723	Proposed new fuel tank farm
Lot 38 DP 1191723	Proposed new office and amenities building and carpark
Lot 39 DP 1191723	Landside parcel associated with M7 in which the proposed pipeline will end
Part Lot 4 DP 1184514	Pipework connections to the wharf and marine loading arm.

3.3 Site History

BHP Steelworks operated on land with frontage to the south arm of the Hunter River from 1915 to 1999. In July 2002, ownership of that part of the former steelworks site known as the Closure Area Site was transferred to the State Government. In March 2007, the Hunter Development Corporation (HDC) (formerly the Regional Land Management Corporation Pty Ltd) was created by the Government to manage the day-to-day activities of former BHP and other Crown lands in the lower Hunter region, including remedial and redevelopment works for the Closure Area Site (SKM 2004).

On 14 June 2001, under former section 21 of the *Contaminated Land Management Act 1997* (CLM Act), the Environment Protection Authority (EPA) declared the Closure Area Site to be a remediation site. A Remediation Action Plan was prepared by SKM in 2004 to address contamination issues associated with soils and groundwater. Voluntary Remediation Agreement No 26025 for the remediation of the Site was issued by the EPA on 30 August 2005. HDC undertook to fulfil these remediation commitments.

In March 2008, a Contaminated Site Management Plan (CSMP) for the closure area was prepared by HDC. The CSMP provided a common framework to be applied across the whole of the site for the design, implementation, completion, use and maintenance of remediation and project works. HDC completed the remediation works in two stages between 2008 and 2011 (refer **Section 15.1**).

The Site and surrounding area was subject to the Hunter River Remediation Project (HRRP) undertaken by BHP Billiton. This involved the dredging and onshore treatment of contaminated sediments in the Hunter River at Mayfield Berths 1 and 2. The sediment removal work was completed by 2011 with remediation of the Site completed by 2012. Following the completion of the land and river remediation works in 2013, the Site was capped and returned to a hardstand area with minimal infrastructure in anticipation of future development for port and related industries.

Following a handover in ownership to the Newcastle Port Corporation (NPC), now PON, a Concept Plan application for the future strategic development of the former BHP steelworks site was approved by the Minister for Planning in July 2012. The Concept Plan Approval made provision for the future development of part of the former BHP steelworks site for bulk liquid related industries as described below.

Stolthaven is one of the few operations currently active on the former BHP steelworks site, having received initial approval for the Facility in June 2012. PON also operates Mayfield Berth 4 (M4) within the Concept Plan area which is a general purposes berth which is currently used by Stolthaven for the import of fuels. Kopper's also operates Mayfield Berth No. 6.

The *Contaminated Site Management Plan: Intertrade Industrial Park, Closure Area of Former Steelworks Site Mayfield* (HDC, 2014) and the Maintenance and Remediation Notice No 20142802 issued to PON now apply to the former BHP steelworks site. These documents clarify the ongoing obligations of PON as landowner, as well as occupiers such as Stolthaven, under section 28 of the CLM Act.

3.3.1 Mayfield Concept Plan

Concept Plan (MP09_0096) was approved by the Minister under section 75M of the EP&A Act on 16 July 2012 to enable development within the Closure Area. The Concept Plan area covers 90 hectares and is to be developed progressively in stages to accommodate anticipated future trade needs over a 20-25 year timeframe. The Concept Plan identified the use of the Site for a range of port related activities that could generally be divided into the following broad categories:

- PON Operations – Including office, storage sheds, vehicle and marine equipment, NPC dredging vessel, pilot cutters and helipad;
- Bulk and General – Including handling non-hazardous dry bulk products including grain, briquettes, and coke cargoes;
- General Purpose uses – Handling and storage of cargo containers, heavy machinery, Roll On Roll Off and break bulk cargo. This includes the existing general cargo facility known as Mayfield No.4 Berth (M4);
- Container handling – Facilities for the import and distribution of Twenty-Foot Equivalent Unit (TEU) cargo containers; and
- Bulk Liquid – Storage, blending and distribution of bulk liquids including fuels.

New road and rail infrastructure requirements to service the development of these precincts was also proposed.

Modification

The Concept Plan established acceptable environmental limits for the Site and provided indicative estimates of the forecast trade volumes for each precinct. These estimates were based on established NSW government policy, general market conditions at that time and NPC's best available knowledge regarding the types and volumes of trade over the extended timeframe for development of the Concept Plan.

NPC sought to modify the Concept Plan to remove the precinct limitations that restricted certain land uses in size and location within the Concept Plan area. DP&E approved this modification on 17 March 2014. Notably the modification replaces reference to limits in terms of TEU volumes with truck movements, changes triggers for rail works from TEU volumes to daily average train movements, and replaces precinct based sound power levels with entire site noise goals for sensitive receptors.

Relationship between the Project and the Concept Plan

As the Project falls within the Concept Plan area, this assessment needs to consider the relevant components of the Concept Plan approval. Furthermore, during operation of the Project, Stolthaven would need to cooperate with PON in the administration of the Concept Plan area and relevant site management and reporting requirements.

Section 6.5 of this EIS provides a comparison of the Concept Plan conditions relevant to the Project and details how these have been incorporated into this assessment. Furthermore, as described in **Part G,** Stolthaven commits to ongoing engagement with PON in the preparation, update and enforcement of the various site management plans required by the Project in the context of the wider Mayfield Concept Plan site.

3.4 Existing Operations and Consent

The existing terminal operates in accordance with Development Consent SSD 6664 issued on 16 April 2015 under Part 4 of the EP&A Act. The existing Facility's operations are described below in sequence of its approval history.

3.4.1 Project Approval MP08_0130 – Stage 1

Project Approval 08_0130 was granted by the Minister for Planning on 8 June 2012 under Part 3A (repealed) of the EP&A Act. In summary the original project comprised the following elements:

- Use of an existing ship berthing facility to deliver fuels from bulk tankers. Fuel to be pumped along a 300 mm diameter steel pipeline from Mayfield M4 to the Facility;
- Storage of bulk fuels in above ground tanks (3 x 18 ML diesel and 4.2 and 0.5ML biodiesel) with a total permitted annual throughout of 300 ML combined;
- Distribution of fuels by road tankers; and
- Ancillary components including site office, car parking and truck loading gantry.

Construction of the Facility was completed in late 2013, with the first shipment of fuels commencing 19 November 2013. The original Project Approval included approval for the construction and operation of the following elements:

- 3 x 18 ML Diesel tanks;
- 1 x 0.5 ML Biodiesel tank;
- 1 x additives tank;
- 1 x Slops tank;
- Truck loading gantry and associated driveway access and egress;
- Workshop;
- Fire water storage tanks;
- Fire pump house;
- Tank bunding;
- Terminal pipe connection to Mayfield Berth 4 (M4);
- Office and amenities building; and
- Annual throughput of 300 ML per year.

These original Project Approval elements have been constructed and have been in operation on the Site since late 2013.

Modification 1 – Stage 1A

A subsequent modification to 08_0103 (MOD 1) was approved by the DP&E under delegation on the 26 July 2013. MOD 1 included the following elements:

- 2 x 18 ML (gross volume) diesel tanks;
- 1 x 4.2 ML (gross volume) biodiesel tanks; and
- Increased throughput by 100 ML per year, to a total facility throughput of 400 ML per year.

MOD 1 was constructed and commenced operation during 2014.

Modification 2 – Amend Condition

For clarity, Modification 2 to the Project Approval sought the amendment of wording of Condition 4, Schedule 4. Modification 2 was a 'paper amendment' and has no impact on the design or operation of the facility.

Modification 3 – Throughput Increase

Modification No. 3 sought approval to increase annual throughput to a new upper limit of 500 ML pa.

3.4.2 State Significant Development SSD 6664 – Stage 2

In late 2014 Stolthaven submitted an SSD application that enabled transfer of the Part 3A approval to an SSD consent, and for the capacity of the Facility be increased through the addition of:

- Two 18 ML (gross volume) diesel storage tanks; and
- An increase in throughput to a total of 1,010 ML pa.

Development Consent was granted by DP&E on 16 April 2015.SSD_6664 Modification 1

On 28 September 2015 Modification 1 to SSD_6664 was approved under delegation for the increase of the approval annual throughput of the existing facility from 1,010ML per year to 1,300ML per year. No additional infrastructure was proposed as part of this modification. A copy of the consolidated conditions of consent from SSD 6664 is attached at **Appendix A**.

Surrender of Existing Consent

Stolthaven is now seeking a new SSD Development Consent for the Project to include the existing and additional elements described in **Section 6.0**. This new Development Consent would supersede the existing Development Consent SSD_6664 and would therefore require the surrender of Development Consent SSD_6664 under section 80A of the EP&A Act. As part of this surrender, the following conditions in the superseding Development Consent would need to be considered for amendment to reflect the Project:

- The references to EIS and Response to Submissions would need to be updated to refer to the current EIS and subsequent submissions stage (Schedule 2, Condition 2);
- The limits of consent would need to be increased to reflect the operation of the Project (Schedule 2, Conditions 5 and 6);
- The Facility's storage capacity would need to be increased to reflect the operation of the Project (Schedule 2, Condition 6A);
- The Facility's allowable flammable storage capacity would need to be amended to reflect the operation of the Project (Schedule 2, Condition 6B);
- The list of previous consents and approvals would need to be updated to include the current Development Consent SSD 6664 which is to be superseded (Schedule 2, Condition 9);
- The relevant development contributions may need to be amended (Schedule 2, Condition 16);
- The development layout plans in Appendix 1 would also need to be updated to include the proposed layout of the Facility; and
- The management and mitigation measures in Appendix 2 would need to be updated to include those proposed in the current EIS.

As required by the SEARs a review of the conditions of approval for SSD_6664 is required. Generally speaking it is considered that those conditions of approval would continue to be applicable to the Project, subject to the necessary updates to make them consistent with the requirements of Stage 3.

3.4.3 Summary of Existing Approved Operations

The existing Stolthaven Facility currently operates within the boundaries of Lot 2 and comprises those elements that were approved as part of the previous Project Approval 08_0130 (as amended), and the subsequent SSD 6664. These existing elements are summarised in **Table 2** listing all infrastructure and equipment within the existing Facility. **Table 3** provides a list of tanks in the existing Facility, their content and dimensions.

The existing Facility is shown on **Figure 4**.

Table 2 Existing and Approved Elements

Element	MP08_0130 Stage 1	MOD 1[2] Stage 1A	MOD 3	SSD 6664 Stage 2	MOD 1 Stage 2	TOTAL
18 ML Gross Volume Diesel tanks	3	2	-	2	-	**7**
0.5 ML Biodiesel tank	1	-	-	-	-	**1**
4.2 ML Gross Volume Biodiesel tank	-	1	-	-	-	**1**
Additives tank	1	-	-	-	-	**1**
Slops tank	1	-	-	-	-	**1**
Truck loading gantry (4 truck gantry)	1	-	-	-	-	**1**
Workshop	1	-	-	-	-	**1**
Fire water storage tank	1	-		1	-	**2**
Fire pump house	1	-	-	-	-	**1**
Pipe connecting to M4	1	-	-	-	-	**1**
Office Building	1	-	-	-	-	**1**
Total Annual Throughput	300 ML	400 ML	500 ML	1,010 ML	1,300 ML	**1,300 ML**
Annual No. of Ships	8	12	-	+20		**40**
Approx. Traffic (trucks movements per day).[1]	36*	12*	-	112		**200**

1) Road tanker movements are daily averages over a year.

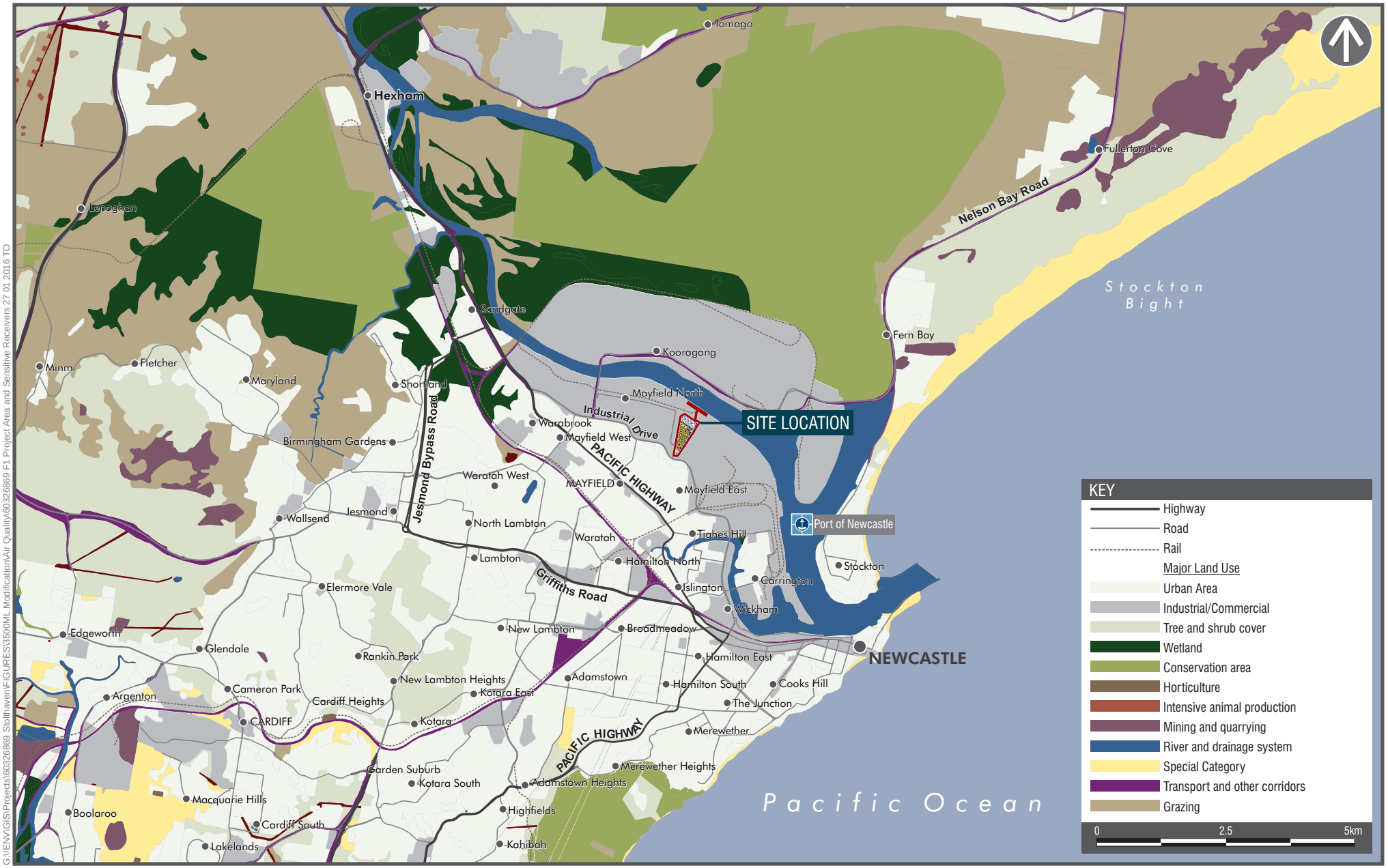
2) MOD 2 was a paper modification of Condition 4 to remove reference to NSW Health which did not change the makeup of the Project.

Table 3 Schedule of Existing Tanks on Site

Tank ID No.	Design Product	Tank Diameter	Shell Height (m)[1]	Usable Volume (m^3)[2]
1	Diesel	36.6	17.1	16,800
2	Diesel	36.6	17.1	16,800
3	Diesel	36.6	17.1	16,800
4	Biodiesel	7.6	12	500
5	Diesel	36.6	17.1	16,680
6	Diesel	36.6	17.1	16,680
7	Biodiesel	18	17	4,000
8	Diesel	36	17.6	16,310
9	Diesel	36	17.6	16,310

1) Shell height is the height of the outer shell of the tank, i.e. the height of the tank to the external observer.

2) Usable volumes = Gross Tank volume munis dead space and contingency volume,



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AECOM

SURROUNDING LAND USE

Bulk Fuel Storage Facility
State Significant Development - Stolthaven Stage 3

Source: Office Environment & Heritage, 2013

FIGURE 3

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AECOM

APPROVED TERMINAL LAYOUT

Bulk Fuel Storage Facility
State Significant Development - Stolthaven Stage 3

FIGURE 4

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Part C – Project Need and Alternatives

This Part describes the need for the Project and the alternatives that were considered during the planning and design of the Project to allow the proponent to arrive at the preferred project option.

4.0 Objectives and Project Need

4.1 Project Objective

The primary objective of the Project is to:

- Construct additional tanks and operate the Facility at a higher throughput to service existing and additional customers throughout the Hunter Valley and beyond, including a key customer base in the mining industry, as well as other customers requiring new or additional fuel storage and supply.

4.1.1 Biophysical Objectives

The biophysical objectives for the Project are to:

- Undertake the Project in a manner that maintains the integrity of the remediation work and remaining remediation infrastructure, specifically the integrity of the Site's capping layer and subterranean barrier wall;
- Minimise the potential impacts to soils and groundwater by monitoring for and appropriately managing any leaks and spills from the Facility; and
- Minimising potential impacts to the Hunter River estuary by maintaining measures to minimise hydrocarbon release into surface waters.

4.1.2 Socio and Cultural Objectives

The socio-cultural objectives for the Project are:

- To minimise the impact of the Project on the community with a focus on appropriately managing potential impacts from traffic and transport, noise and air quality;
- To maintain and operate the Facility in a manner that minimises hazards and risks;
- To operate the Facility in a manner that safeguards the amenity of the nearby urban areas locality; and
- To maintain an ongoing dialogue with the community regarding the Project and future changes to the Facility.

4.2 Project Need

The Project is of economic significance to the local, regional and State economies due to the changes in the Australian fuel supplies market, and the need to provide secure fuel supplies for the ongoing operation of Australian businesses and industry. The need for the Project is explored below in relation to the fuel market, the customers that the Project would service, and the wider implications in the regional and State economies.

Australian Fuel Demand and Supply

Consumption of fuel is increasing strongly in Australia, driven by economic growth and high demand from the resources industry which even with lower production growth than recent years still has a high demand for fuels. Australia currently consumes in excess of 54 billion litres of clean petroleum product (cpp) per annum, the majority comprised of diesel (21.9 billion litres) and petrol (18.5 billion litres).

The Australian fuel supply market has been experiencing significant changes in recent years owing to:

- The closure of refinery operations (e.g. Shell) in Sydney at Clyde (2012) and Kurnell (2013) removing another 4.8 billion litres of capacity;
- The decision by Caltex to commence rationalising other Australian based refineries; and
- Improvements to logistics operations in the bulk fuel industry that has allowed smaller facilities to handle increased throughput of fuels more efficiently.

Currently 40%-45% of Australia's fuel requirements are met by imports. With the closure of refinery operations, NSW will increasingly rely on imported fuel to meet the growing demand for fuels. As detailed by the NRMA in its *Australian Liquid Fuels Security* (2014) publication, not only is there an increasing dependence on imported oil, but there is also an increasing dependence on imported refined fuels as illustrated in **Plate 1**.

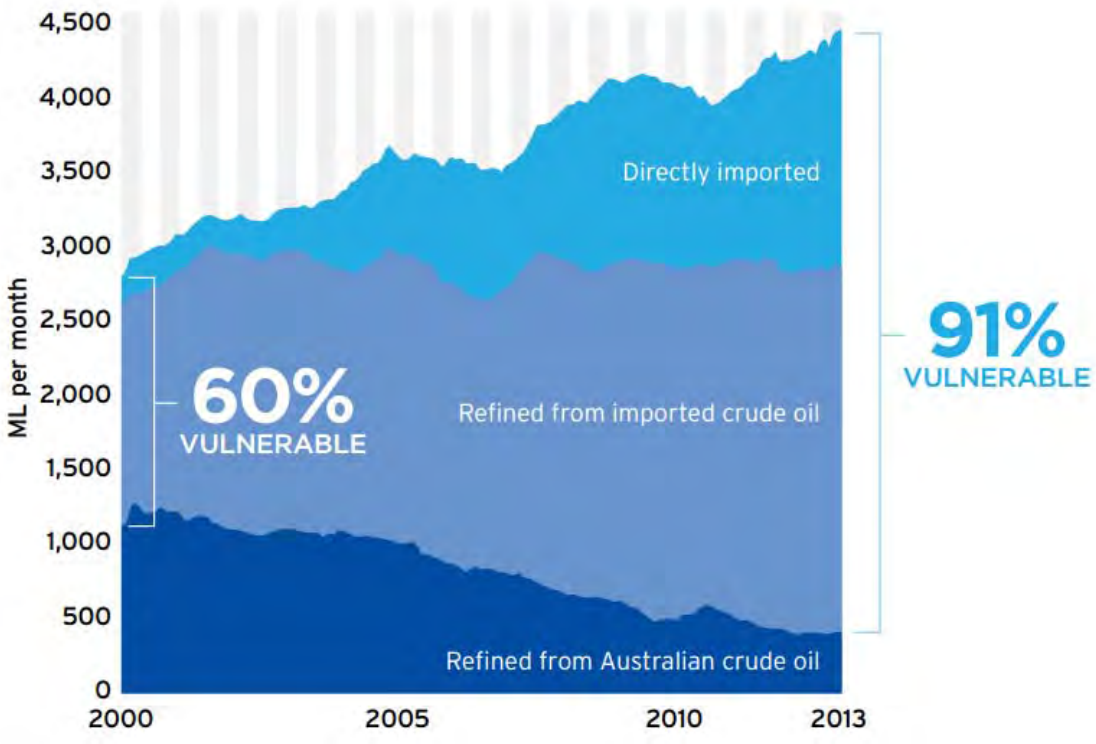

Plate 1 Australian Fuel Sources. Source NRMA 2014

The increasing need for imported fuels in Australia has seen an increased focus by overseas organisations and businesses to secure supplies of refined fuels within Australia from overseas sources. These organisations need access to independent storage facilities such as those operated by Stolthaven. In addition, a dispersed terminal network allows fuels to be imported closer to the point of use further improving efficiencies in the fuel supply chain.

Supporting Increased Competition for Independent Fuel Suppliers

Australian competition regulators are increasingly focussed on ensuring strong competition between the major oil companies in retail fuel markets and in supporting the entry of independent fuel suppliers to further increase retail price competition. Allowing independent fuel suppliers access to bulk liquid storage and handling terminals is a critical element in ensuring strong competition in wholesale and retail fuel markets. As the major oil companies continue to divest their terminal assets, competition regulators appear to support the acquisition of these terminals by independent operators, rather than allow the consolidation of terminals among the remaining major oil companies at key ports.

The Project represents an additional independent supplier of fuels into the NSW market place. Not only does this increase the economic benefits (e.g. increased competition, more efficient fuel supply chain), but it also increases diversity and therefore security of supply to the NSW economy. With the ongoing divestment of assets being undertaken by the major oil companies, independent suppliers will become increasingly important to the economy in order to secure energy supplies to business and industry.

Support to Businesses of Regional and State Importance

Increasing demand for fuels both nationally, and regionally within the Hunter, has created a need for more locally based fuel importation, storage and dispatch facilities to reduce the Hunter's dependence on fuel from Sydney. Additionally, the growing demand for biofuels as a result of increased concern and regulation surrounding climate change has created a need for increased logistical capacity in the biofuels sector.

Stolthaven has been approached by clients in the Hunter seeking to source increased volumes of fuels from Newcastle as an alternative to fuels from Sydney. At a macro scale this will provide benefits across industry through the provision of more efficient fuel supplies that will have flow on effects regionally and across the State. More specifically, the increase in fuels imported directly into the Port of Newcastle will allow operators to further improve efficiency.

4.3 Project Benefits

There are a range of benefits associated with the Project. These include:

- Improved traffic and transport outcomes:
    - Reduced distance travelled in the transport of combustible and flammable fuels on the road network;
    - Reduced potential for driver fatigue and accidents;
    - Reduced road interactions between heavy and commuter vehicles leading to improved safety; and
    - Reduced heavy vehicle emissions particularly through urban areas of Sydney, and resulting reductions in greenhouse gas emissions.
- Reduced traffic congestion, including through the Sydney metropolitan area and the national highway network (M1);
- Reduced air quality impacts from truck emissions;
- Improved operational efficiency of the fuel logistics chain i.e. less kilometres travelled and therefore energy used to deliver fuels to end users; and
- The Project would result in significant economic benefits as it provides a facility to support the import of fuels that would service regional industry, including the coal mining operations in the Hunter Valley and would result in:
    - Indirect benefits of supporting the resources sector in the Hunter Valley (employment and multiplier effects in local communities) and the benefits to the State from the resources sector (royalties and payment);
    - Increased efficiency in the delivery of fuels to businesses and industry that are key to the NSW economy; and
    - Direct investment and employment generation in the Hunter region for the operation of the Facility and associated transportation of fuels to market.

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5.0 Alternatives Considered

5.1 Project Alternatives

The following alternatives have been considered by Stolthaven during the feasibility and project planning stages of the original Project Approval, as well as when considering potential alternatives to increasing the throughput capacity of the existing Facility i.e. the Project:

- A 'do nothing' option whereby the Project would not be undertaken;
- Alternative sites in the Port of Newcastle; and
- Alternative sites outside the Port of Newcastle.

These alternatives are discussed below.

5.1.1 Do Nothing

The 'do nothing' alternative would continue to see a business as usual situation exist in the regional fuel supply market. In this scenario, the existing Facility would continue to operate in accordance with its existing Part 4 Development Consent and the additions proposed as part of the Project would not be undertaken. If the 'do nothing' alternative prevailed, none of the Project benefits would be realised and the Hunter Valley's dependence on fuels transported from Sydney would continue.

Without the Project increases in demand would need to be met by other import facilities within the Sydney and Illawarra regions. This would require addition truck transport of fuels to the Hunter Importing fuels to the Hunter from outside the region would also continue to generate additional heavy vehicle traffic on the regional and State road networks.

If the project does not proceed the remaining capacity of the Facility's infrastructure (pumps, pipeline gantry's etc.) would remain underutilised. In addition port facilities, notably M4, would be poorly used and key portside land in Newcastle would not achieve its full potential. The 'do nothing' option would limit the diversification of fuel supplies leading to susceptibility to shortages if one or more of the existing supply chains are interrupted.

5.1.2 Alternative Locations – Port of Newcastle

A number of alternative locations exist in and around the Port of Newcastle which could be used for the establishment of additional bulk fuels storage. These locations were assessed as part of the original approval for the Facility (MP08_0130). The Project would use the existing terminal facilities. The selection of an alternative location would necessitate the building of a new terminal, would result in additional environmental and community impacts and would require significantly higher investment cost that would ultimately be passed onto the customer.

The Site is considered ideal as the proposed tanks would be constructed in association with an approved bulk fuels storage facility and can utilise the wharf (when M7 is operational), pumps and truck loading facilities that are already approved and operational. This sharing of infrastructure would create increased efficiencies that would not be available at any other site.

5.1.3 Alternative Locations – Outside the Port of Newcastle

Sydney (Port Jackson or Port Botany)

Fuel is supplied to the Hunter Valley principally from Port Botany and generates significant truck movements. In order to satisfy regional demand, additional terminal facilities would need to be built in Sydney. This option would continue to see the inefficiencies of double handling and overland transport of fuels by truck to the Hunter to continue.

Port Kembla

Port Kembla does not provide a suitable alternative for the import facility to service the Hunter Valley. As it is located further south than Sydney port options, this option would have greater traffic and related safety and congestion consequences.

Port of Brisbane

This option was not considered viable owing to the significant distance from Brisbane to the Hunter Valley and inefficiencies related to travel costs. In addition, the use of the Port of Brisbane would require significant numbers of heavy vehicles on the Pacific Highway. This option would place greater pressure on the operation of the Pacific Highway with potentially unfavourable safety and congestion outcomes.

5.1.4 Preferred Option

The preferred option is for the existing Stolthaven Bulk Liquids Fuel Storage Facility at Mayfield to be approved for additional tankage and throughput to enable the Facility to continue to import and service clients in the regional market and beyond. The preferred option is optimal as it:

- Would occur on a highly disturbed industrial site with minimal environmental impact;
- Would occur in association with existing import (wharf and berthing) and fuel terminal infrastructure minimising the need for additional construction works and associated impacts; and
- Is on a site with excellent transport connections as it is immediately adjacent to a deep water shipping berth and arterial road network. Existing rail access to the Site is also available with potential to use rail transport being investigated by potential customers (subject to separate environmental approvals as required).

The existing elements of the Facility have been subject to several environmental assessments and are currently operating in accordance with Development Consent SSD 6664 and Environmental Protection Licence (EPL 20193). When considered against the alternative options, the preferred option also has the following key benefits compared with the alternatives namely:

- A reduction in heavy vehicles movements between Sydney and the Hunter Valley, resulting in a decrease in associated hazards, congestion, noise etc.;
- Capital investment and multiplier effects within the regional economy of the Hunter Valley; and
- An improvement in the efficiency of the fuel supply market and with increasing competition in NSW, the potential to reduce thereby reducing customer energy supply costs.

The Preferred option is detailed fully in **Part D**.

In order to demonstrate that the preferred option can achieve these benefits while continuing to have minimal community or environmental impacts, a detailed impact assessment has been undertaken and is contained in **Part F** of this EIS. Where there is potential for impact to occur, mitigation measures have been recommended to manage impacts to acceptable levels.

Part D – Project and It's Management

This Part describes the Project, including those elements already operating and those to be constructed, and details how the Project in its entirety would be operated.

6.0 Project Description

6.1 Overview

The project seeks approval for the increase of throughput of the Facility from an approved 1,300 ML per year to 3,500 ML per year. This represents an annual increase in throughput of 2,200 ML. This would require a range of new terminal elements at the facility.

The proposed new terminal elements can generally be divided into:

- Proposed storage tank and truck loading gantry for both combustible and flammable fuels; and
- Ancillary infrastructure required to operate the terminal.

The Project will bring the entire Stolthaven operation (existing and proposed) under a single operating consent. The project elements of Stage 3 of the Facility are discussed below.

6.1.1 Proposed Tanks

It is proposed to construct and operate an additional 17 fuel storage tanks on Lots 36 and 37. Reference is made **Figure 5** which shows the locations of the following proposed tanks[2]:

- Six 12 ML petrol storage tanks;
- Two 18 ML petrol storage tanks;
- Two 9 ML petrol storage tanks;
- Two 18 ML diesel storage tanks;
- Two 23 ML diesel storage tanks;
- One 12 ML diesel storage tank;
- One 2 ML ethanol storage tank; and
- One 2 ML jet fuel storage tank.

Note, quoted volumes are gross volumes.

The Project would therefore involve the operation of a total of 26 fuel storage tanks at the Facility. A full description of these current and proposed tanks is provided in **Section 6.4.1**.

In addition to the main tanks listed above the, a small tank bund would be located to the immediate west of the truck loading gantry which would contain:

- Biodiesel - 150m3 Capacity; and
- Two additive's tanks –50m3 each; and
- Two slops tanks – 50m3 each.

6.1.2 Fuels Products

The Project would see a range of fuels being transferred and stored at the Site. Fuel throughput from the new tanks is anticipated to be approximately 2,490 ML per year. In combination with the approved throughput for Stolthaven's existing Mayfield Facility, this equates to a total of 3,500 ML per year. A breakdown of the total quantities of fuels to be stored at the Site is provided in **Section 0**.

[2] Storage tank volumes have been rounded to the nearest ML of usable tank volume

6.1.3 Ancillary Infrastructure

In addition to the fuel storage tanks the Project also includes the construction and operation of:

- A control and admin building that includes all automated control systems, offices and staff amenities as well as staff (light vehicle) parking;
- A truck loading gantry with six truck filling bays and associated six off-road parking spaces for trucks waiting to enter the gantries;
- An additives tanks bund area and additives tanks located immediately adjacent to the truck loading gantry;
- Pump and pipe systems for the transfer and management of fuels and connection to bulk liquids berth (M7) including Marine Loading Arm;
- Tank bunding, safety and fire systems including water storage tanks and foam dousing equipment;
- Vapour Recovery Unit to recover vented vapours; and
- Stormwater runoff control, capture testing and release systems.

6.1.4 Design Compliance

The existing Stolthaven Facility at Mayfield has been designed and currently operates in accordance with relevant standards as applicable to a Facility of this nature. During the design of Stage 3, the applicable elements of the standards listed in **Table 4** would be applied been applied.

Table 4 Stage 3 Design Standards

Design Standard or Site Specific Requirement	
Source	**Document title**
Australian Standard	- AS 1940 The Storage and Handling of Flammable and Combustible Liquids - AS 4100 Steel Structures - AS 3600 Concrete Structures - AS 1657 Fixed platforms, Walkways, Stairways and Ladders - AS 2566 Buried Flexible Pipes - AS/NZS 60079 Explosive Atmospheres - AS/NZS 3000 Electrical Installation
American Petroleum Institute	API 650 Welded Tanks for Oil Storage (used for tank foundation design)
Hunter Development Corp – Contamination Site Management Plan (CSMP)	Compliance is achieved by meeting the Performance Specification requirements of the Site Auditor(Environ) Letter
NSW Roads and Maritime Service	- Stormwater and Water Efficiency for Development – Tech Manual - R44 Earthworks - R71 Unbound and Modified Pavement Course - R83 Concrete Pavement Base - R116 Heavy Duty Dense Graded Asphalt.

6.2 Site Preparation

As the Site is comprised of capping fill material following previous remediation works undertaken across the wider Concept Plan area, site preparations for the tank construction would be limited to modifying the capping (in accordance with a Site Auditor approved design) to construct the tanks, bunds , pavements and building foundations. While the M4 pipeline connecting the existing terminal would ultimately be decommissioned and removed as part of this Project, this would not occur until such time as M7 is operational and the M4 connecting pipeline is no longer required.

6.3 Construction

6.3.1 Program of Works

The target start date for the construction of the Project is nominated for Quarter No. 2 (Q2) 2016, subject to approval. The target completion date by 2019, with an anticipated construction period of approximately 36 months. The work would be executed by a number of specialist and experienced contractors, managed as a project by a dedicated Stolthaven construction management team led by a site based Construction Manager. This construction management structure has worked successfully during the construction of the existing Facility.

A Project Execution Plan would be developed which would encompass a Construction Management Plan, Health and Safety Management Plan, Environmental Management Plan and Quality Management Plan. A Commissioning Plan would be developed during the construction phase in anticipation of finalising construction and commissioning the facility. These plans would build on the existing plans implemented for construction of the existing Facility. Generally speaking the construction would not be staged but rather sequenced over time to enable to best use of contractors to build certain elements defined by bund areas, before moving to the construction of the next bund area.

An indicative program of works for the construction phase, relative to the main construction activities, is shown in **Table 5**. This timeline is based on current estimates the construction of the facility based on experience gained in the construction of the existing facility as well as construction of terminals at other sites. The final construction schedule will be subject to the outcomes of the detailed design process, the requirements of the principal construction contractor as well as commercial factors, for example some tankage may be constructed in priority based on market demands potentially delaying the construction of other elements.

Table 5 Indicative Timeline for Construction Activities

Item	Description	Start[1] (Month)	Finish (Month)
Project Initiation			
Mobilisation	Site mobilisation following receipt of Development Consent and satisfaction of necessary preconstruction Conditions of Approval.	1	2
Construction			
Civil works	- Modify Site Drainage; - Bund Wall sub Base Preparation; - Construct Vertical Bund Walls; - Prepare for and Construct Tank Foundation; and - Apply Asphalt to remaining hardstand areas.	1	18
	Flammables compound 1, including Tanks 10, 11 and 12.	1	5
	Flammables compound 2, including Tanks 13, 14, 15, 16, 25 and 26.	2	8
	New diesel compound, including Tanks 20, 21, 22, 23 and 24.	5	12
	Flammables compound 3, including Tanks 17, 18 and 19.	13	18
Tank construction	Fabrication and installation of tanks on a progressive compound by compound basis.	5	27
	Flammables compound 1, including Tanks 10, 11 and 12.	5	14
	Flammables compound 2, including Tanks 13, 14, 15, 16, 25 and 26.	8	17
	New diesel compound, including Tanks 22, 23 and 24.	12	24
	Flammables compound 3, including Tanks 17, 18 and 19, as well as Tanks 20 and 21 in the new diesel compound.	18	27

Item	Description	Start[1] (Month)	Finish (Month)
Office construction	Construction of new staff amenities, including control and administration building, as well as additional staff parking.	20	26
Gantry and fire water installation	Construction and fit out of gantry and installation of fire water tanks and firefighting systems.	9	13
Mechanical works	- Vapour Recovery Unit Installation; - Piping installations; and - Progressive testing and commissioning of all tanks logistical and safety systems.	13	30
	For flammables compound 1.	13	17
	For flammables compound 2.	15	21
	For diesel compound.	22	28
	For flammables compound 3.	25	30
Electrical works	- Electrical / Instruments installation and connection to site electrical and telecommunications (control) connections; and - Progressive testing and commissioning of all tanks logistical and safety systems.	15	33
	For flammables compound 1.	15	19
	For flammables compound 2.	18	24
	For diesel compound.	27	32
	For flammables compound 3.	28	32
Commissioning	Commissioning of new storage compounds.	18	33
	For flammables compounds 1 and 2, as well as the new diesel compound.	18	32
	For flammables compound 3.	32	36

Note: monthly sequencing is indicative only, and is subject to alterations due to various matters, including but not limited to weather, construction contractor availability, materials sourcing, and safety requirements.

Note that the timing for the decommissioning and demolition of the M4 pipeline is subject to the M7 pipeline becoming operational.

6.3.2 Outline of Main Construction Activities

The following provides a summary of the main elements of the construction program:

- Temporary fencing on the site boundaries for security purposes until such time as the major earthworks and civil works are complete. Permanent security fencing would be established sometime after the completion of these works;
- Earthworks including the removal of the 550 mm “impermeable” capping over the works area, placed as part of the Contaminated Site Management Plan, and excavation to the top of the existing inert “slag layer” covering the area. All earthworks would require approval from the Site Auditor prior to proceeding to ensure

they appropriately manage contamination considerations. Further discussion regarding soils is provided in **Section 15.0**;

- Lining of compound areas with a Geosynthetic Clay Liner (GCL) and crushed rock. The liner rolls would be provided with an overlapping edge, so they may be joined to the next roll. The length of overlap depends on the thickness of liner used. The liner would then be sealed against the sides of the adjacent bund wall footing, which would seal the bund;
- Covering the GCL liner with 150 – 200 mm crushed for protection and confinement of the liner;
- Construction of the main tank foundations as "Earth Mound" type consisting of engineered fill material. Reinforced concrete compound walls would be constructed in two phases comprising horizontal foundations and later the vertical walls to suit the logistics of other construction activities;
- Tank fabrication using prefabricated materials where possible;
- Construction of the stormwater management system to manage stormwater and potential spill incidents consisting of bunding, site grading, culverts, collection pits, separation and treatment facilities;
- Construction of a series of piping, equipment and structure support foundations which would be constructed for the pumps, pipe supports miscellaneous tanks, access ways, pump enclosure structures, truck loadout structure, fire protection equipment etc;
- Construction of the main access and egress route through the truck loadout facility, and an 6 metre wide site perimeter "fire access road" providing firefighting appliance access to all parts of the Facility. These roadways would comprise a mixture of concrete, heavy duty asphalt, and chip sealed compacted crushed rock;
- Installation of a series of process pipe and pumping systems to receive and load out the stored product. An extensive fire protection system would be installed. Some of the material would be prefabricated and installed offsite, particularly fuel facility components, thereby reducing the construction activities required onsite, wherever possible;
- Installation of the wharf to terminal delivery pipelines to connect to the edge of the Mayfield Berth No. 7 site for future connection to the M7 berth (note that the wharf itself would be constructed under a separate approval); and
- Construction of the six bay truck loadout gantry on the new driveway site access. The gantry would have industry standard truck loading equipment installed in a semi-enclosed steel structure with a clad roof and two external side walls.

Following the completion of the main elements of the construction phase, testing and commissioning would be undertaken. Hydrostatic testing would be undertaken for the fuel storage tanks to ensure all tanks and fuel management systems are sealed and can accommodate the required throughputs and pressures without leaks. Hydrostatic testing uses water, sourced by temporary connection to the PON water supply infrastructure.

6.3.3 Construction Equipment

The equipment to be utilised in the construction of the Project is listed in **Table 6**.

Table 6 Construction Equipment

Equipment Type	Construction Size	Construction Task
Lifting Equipment	50+T mobile crane	Tank Construction
	25T – 50T mobile crane	Miscellaneous platform and large equipment installation
	15T – 25T Franna	Smaller equipment installation
	3T – 10T Telehandler	Deliveries and site movements
	Forklifts	Deliveries
Elevated work platforms	Large boom lift	Tank top and high access
	Medium boom lift	Gantry and medium height access

Equipment Type	Construction Size	Construction Task
	Small booms and scissor lifts	Lower heights requiring safe access, rigging, etc.
Civil Works Equipment	Excavators (Large 20 – 30T, Medium 5T – 20T and Small 1T – 5T)	Bulk earth moving
		Footing excavations
		Trenching, augering and fine excavations
	Bobcat	Civil works
	Graders	Civil works
	Compaction plates	Civil works
	Trenchers	Civil works
	Trenching props and wall support	Civil works
	Concrete mixers, vibrators and screeding equipment	Concrete construction activities
	Water storage and spreaders.	Stormwater and wastewater management systems.
	Rollers / Compactors (Large 10T – 25T and Small 1T – 10T)	Bulk rolling of compounds
Drilling	Geotechnical investigation drillers	Drilling for piles and footings (if required)
	Concrete drills	Concrete drilling
Transport	Trucks, utility vehicles, trailers	- Earth moving onsite - Delivering construction materials to site - Removing excess construction material and waste - Delivering other construction plant e.g. boom lifts - Delivery of prefabricated material.

In addition to the large pieces of construction equipment that would be required during construction, a range of smaller pieces of equipment and hand tools would also be used, including but not limited to:

- Generators;
- Welders, including specialist tank and vertical welders;
- Power distribution Compressors boards;
- Cutting saws and grinders;
- Pumps and suction trucks;
- Portable lighting; and
- Waterblasters.

6.3.4 Proposed Modifications to the Existing Remediation Works

Stolthaven would need to modify and remove fill material around the Site to allow for structural foundations and site levels to ensure it meets the required weight bearing capacities in accordance with tank designs. This may require in-situ capping materials unsuitable for founding the tanks and structures to be removed over the foot print of the tank footing area and be disposed of offsite. In such an event Stolthaven would continue to take measures to ensure that the conditions in the CSMP that relate to the previous site remediation are abided by, as follows:

- No incompatible structures would be founded directly above the subterranean barrier wall;

- Where the existing site remediation items are modified or removed to allow construction, the new construction surfaces and stormwater management systems would ensure the permeability of water to the underlying soils is avoided;
- The Materials Management Plan (MMP) adapted from the CSMP would be implemented whenever materials beneath the cap are penetrated. This MMP details the requirements for classifying, transporting and reusing materials as follows:
    - Classification into Levels 1, 2 and 3 is based on visual, olfactory and analytical characteristics;
    - Implementation of a materials tracking system would be required;
    - Implementation of processes for the placement under the proposed cap, in-situ retention, isolation or containment, short-term stockpiling or treatment; and
    - Engagement of a geotechnical expert to review and certify future ground disturbance works.
- Materials used onsite would be Virgin Excavated Natural Materials (VENM) or otherwise suitable according to waste guidelines. A record would be kept of materials used onsite, noting their sources; and
- Details of excess materials disposed of offsite would be maintained in compliance with the waste tracking requirements of the *Protection of the Environment Operations (Waste) Regulation 2005*.

Prior to any construction works, the Project would be analysed by a NSW EPA accredited Contaminated Site Auditor in accordance with the CSMP and Voluntary Remediation Agreement (VRA) No 26025, in relation to the existing capped surfaces. Confirmation would be sought that the Project appropriately deals with the requirements of these plans. Written evidence would be provided to the DP&E confirming the Site Auditor is satisfied with the proposed design prior to any intrusive works commencing. Furthermore, the Site Auditor would confirm that the Project would be constructed to address any risks of harm to human health as a result of volatile vapour ingress.

6.3.5 Construction Traffic and Access Arrangements

Construction traffic access would be via the Ingall Street intersection with Industrial Drive then along Ingall Street which becomes Steel Works Road and connects to the PON controlled Mayfield Concept Plan Site internal road. Vehicular access from the Site connects directly to the PON road. It is expected that the following traffic would be generated during the height of the construction phase:

- Up to 55 light vehicles per day accessing the construction site (assuming an occupancy rate of one person per car); and
- Up to 10 heavy vehicles (trucks) accessing the site per day. These truck movements are likely to be spread throughout the day as equipment and materials are required onsite.

Although the total construction period is anticipated to occur over a 36 month period, maximum traffic levels are expected to be experienced for a period of approximately 15 months during the busiest construction period which is expected to be the tank construction phase.

6.3.6 Fencing, Security and Lighting

The Site would be secured by a chain wire mesh fence with a razor wire top during construction. Access to the existing Facility would continue would continue as-is for the duration of construction while the construction site would be restricted to specifically inducted and trained staff and contractors.

6.3.7 Construction Workforce

Up to 55 construction related staff are estimated to be required onsite during the peak construction period. Actual numbers would vary based on contractors and work methodology. Typically however there would be fewer that this number onsite at any given time due to the sequential nature of the contraction works limiting Project elements that can be constructed simultaneously.

6.3.8 Construction Hours

Consistent with requirements of Conditions 24, Schedule 3 of Development Consent SSD_6664, construction activities would occur during:

- Monday to Friday 7am to – 6 pm;
- Saturday 8am – 1pm; and

- No works on Sundays and Public Holidays.

Works outside these hours would only be undertaken where they would be inaudible at residential receivers.

6.3.9 Construction Environmental Management and Monitoring

Prior to construction activities taking place, a Construction Environmental Management Plan (CEMP) would be prepared to address the management of potential environmental impacts associated with construction activities. The CEMP would include as a minimum management measures to address the following environmental aspects during the construction phase:

- Surface Water;
- Soils and groundwater;
- Air quality;
- Noise and vibration;
- Waste; and
- Traffic.

The Project CEMP would be similar to the CEMP prepared for the construction of the existing Facility. The previous CEMP has been reviewed by government agencies and was subsequently approved by DP&E in accordance with the conditions of the Development Consent SSD 6664.

6.4 Operation

6.4.1 Operational Activities

The operation of the Facility can generally be divided into the following key areas:

- Import - Receipt of fuels by ship;
- Transfer – From ships to the Terminal;
- Storage – in the Terminal; and
- Dispatch – Out loading of fuels for delivery to customers by truck.

After obtaining consent for the Project, Stolthaven would continue to operate the Facility in a manner consistent with current operations.

Import

Import of fuels would be undertaken by tanker ship. Tankers would enter the Hunter River from other ports in Australia and overseas. Once the tanker approaches the port, it would be met by Newcastle Port Pilots, who would assist the tanker navigate entry to the Port. As the tanker approaches the wharf it would be assisted by Newcastle Harbour Tugs which would guide the ship to berth. Tankers that would service the facility could include a combination of three following tanker types:

- Medium Range (MR) tankers: 25,000–54,999 deadweight tonnes (Deadweight tonne or DWT is a measure of the total carrying capacity of the ship, not including the weight of the ship itself);
- Long Range 1 (LR1): 55,000–79,999 DWT; and
- Long Range 2 (LR2): 80,000–159,999 DWT.

All tankers would be operated in accordance with the International Safety Guide for Oil Tankers and Terminals (ISGOTT) and AS3846-2005 "*The Handling and Transport of Dangerous Cargoes in Port Areas*". The ISGOTT standard was first developed in 1978 and is now in its 5th Edition. This is the definitive guide to the safe carriage and handling of crude oil and petroleum products on tankers and at terminals addressing:

- Safety standards;
- Ship design;
- Principles underlying the International Safety Management Code and the International Ship and Port Facility Security Code;

- Ship/shore safety check lists; and
- Standard operating procedures.

Ships currently access Mayfield Berth 4 (M4) and a 300 mm fuel delivery pipeline pumps fuel from the ship to the Facility. Whilst M4 is expected to be used for initial fuel transfers to the Facility once operational, it is only rated for the import of combustible liquids. No flammable liquid would be imported through M4.

Stolthaven is currently finalising the detailed design for the construction of a new dedicated bulk liquid berth to be known as Mayfield No. 7 (M7). M7 would be approved separately to this Project through the Complying Development Provisions of *State Environmental Planning Policy (Three Ports) 2013*. M7 has been designed specifically as a Bulk Liquids Berth (BLB) suitable for the ship to shore transfer of fuels including flammable liquids. As it is anticipated that M7 would be constructed during 2016/7, it would be operational prior to the Project. All flammable liquids would therefore be imported through M7 once the proposed flammable liquids storage tanks are operational. Once M7 has become operational, the existing pipeline that currently connects the existing terminal to M4 would be decommissioned and removed from the Koppers gantry.

In order to support the proposed Project throughputs, the Project, including both existing and proposed elements would require approximately 112 ships per year accessing the M7 berth.

Transfer

Prior to any ship unloading operations a ship would tie-up and be subject to a number of checks to confirm unloading operations can begin, including:

- Confirming adherence to the mooring management plan of the specific berth;
- Confirmation of safe berthing to be recorded in the Wharf attendant Safety Log; and
- Undertaking of the Ship-Shore Safety Checklist.

On confirmation that the ship is safely at berth in accordance with the ships company, Stolthaven and the stevedore, operations to connect the ship for unloading can begin.

The 300 mm fuel delivery pipeline is currently used to transfer fuels from ship to the Facility along the Koppers gantry from M4 to the Facility. Transfer operations and tank filling are monitored from a central control room at the Facility. The control room contains a computer system to monitor diesel tank levels and pipeline flow rates.

Fuels imported through M7 when constructed would be transported to the proposed fuel storage tanks in a similar manner through a proposed pipeline connecting the Facility and M7. The transfer of fuels from ship to the Facility would begin at the shipside transfer manifold system where a Marine Loading Arm (MLA) is connected to the ship's manifold. Two valves would be installed here, providing automatic isolation of the ship and wharfline if the MLA was out of its operating limits due to ship movement. The ships operator would remain adjacent to the pump emergency shut-down button during transfer operations allowing them to activate the shutdown in the event of any incidents. Transfer of fuels may occur across 20 – 50 hour timeframe depending on the size of the ship and quantities being imported.

The ships pumps would pump at a maximum of 10 bar pressure, and at a rate of approximately 2500m^3/hr through MLAs connecting to the wharf pipeline and would be monitored during operation according to the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (Federal Office of Road Safety, Canberra, 1998). MLAs and connecting pipes would be rated for 15 bar working pressure.

After the ship has established connection to the wharf fittings and the valves have been configured, the ship pump would be started. Flow and tank levels would be continually monitored by ship and shore monitoring and control systems, to ensure the fuel transfers successfully. Fuel transfer would typically be undertaken over a 36 hour period depending on the amount of fuel to be imported from the ship and the ships achievable pump rates. For some products such as jet fuel and ethanol, unloading time would be much quicker due to the smaller amount of fuel that could be stored at the Facility.

Once the transfer is complete, the ship's pumps would be stopped. The MLAs would be drained to the wharf pipeline and the inline valves closed to isolate any product remaining in the hose, eliminating minor spills at the connection point. The pipelines would then be 'pigged' clean to transfer fuel remaining within the pipeline to the storage tanks. This involves passing a solid plug or 'pig' through a pipeline. The pig is small enough to pass through the pipeline but large enough to touch the inside wall, therefore ensuring that all product is cleared from the line once fuel unloading has ceased.

Storage

Once transferred to the Facility, fuels would be stored in 26 (nine existing and 17 proposed) storage tanks as described in **Table 3** and **Table 7**. All tanks would be bunded in accordance with *AS 1940-2004 Storage and handling of flammable and combustible liquids.*

Existing and proposed tanks are/would be fitted with:

- Multi-level sampling equipment;
- Low-level product drains for maintenance purposes;
- Continuous tank level measurement instruments with high and low level alarms and with independent high/low switches and alarms;
- Tank vents with anti-flash gauze to prevent potential for sparking and ignition from external sources;
- Multi-level temperature measurements; and
- Water draining facilities to prevent water build up in the tank bunds and potential corrosion in the tank base.

A summary of the existing and proposed tanks is provided in **Table 3** and **Table 7** respectively.

Table 7 Proposed Fuel Storage Tanks – Stage 3

Tank ID No.	Design Product[1]	Tank Diameter	Shell Height (m)[2]	Usable Volume (m^3)[3]
10	ULP	30	17	10,060
11	ULP	30	17	10,060
12	ULP	30	17	10,060
13	ULP	35	19	15,860
14	ULP	35	19	15,860
15	ULP	25	19	7,770
16	ULP	25	19	7,770
17	PULP	30	17	10,060
18	ULP	30	17	10,060
19	ULP	30	17	10,060
20	Diesel	33	20	15,660
21	Diesel	33	20	15,660
22	Diesel	38	20	20,960
23	Diesel	38	20	20,960
24	Diesel	28	20	11,110
25	Ethanol	15	13	1,860
26	Jet Fuel	15	13	1,870

1) ULP = Unleaded Petrol. PULP = Premium Unleaded Petrol.
2) Shell height is the height of the outer shell of the tank. i.e. the height of the tank to the external observer.
3) Usable Volumes =Gross tank volume –dead space and contingency volume.

In addition to the primary fuel storage tanks, a small tank bund would be located to the immediate west of the truck loading gantry which would contain:

- Tank 27: Biodiesel - 150m3 Capacity; and
- Tanks 28 and 29: Two additive's tanks –50m3 each; and
- Tanks 30 and 31: Two slops tanks – 50m3 each.

The manner by which these tanks are connected within the Facility are illustrated on **Figure 5**.

Dispatch

The Project includes the construction and operation of a six bay truck loading gantry in addition to the four bay truck loading gantry located at the existing Facility. The truck loading gantries are designed to accommodate up to B-Double tankwagons (trucks) with approximate capacities of 50,000 litres. The gantries can also service other truck sizes such as semi-trailer tank wagons that have a capacity of 30,000L. Semi-trailer tankwagons, or smaller, may frequent the Facility depending on customer requirements. Tankwagon loading is controlled by industry standard fuel management software/hardware and metering systems operated by suitably trained and assessed personnel.

All loading and unloading activities would be undertaken by the inducted and trained Road Tanker drivers. Loading operations are automatically shut off if the dead-man button is not pushed every three minutes during loading. Contractors, drivers and site visitors would undergo inductions covering onsite safety, emergency systems, and environmental risks prior to being allowed onsite.

Loading and unloading operations would begin and end on low flow settings, with the product pumps starting once a feedback signal is received that indicates all the in-line valves are open. Valves would fully open to the receiving tank once a percentage volume of liquid has been transferred. In order to facilitate and manage the loading operations, loading bays and gantries would be fitted with the following safety systems:

- Bottom loading arms, eliminating the need for flexible hoses;
- Electronic card access by drivers, eliminating unauthorised access to the gantry/loading facilities;
- Overfill protection for the tankers and static connections to prevent the potential for electrostatic build up and spark/ignition source;
- A dead-man button requiring regular activation by the vehicle driver, integrated into the gantry emergency shutdown system;
- Automatic/remote isolation valves at the loading arm feed point to provide loading emergency shutdown in the event of incident at the gantry/loading bay; and
- Fixed automatic foam deluge system installed throughout the gantry area activated by fusible links in the gantry detection lines.

Fuels would be dispatched by road throughout the Hunter region and beyond depending on customer requirements. The rate at which fuel is dispatched from the Site by road would be contingent on market demand but would only occur up to the allowable annual throughput or maximum daily truck movement allowance.

The Project would generate an expected upper limit of an additional 109 trucks per day (218 truck movements per day) on average. Existing terminal traffic averages 75 trucks (150) truck movements per day) however previous Traffic Impact Assessment assessed 150 trucks (300 movements) per day which demonstrated no significant impact on the road network. Based on experience operating the existing Facility, total truck number can vary considerable depending on a number of factors such as customer demand and truck capacities (smaller trucks have a higher turnover rate). Typically trucks servicing the site would be B-Double size.

6.4.2 Fuels

The Project would see a range of fuels being transferred to the Site and stored in fuel storage tanks. The cumulative total proposed for each type of fuel to be stored at the Facility is detailed in **Table 8**.

Table 8 Indicative Fuel Storage Qualities

Product	Total New Storage Capacity Volume (m^3)	Specific Gravity (tonnes per m^3) @ 20°C	Total Storage Capacity Weight (tonnes, approx)
Diesel	198,720	0.82 - 0.86	168,912.00
Biodiesel	4430	0.83 - 0.85	3,765.5.00
ULP	97,560	0.71 - 0.77	73,170.00
PULP	10,060	0.71 - 0.77	7,545.00
Ethanol	1,860	0.79	1,469.00
Jet Fuel	1,870	0.8 (typical)	1,496.00
Total	**314,500**	-	**252,592.00**

When considering the ratios of constituent fuel types that make up the total shown in **Table 8** it should be noted that this combination may vary subject to customer requirements. However fuel would only be stored in tanks rated to contain certain product classifications. The classifications of the fuels that would be stored at the Facility in accordance with the Australian Dangerous Goods Code are listed in **Table** 9.

Table 9 Fuel Classifications

Product	Class	Packing Group	Hazchem code
Diesel	NA	III	3Y
Biodiesel	NA	III	3Z
UPL and PULP	3	II	3YE
Ethanol	3	II	3YE
Jet Fuel	3	III	3Y

Note: Classifications based on the Australian Dangerous Goods Code. Transport classifications relate to land transport only.

In combination with the approved throughput for Stolthaven's existing Mayfield Facility this equates to a total of 3,500 ML per year.

6.4.3 Fire Management

The existing Facility has been designed to minimise safety risks and hazards associated with operations, and is fitted with extensive fixed and portable fire-fighting capability. A dedicated firefighting supply of water is currently stored adjacent to the truck loading gantry. Three diesel-driven fire pumps and a water ring main provide firewater to the tanks and road gantry deluge systems, fixed monitors, fire hose reel sets and fire hydrant connections. The truck-fill stand has fixed automatic foam deluge protection activated by fusible links in the detection lines. The existing Facility was developed in two stages (Stage 1 and 1A) both of which included the development of a stage specific Fire Safety Study developed in consultation with NSW Fire and Rescue. Generally speaking the Fire Safety Systems for the existing Facility and the proposed tanks would be developed in accordance with the following requirements:

- Fire water pumps would be provided in accordance with the requirements of *AS2419 Fire Hydrant Installations* and NFPA (National Fire Protection Association) 20 *Standard for the Installation of Stationary Pumps for Fire Protection*;
- A fire water tank would provide a minimum of 90 minutes fire water onsite (exact storage capacity of tanks to be determined by Fire Safety Study in accordance with the requirements of *AS 1940-2004 Storage and handling of flammable and combustible liquids)*;
- A fire ring main, with hydrants would be installed at selected locations around the Facility;

- An access fire road around the bund would provide fire tender access as required;
- Hose reels and fire extinguishers would be located throughout the facility in accordance with *AS2419* and *NFPA20*; and
- A Fire Safety Study would be undertaken to review the retention of contaminated fire water (refer to **Section 11.0** for more details).

6.4.4 Stormwater Management

The majority of the Site is sealed and Stolthaven would direct clean stormwater to the Hunter River via an existing box culvert stormwater drain. In order to prevent pollution of receiving river waters from stormwater from the Site, the existing stormwater management designed in accordance with the requirements set out in Patterson Britton & Partners (2007) *Preliminary Design Stormwater Strategy,* prepared for the Concept Plan Area would continue to operate. The existing stormwater management system would be replicated for the new tank bund and gantry areas. Key aspects of the stormwater management system include:

- A first flush system pit to capture oil and grease from the road tankers on the paved roadways;
- Remote retention pits to collect water from the road tankers fill areas, pump bays and inlet manifold area;
- Testing of water quality prior to release to the American Petroleum Institute (API) separator pit then pumped to river discharge;
- Prevention of spills;
- Water quality monitoring;
- System maintenance;
- Treatment of water drained from diesel tanks and the first flush pit and remote retention pits that has been pumped to the API separator for final testing to confirm it can be released to the Hunter River;
- Contingency plans for the management of contaminated stormwater; and
- Staff training.

Proposed water quality testing measures include:

- Visual inspections of stormwater within the bunded areas for grease, foam, visible oil, and litter;
- In-field testing of bund water quality prior to its release to the API separator pit;
- Laboratory analysis of samples water treated in the API separator to ensure it meets EPA criteria; and
- Comparison of the results against water quality criteria prior to release of the water.

Site stormwater from the bunded areas and roads would be segregated. Bund stormwater would be retained in the bund until tested and released via the API separator, where it would be further tested before release to the Hunter River via a valved outlet pit. Stolthaven has shown these stormwater management systems to be effective in the detention, assessment and release of stormwater. Stolthaven currently tests all water being discharged from the Site in accordance with the requirement of EPL 20193.

Stormwater management and discharge would be undertaken in a manner consistent with the Stormwater Management Strategy for the Mayfield Concept Plan.

6.4.5 Safety and Security

Stolthaven's operations at Mayfield have historically involved the handling of combustible fuels (diesel and biodiesel). The Project now seeks consent to increase the storage of flammable liquids at the Facility. As flammable liquids require a higher level of hazard management than combustible liquids, the Project would be designed in accordance with *AS 1940-2004 Storage and handling of flammable and combustible liquids*. Reference is made to **Section 11.0** which discusses compliance with relevant hazard and risk requirements.

All site access it via the Ingall Street entrance which is currently secured by the operation of the OneSteel gate house. The gatehouse security personnel monitor traffic movements through this access point. The Site would be secured by a chain wire mesh fence with a razor wire top. Access to the Site would be via two automatic traffic gates and two pedestrian gates that would be opened using access cards (issued to inducted staff/ drivers & contractors). The site office will be accessible for visitors and secured after business hours or when unattended.

Emergency egress points would be located at manually-opened gates and the main traffic gates. The Site would have low-level, inward-directed floodlighting at night in addition to operational task lighting. Tank outlet valves would be 'locked down' when not in use.

Stolthaven is aware of the security needs of fuel storage facilities, and has in place an existing site security and controlled access system that would continue to be implemented for the Project. All visitors to the Site must check in with operations staff, undergo the appropriate level of induction and be wearing appropriate Personal Protective Equipment (PPE) relevant to their visit, prior to entering the Site.

Truck loading access to the Site would continue to be managed via two automatic traffic gates that would be opened by terminal staff or access cards (issued to inducted drivers). Emergency egress points are located at manually-opened gates and the main traffic gates. The Site would continue to operate with low-level, inward-directed floodlighting at night in addition to operational task lighting. Tank outlet valves would be 'locked down' when not in use.

6.4.6 Hours of Operation

The Project would operate 24 hours a day, seven days a week which is consistent with the existing approved operation (Condition 24, Schedule 3 of Development Consent SSD 6664.)

6.4.7 Staffing

In addition to the seven staff that currently operate the existing Facility, the Project would see up to 12 additional full time equivalent (FTE) staff required to operate the Project. This would result in a total of 19 FTE staff operating the Facility.

As required, contractors would be engaged to undertake regular maintenance and inspections in accordance with site operational and safety requirements.

As with the existing operations, truck drivers would be transient and only frequent the Facility during truck loading. Specific amenities would be provided for truck drivers to use during truck loading.

6.5 Consistency with Mayfield Concept Plan

It is noted that the Concept Plan Approval does not provide consent for any physical works to be undertaken on the Site as these are to be assessed and approved as part of individual project approvals, e.g. Development Consent SSD 6664. Approvals for the existing Facility have demonstrated consistency with the requirements of the Mayfield Concept Plan Approval.

In considering the current Project, three main requirements of the Concept Plan Approval are addressed. They are:

- The maximum daily permissible traffic movements;
- Shipping movement numbers; and
- Coordination of the Project with the environmental management documents and plans required by the Concept plan Approval.

6.5.1 Traffic Movements

The proposed increase in throughput would require a corresponding increase in traffic movements for the distribution of fuels. As detailed in Schedule 2, Conditions 2.3, Table 1 – *Initial Staging and Total Truck Movement Limits,* of the Concept Plan Approval (as modified), up to 1,268 total truck movement per day can occur from the Concept Plan Site, prior to additional traffic monitoring or studies being required.

On average across the year Stolthaven currently generated approximately 150 truck movements from 75 trucks per day. The Project would generate an additional 109 trucks (218 truck movements) per day. This would result in approximately 368 movements per day. This is well under the 1,268 trigger set by the Concept Plan. Currently Stolthaven is the only operator on the Concept Plan Site and would be the only operator for the immediate future so no consideration of cumulative traffic totals is required. Therefore the Project is within the initial traffic staging limits of the Concept Plan Approval and no network traffic assessments are required.

Reference is made to **Section 11.0** detailing the Project specific Traffic Impact Assessment.

6.5.2 Ship Movements

The improved storage capacity at the Facility would enable each ship to offload larger volumes per trip compared with the existing situation improving the efficiency of each ship visit. The cumulative ship number (including ships generated by the existing terminal and ships generated by the new elements of the Project) of 112 ships is well within the 560 ship movements expected to be generated by the Mayfield Concept Plan development and well within the projected capacity of the Port of Newcastle (AECOM, 2010).

Given the small percentage (approx. 2%) of shipping movements the facility would generate relative to the overall number of movements for the Port of Newcastle, the impact on the operation of the port is considered minimal.

The Port of Newcastle and the Hunter Valley Coal Chain Co-ordinator share the use of a simulation modelling tool (the Model) for port vessel traffic of coal and non-coal commodities. The Model system assumptions were updated in October 2015. Simulations were also undertaken to confirm port related performance criteria. This update included the proposed vessel traffic into the M7 berth. The number of vessels per year simulated in the model was 114. The updated system assumptions and simulations confirmed that the Port is cable of meeting required performance criteria for foreseeable vessel movements from existing operations and future development, including the M7 berth.

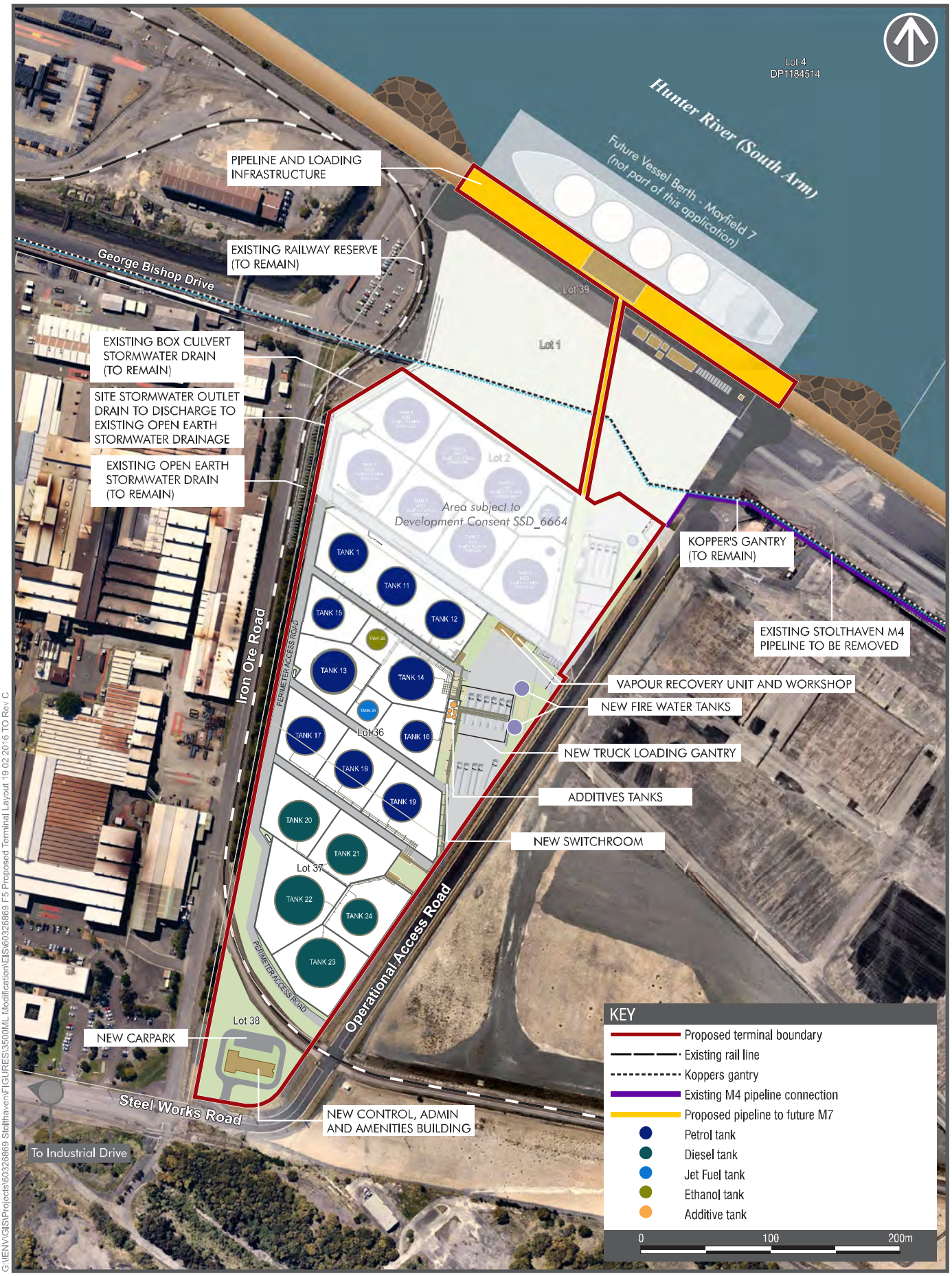
6.5.3 Concept Plan Approval Environmental Management Plans

There are a number of management plans detailed in **Table 10** required by the Mayfield Concept Plan Approval which would apply to all future development in the Mayfield Concept Plan area. Stolthaven would meet all relevant requirements of the Mayfield Concept Plan Approval as applicable.

Table 10 Mayfield Concept Plan Approval Management Plans

Condition – Plan / Document	Response
Condition 2.5 Transport Management Plan – A Transport Management Plan shall be implemented by NPC prior to the operation of any projects under the Concept Plan	The Project Traffic Management Plan has been reviewed in accordance with the Mayfield Concept Plan Traffic Management Plan prior to the operation of the Project.
Condition 2.12 Site Air Quality Model – A site Air Quality Model shall be lodged with the Director-General prior to the consideration of any project under the Concept Plan	The Air Quality Impact Assessment for the Project has been undertaken in accordance with the Concept Plan Site Air Quality Model. Refer **Section 12.0**.
Condition 2.19 Concept Plan Site Noise Model – A Site Noise Model shall be lodged with the Director-General prior to the consideration of any project under the Concept Plan	The Noise Impact Assessment for the Project has been undertaken in accordance with the Concept Plan Site Noise Model. Refer **Section 14.0**.
Condition 2.21 Stormwater Management Strategy – A Stormwater Management Strategy shall be lodged with the Director-General prior to the consideration of any project under the Concept Plan	A Stormwater Management Strategy has been prepared by PON. The Projects stormwater management has been developed having consideration of the requirements of this strategy.
Condition 2.22 Utilities Infrastructure Plan – A Utilities Infrastructure Plan shall be lodged with the Director-General prior to the consideration of any project under the Concept Plan	The existing facility in connected in accordance with eh Utilities Infrastructure Plan. The Project would also be connected in accordance with this plan.
Condition 2.23 Shore Side Power – A Shore Side Power Feasibility Assessment shall be lodged with the Director-General prior to the consideration of any project under the Concept Plan	NA. No berthing or shore side power is proposed as part of this Project.
Condition 2.26 Port Emergency Response Plan – The Port Emergency Response Plan shall be updated and submitted two months prior to the commencement of any project under the Concept Plan	The Project would be operated in accordance with the Emergency Response Plan. Stolthaven would consult with PON to update this plan as necessary to accommodate the Project prior to operations.
Condition 3.3 Community Communication Strategy – A	A Community Communications Strategy has

Condition – Plan / Document	Response
Community Communication Strategy shall be submitted to the Director-General prior to the lodgement of any project associated with the Concept Plan	been prepared by PON. During the construction and operation of the Project Stolthaven would undertake consultation in accordance with this plan and provide PON with details.
Condition 4.1 Compliance Tracking Program – A Compliance Tracking Program shall be lodged with the Director-General prior to the consideration of any project under the Concept Plan	A Compliance Tracking Program specific to the Mayfield Concept Plan has been prepared and submitted to the Secretary-General. Stolthaven would provide PON with relevant inputs into the Compliance Tracking Program over the duration of the Project's operation.



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AECOM

PROPOSED TERMINAL LAYOUT

Bulk Fuel Storage Facility
State Significant Development - Stolthaven Stage 3

FIGURE 5

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7.0 Statutory Planning

7.1 Commonwealth Matters

7.1.1 Environment Protection and Biodiversity Conservation Act 1999

Actions that may significantly affect matters of National Environmental Significance (NES) require assessment and/or approval from the Commonwealth Department of Environment (DoE) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act lists nine matters of NES that must be addressed when assessing the environmental impacts of a proposal. Actions likely to impact on matters of NES require approval from the Commonwealth Minister under Part 6 of the EPBC Act.

A Protected Matters Search of NES Matters within a 10 km radius of the Site was undertaken on 14 August 2015 to determine what NES features may be present. The results of the search are contained in **Appendix B** and summarised in **Table 11**.

Table 11 Consideration of Matters of National Environmental Significance

***Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)**	
NES Matters	**Comment**
Australia's World Heritage properties	There are no World Heritage properties within 10 km of the Site.
National Heritage Places	There are no National Heritage Places within 10 km of the Site.
Ramsar wetlands of international importance	The Hunter River National Park is located around 2.2 km to the northeast of the Site, beyond the coal loaders and the existing industrial areas of Kooragang Island. The Hunter River National Park forms part of the Ramsar-listed Hunter Estuary Wetlands, and is also known as the Kooragang Nature Reserve under the Ramsar Treaty. The Project would not significantly impact on this wetland system (refer **Section 21.2**). Specifically, erosion and sedimentation control works would be undertaken during earthworks to minimise any potential impacts to water quality.
Nationally threatened species and ecological communities	It is unlikely that there would be any impact on Commonwealth-listed threatened species or ecological communities.
Migratory species listed under the EPBC Act	It is unlikely that there would be any impact on Commonwealth listed migratory species or migratory species protected under international agreements.
Commonwealth marine areas	The Project is not located within or adjacent to a Commonwealth marine area. There would be no direct or indirect impact upon a Commonwealth marine area.
Great Barrier Reef Marine Park	The Project is not located within or adjacent to the Great Barrier Reef Marine Park. There would be no direct or indirect impact upon the Great Barrier Reef Marine Park.
Nuclear actions, including uranium mining	The Project would not involve a nuclear action.
Water resources impacted on by a coal seam gas or large coal mining development	The Project would not involve coal seam gas or coal mining.

As shown in **Table 11** and as further considered in **Section 21.2**, the Project would not have a significant impact on any of these matters of NES. Accordingly, a referral to the DoE is not necessary.

7.1.2 Civil Aviation Act 1988

The main purpose of the *Civil Aviation Act 1988* is to prevent aviation accidents and incidents. Section 21 of the Act empowers the Civil Aviation Safety Authority to enter premises and test or inspect any installation which it believes to be either actively or passively interfering with the communications to or from aircraft, or communications to or from centres established for air traffic control, or with navigation aids or with surveillance

systems. The Project would not involve the commissioning of any infrastructure which would endanger the safety of aircraft in this manner, and as such, no further consideration of the Civil Aviation Act 1988 is required.

The Civil Aviation Safety Authority (CASA) was established under the *Civil Aviation Act 1988* as the body responsible for providing effective and efficient aviation safety regulatory systems and promoting a positive safety culture throughout the aviation community. CASA Advisory Circular AC 139-08(0) — Reporting of Tall Structures, relates to the construction of permanent or temporary tall structures in proximity to airports. In relation to the Newcastle Airport, also known as Royal Australia Air force (RAAF) Williamtown, the Project is located within the identified 15km buffer. As per the requirements of the circular, proposed structures that would exceed 30m above ground level require reporting.

No permeant structures are proposed by the Project that would exceed 30m about ground level, with the highest tank being approximately 20m above ground level. Despite this, temporary cranes would be required during construction which may have heights up to 50m above ground level. Subject to approval and prior to construction, Stolthaven would submit a Tall Structures and Cranes Reporting Form with the relevant Project details to Newcastle Airport. Confirmation would be sought from the airport that construction can proceed, prior to the use of any crane that could exceed the 30m height threshold.

7.2 State Matters

7.2.1 Environmental Planning and Assessment Act 1979 (EP&A Act)

Development in NSW is carried out under the EP&A Act. Environmental planning instruments, including State Environmental Planning Policies and Local Environmental Plans, are legal documents enacted under Part 3 of the EP&A Act that regulate land use and development.

Specifically, environmental planning instruments determine the permissibility of a Project and the environmental assessment pathway for the Project. The environmental planning instruments relevant to the Project are discussed below.

Permissibility

As outlined in **Section 6.0**, Stolthaven is seeking consent for the ongoing operation of its existing Facility, 17 additional fuels storage tanks and associated ancillary infrastructure, as well as an increase in annual throughput by 2,490 ML to a total of 3,500 ML. Although the Project is located within Newcastle LGA, the *Newcastle LEP* 2012 does not apply to the Site by virtue of *State Environmental Planning Policy (Three Ports) 2013* (Three Ports SEPP). Under the Three Ports SEPP, the Facility is located within the SP1 Special Activities zone in which the proposed land use is permissible with consent.

State Significant Development

The Project is declared to be a State Significant Development for the purposes of the EP&A Act under clause 10(2), Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SREPP) as follows:

10 Chemical, manufacturing and related industries

…

(2) Development with a capital investment value of more than $30 million for any of the following purposes:

- *(a) liquid fuel depots;*
- *(b) gas storage facilities; and*
- *(c) chemical storage facilities.*

(3) Development for the purpose of the manufacture, storage or use of dangerous goods in such quantities that constitute the development as a major hazard facility within the meaning of Chapter 6B of the Occupational Health and Safety Regulation 2001.

Although the Project is defined as a liquid fuel depot under clause 10(2) with a capital investment value of more than $30 million, the Project also constitutes a MHF pursuant to the *Work Health and Safety Regulation 2011* as detailed in **Section 7.2.4**. The Project therefore requires assessment as SSD.

The Project would be subject to an assessment by the Minister for Planning (or their delegate) under Division 4.1, Part 4 of the EP&A Act. This EIS is required to support the application for development consent.

7.2.2 Environmental Planning and Assessment Regulation 2000

The EP&A Act and the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) provide the framework for environmental planning in NSW and include provisions to ensure proposals with the potential to impact the environment are subject to detailed assessment, and provide opportunity for public involvement.

Form and Content of an Environmental Impact Statement

This EIS has been prepared pursuant to Schedule 2 of the EP&A Regulation. Specifically clauses 6 and 7 of Schedule 2 provide requirements in relation to the form and content of an EIS. The requirements of clauses 6 and 7 and where they are addressed in this document are outlined in **Table 12** and **Table 13**.

Table 12 EP&A Regulation – Schedule 2, Clause 6

Form of environmental impact statement An environmental impact statement must contain the following information:	Addressed in this EIS
(a) The name, address and professional qualifications of the person by whom the statement is prepared.	Certification page
(b) The name and address of the responsible person.	Certification page
(c) The address of the land: (i) In respect of which the development application is to be made, or (ii) On which the activity or infrastructure to which the statement relates is to be carried out.	Lot and DPs are provided in **Section 3.2**
(d) A description of the development, activity or infrastructure to which the statement relates.	**Section 6.0**
(e) An assessment by the person by whom the statement is prepared of the environmental impact of the development, activity or infrastructure to which the statement relates, dealing with the matters referred to in this Schedule.	This Table and **Part F**
(f) A declaration by the person by whom the statement is prepared to the effect that: (i) The statement has been prepared in accordance with this Schedule, (ii) The statement contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure to which the statement relates, and (iii) That the information contained in the statement is neither false nor misleading.	Certification page

Table 13 EP&A Regulation – Schedule 2, Clause 7

Content of environmental impact statement An environmental impact statement must also include each of the following:	Addressed in this EIS
(1) An Environmental Impact Statement must contain the following: (a) A summary of the environmental impact statement,	Executive Summary
(b) A statement of the objectives of the development, activity or infrastructure,	**Section 4.0**
(c) An analysis of any feasible alternatives to the carrying out of the development, activity or infrastructure, having regard to its objectives, including the consequences of not carrying out the development, activity or infrastructure,	**Section 5.0**
(d) An analysis of the development, activity or infrastructure, including: (i) A full description of the development, activity or infrastructure, and (ii) A general description of the environment likely to be affected by the development, activity or infrastructure, together with a detailed description of those aspects of the environment that are likely to be significantly affected, and (iii) The likely impact on the environment of the development, activity or infrastructure, and (iv) A full description of the measures proposed to mitigate any adverse effects of the development, activity or infrastructure on the environment, and (v) A list of any approvals that must be obtained under any other Act or law	**Section 6.0** **Part F** **Part F** **Section 25.0** **Section 7.5**

Content of environmental impact statement	Addressed in this EIS
before the development, activity or infrastructure may lawfully be carried out.	
(e) A compilation (in a single section of the environmental impact statement) of the measures referred to in item (d) (iv).	**Section 25.0**
(f) The reasons justifying the carrying out of the development, activity or infrastructure in the manner proposed, having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development set out in subclause (4).	**Section 26.1**
(2) Subclause (1) is subject to the environmental assessment requirements that relate to the environmental impact statement.	**Section 9.1**
(3) Subclause (1) does not apply if: (a) The Director-General has waived (under clause 3 (9)) the need for an application for environmental assessment requirements in relation to an environmental impact statement in respect of State significant development, and (b) The conditions of that waiver specify that the environmental impact statement must instead comply with requirements set out or referred to in those conditions.	N/A This EIS has been prepared in accordance with Project specific SEARs.
(4) The principles of ecologically sustainable development are as follows: (a) The ***precautionary principle***, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by: (i) Careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and (ii) An assessment of the risk-weighted consequences of various options, (b) ***Inter-generational equity***, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations, (c) ***Conservation of biological diversity and ecological integrity***, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration, (d) ***Improved valuation, pricing and incentive mechanisms***, namely, that environmental factors should be included in the valuation of assets and services, such as: (i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement, (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste, (iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.	**Section 26.2.1** **Section 26.2.2** **Section 26.2.3** **Section 26.2.4**

7.2.3 Work Health and Safety Act 2011

The *Work Health and Safety Act 2011* (WH&S Act) aims to ensure that appropriate consideration and planning is undertaken in the assessment of potential hazards and risks to workers and the public from the operation of industry and business. The WH&S Act makes provision for the ongoing improvement of safety from existing operations as well as the need to incorporate health and safety measures into projects that may present an increased risk to health and safety.

The WH&S Act gives rise to the *Work Health and Safety Regulation 2011* (WH&S Regulation) which defines what constitutes a MHF.

7.2.4 Work Health and Safety Regulation 2011

Clause 5 of the WH&S Regulation defines a MHF as:

a facility:

(a) at which Schedule 15 chemicals are present or likely to be present in a quantity that exceeds their threshold quantity; or

(b) that is determined by the regulator under Part 9.2 to be a major hazard facility.

Schedule 15 of the WH&S Regulation lists threshold quantities for certain chemicals and materials which if exceeded at a given facility are a trigger for the classification as a MHF. Table 15.2 of Schedule 15 lists flammable materials, types and corresponding threshold quantities that constitute a MHF. Those chemicals (fuels) proposed to be stored by the Project, and their volumes relative to the thresholds provided in the WH&S Regulation are detailed in **Table 14**.

Table 14 MHF Hazardous Chemical Threshold Qualities

Chemical	Classification[2]	WH&S Reg Threshold (tonnes)	Proposed Project Quantity (tonnes)[3]
Petrol[1]	Dangerous Goods Class 3 or Packing Group II or III	50,000	804,348
Ethanol			14,694
Jet Fuel			14,880
Total	-	-	833,922

1) "Petrol" includes ULP (Unleaded Petrol) and PULP (Premium Unleaded Petrol).

2) In accordance with Australian Dangerous Goods classifications.

3) Volume to weight conversion based on an average product specific gravity as presented in Table 8.

Having exceeded the threshold quantities for Class 3, Packing Group II or III chemicals proposed to be stored onsite, the Project is considered to be a MHF and requires the appropriate level of hazard and risk planning and assessment, as provided in **Section 11.0**.

7.2.5 State Significant Development Application and Assessment Process

The Project is declared to be SSD for the purposes of the EP&A Act under clause 10(2), Schedule 1 of SREPP due to its classification as a MHF. Likewise, pursuant to clause 27 of the Three Ports SEPP, designated development in the Port lease area is automatically considered SSD. Following this consultation with DP&E and confirmation that the Project would be assessed as an SSD, the Secretary's Requirements (SEARs) were issued. DP&E consulted with relevant government agencies and stakeholders during the preparation of the SEARs. A Copy of the SEARs are attached at **Appendix C**. This EIS has been prepared in accordance with Part 4, Division 4.1 of the EP&A Act and the Project SEARs. It supports a SSD application to the Minister for Planning and Environment under section 89C of the EP&A Act (Project Application number SSD 6664).

7.2.6 State Environmental Planning Polices

The following environmental planning instruments include provisions relating to issues that are relevant to the environmental impact assessment of the Project:

- *State Environmental Planning Policy (Three Ports) 2013;*
- *State Environmental Planning Policy (State and Regional Development) 2011;*
- *State Environmental Planning Policy No. 33 — Hazardous and Offensive Development;*
- *State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP);*
- *State Environmental Planning Policy No. 55 – Remediation of Land; and*
- *State Environmental Planning Policy 71 – Coastal Protection (SEPP 71).*

State Environmental Planning Policy (Three Ports) 2013 (Three Ports SEPP)

The Three Ports SEPP provides a consistent approval to the land use planning and management of the development of NSW's three main Ports, Port Botany, Port Kembla and the Port of Newcastle. The Project is permissible under the SP1 zoning provided by the Three Ports SEPP.

As described in **Section 7.2.2**, the Project is also defined as a designated development under the EP&A Regulation. Pursuant to clause 27 of the Three Ports SEPP, designated development in the Port Lease Area is declared to be SSD and assessed as such pursuant to the provisions of the EP&A Act.

State Environmental Planning Policy (State and Regional Development) 2011

The SRD SEPP declares that certain development projects or infrastructure are of regional or state significance. Pursuant to clause 27 of the Three Ports SEPP, the Project is declared to be SSD and Clause 27(2) of the Three Port SEPP indicates that the State and Regional Development SEPP is to apply to development if declared as SSD. In addition, clause 10 of Schedule 1 to SRD SEPP provides that a site meeting the definition of a major hazard facility under the WH&S Regulation is also to be considered SSD. The Project is therefore properly classified as SSD as confirmed with DP&E on 30 June 2015.

Under clause 11 of the SRD SEPP, Development Control Plans (DCPs) do not apply to SSD.

State Environmental Planning Policy 33 – Hazardous and Offensive Development (SEPP 33)

State Environmental Planning Policy 33 – Hazardous and Offensive Development (SEPP 33) requires a consent authority to consider whether a development may constitute a hazardous or offensive industry as defined by SEPP 33. The instrument dictates that proposed mitigation measures are to be taken into account when determining whether a development is a hazardous or offensive industry, and that the consent authority must have sufficient information to make its determination and impose conditions to minimise impacts.

As detailed in **Section 7.2.4**, the Project is considered a MHF and therefore a potentially hazardous industry within the meaning of SEPP 33. As part of the Project planning, risk screening has been undertaken in accordance with Hazardous and Offensive Development Guidelines: Applying SEPP 33 (Department of Planning, 2011) and is documented in accordance with the relevant Hazardous Industry Planning Advisory Paper (HIPAPs). Pursuant to clause 12 of SEPP 33, the Terminal Preliminary Hazard Analysis (PHA) and Transport PHA have been prepared for the Project following the risk screening summarised in **Section 11.0**, and is included in full at **Appendix D** and **Appendix E**.

State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP)

The aim of this Policy is to facilitate the effective delivery of infrastructure across the State. Schedule 3 lists development which requires referral to the Roads and Maritime Service (RMS) including:

> *Transport terminals, bulk stores, container depots or liquid fuel depots with a capacity of 8,000 m^2 with site access to any road.*

Under section 104 of the Infrastructure SEPP, the Minister is required to forward the SSD application to the RMS for comment before making a determination.

A Project specific Traffic Impact Assessment has been prepared to assess potential impacts of the Project. The Traffic Impact Assessment concluded the Project would not have a significant impact on the operation of the road network, including Industrial Drive. Details are provided in **Section 11.0**.

State Environmental Planning Policy 55 – Remediation of Land (SEPP 55)

SEPP 55 promotes the remediation of contaminated land to reduce the risk of harm to human health or other environmental systems. Clause 7 of SEPP 55 requires a consent authority to consider whether the land is contaminated and whether it is suitable (or can be made suitable) for the Project. The former BHP steelworks site was previously subject to Voluntary Remediation Agreement (VRA No 26025) prepared under the former section 26 of the CLM Act. Remediation works have since been completed, including the construction of a groundwater barrier around contaminated parts of the Site and remediation of the surface areas with the application of crushed rock (refer **Section 15.1**).

The *Contaminated Site Management Plan: Intertrade Industrial Park, Closure Area of Former Steelworks Site Mayfield* (HDC, 2014) and the Maintenance and Remediation Notice No 20142802 issued to PON now apply to the Site. These documents clarify the ongoing obligations of PON as landowner, as well as occupiers such as Stolthaven, under section 28 of the CLM Act.

The Project would require excavation of the remediation capping to establish tank foundations, and therefore has the potential to compromise the effectiveness of the existing capping layer (refer **Section 15.2**). Similar to the

works undertaken for the construction of the existing tanks, a Site Auditor accredited under Part 4 of the CLM Act would be consulted regarding the design and construction methodology proposed for the Project (refer **Section 15.3**). Prior to the commencement of construction, and also prior to the commencement of operations, Stolthaven would provide evidence to the Secretary of DP&E from the Site Auditor confirming that the construction works would be, and have been, undertaken in accordance with the *Contaminated Site Management Plan: Intertrade Industrial Park, Closure Area of Former Steelworks Site Mayfield* (HDC, 2014) and the Maintenance and Remediation Notice No 20142802 (refer **Section 15.3**). Furthermore, the Site Auditor would confirm that the Project would be constructed to address any risks of harm to human health as a result of volatile vapour ingress.

State Environmental Planning Policy 71 – Coastal Protection (SEPP 71)

The Project would be located within the coastal zone as defined by SEPP 71 which makes provision regarding protection of coastal attributes, protection of natural and cultural heritage elements, coastal environmental protection, and the retention of foreshore public access. Clause 8 of the SEPP provides matters for consideration to be taken into account by a consent authority when determining an application to carry out development. As the Project would not impact on any coastal features, or access to these features, no further consideration of SEPP 71 is required.

7.2.7 Other Acts

Approvals / Legislation That Does Not Apply

Under section 89J of the EP&A Act, certain legislation does not apply to SSD as it would if it was not State Significant but otherwise assessed under Part 4 of the EP&A Act. This legislation is listed in **Table 15**. Despite not being applicable to SSD, consideration of how the legislation would otherwise apply to the Project is provided.

Table 15 Legislation That Does Not Apply

Act	Comment
Coastal Protection Act 1979	The Project would not significantly impact the coastal areas, ecological or social qualities of other significant aspects of the surrounding coastal area. It is not considered that concurrence under the *Coastal Protection Act 1979* would otherwise be required for the Project.
Fisheries Management act 1994	No works are proposed that would require a permit under the Fisheries Management Act 1994.
Heritage Act 1977	No historic items listed under the *Heritage Act 1977* would be impacted by the Project. Refer **Section 20.0**
National Parks and Wildlife Act 1974	No indigenous heritage items would be impacted by the Project. Refer **Section 20.0**. No National Parks or estates would be impacted by the Project.
Native Vegetation Act 2003	The Project is located within an urban area as defined by Part 3, Schedule 3 of the *Native Vegetation Act 2003*, therefore this legislation does not apply to the Project. Regardless the Site does not contain any native vegetation.
Rural Fires Act 1997	The Project is not situated within bushfire prone land. The *Rural Fire Act 1997* does not apply to the Project.
Water Management Act 2000	The Site lies immediately adjacent to the south arm of the Hunter River. At this location, the Hunter River Tidal Pool Water Source (extending between the mangrove and tidal limits) falls under the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*. The *Water Management Act 2000* (WM Act) therefore applies to the surface water in the Hunter River immediately adjacent to the Site. Five new wharf pipelines would be constructed as part of the Project. As these pipelines would be laid within the waterfront land zone, they would constitute in-stream works under the *Controlled Activities on Waterfront Land: Guidelines for in-stream Works* on Waterfront Land (NSW Office of Water, 2010). However as these pipes would be laid on existing disturbed, capped and hardstand land, they would not impact on the hydraulic, hydrological, geomorphic, or ecological functions of the Hunter River. Two new drainage outlets would be constructed to drain treated stormwater from two proposed Puraceptors to the Western Truck Drain which runs along the western

Act	Comment
	boundary of the site. As the Site lies within 40 m of the south arm of the Hunter River, it is considered to lie on waterfront land. Ordinarily the Project would therefore constitute a controlled activity under section 91 of the WM Act. However, as the WM Act does not apply to the Project by virtue of section 89J of the EP&A Act, Stolthaven would not be required to obtain a controlled activity permit under section 91 of the WM Act. Stolthaven would nevertheless carry out the Project as per the Controlled Activities Guidelines, in particular the *NSW Guidelines for Controlled Activities on Waterfront Land* (NoW, 2012). Furthermore, as the WM Act does not apply to the Project, no consideration of the *Water Management (General) Regulation 2011* is necessary.

Approvals / legislation that must be applied consistently

Under section 89K of the EP&A Act, certain legislation must be applied consistently to SSD as it would if it was not State Significant but otherwise assessed under Part 4 of the EP&A Act. This legislation is listed in **Table 16**.

Table 16 Legislation That Must be Applied Consistently

Act	Comment
Fisheries Management Act 1994	Not applicable. No aquaculture permit is required by the Project.
Mine Subsidence Compensation Act 1961	Not applicable. The Terminal is not located within a mine subsidence area.
Mining Act 1992	Not applicable. The Project does not constitute mining as defined by the *Mining Act 1992.*
Petroleum (Onshore) Act 1991	Not applicable. No onshore petroleum lease is required as part of the Project.
Protection of the Environment Operations Act 1997	The *Protection of the Environment Operations Act 1997* (POEO Act) prohibits any person from causing pollution of waters or air, and provides penalties for pollution offences relating to water, air and noise. The existing Facility operates under EPL 20193 as a chemical storage facility for petroleum products and shipping in bulk as defined by section 9, Schedule 1 of the POEO Act. A variation to EPL 20193 would be required to account for the increased annual throughput capacity for the Facility. The application to vary the EPL should be obtained from the EPA prior to any increase in throughput beyond the current EPL limits. At the time of writing, clause A1.4 of EPL 20193 specifies that the annual throughput of the Facility must not exceed 1,300 ML per year. A variation to EPL 20193 would be sought to amend this amount to the proposed 3,500 ML subject to consent. A revised premises map would also be prepared as part of this variation detailing the addition two tanks proposed as part of the Project.
Roads Act 1993	Not applicable. The Project does not require works that would need consent under section 138 of the *Roads Act 1993*.
Pipelines Act 1967	Not applicable. No pipelines are proposed as part of the Project.

Water Act 1912

Four monitoring wells were installed as part of the existing Facility, two upstream and two downstream of the Facility as part of the monitoring program for the site. Licenses have been obtained from the Water Administration Ministerial Corporation under Part 5 of the *Water Act 1912* for the monitoring wells. Additional groundwater monitoring wells would be installed to provide groundwater monitoring points. Similar to the existing monitoring network of two upstream and two downstream, monitoring wells for the project would be located to obtain up-gradient and down-gradient information. While the exact number and location of wells would be confirmed in

consultation with the EPA as required by the EPL, NoW would be consulted regarding licencing requirements when this is confirmed.

There is currently no Water Sharing Plan that applies to this groundwater source, and therefore approval under Part 5 of the *Water Act 1912* would be required for sampling activities taking place. Under Section 113 of the Water Act, this application for a Part 5 licence must be made to the Water Administration Ministerial Corporation.

Groundwater management is also to be undertaken in accordance with *NSW Groundwater Quality Protection Policy* (Department of Primary Industries1998) in which the objectives are to protect the groundwater resource in NSW. The implementation of sampling would manage risks in relation to the existing groundwater onsite.

Contaminated Lands Management Act 1997

A CSMP has been developed for the entire former BHP Steelworks Site, which forms part of the Voluntary Remediation Agreement (VRA) formed under the *Contaminated Land Management Act 1994*. Remediation works have been completed, including the construction of a groundwater barrier around the contaminated parts of the Site and remediation of the surface areas with the application of crushed rock (HDC, 2014).

The Project would require excavation of the remediation capping to establish tank foundations. Similar to the works undertaken for the construction of the existing tanks, the Site Auditor would be consulted regarding the design and construction methodology proposed for the Project. No works would be undertaken until the Site Auditors approval of the works is received and evidence of such provided to DP&E.

7.3 Strategic Policy Initiatives

7.3.1 NSW 2021: A Plan to make NSW Number One

NSW 2021: A Plan to make NSW Number One (The Plan) was prepared by the NSW Government in 2011 to provide a 10 year plan that includes goals and targets aimed at improving the competitiveness of the NSW economy and the liveability of the State for the NSW community. The Plan replaced the document known as the State Plan.

The Plan has at its core 32 goals with designated targets aimed at meeting that goal. The Project provides support, particularly for economic goals as detailed in **Table 17**.

Table 17 NSW 2012 Goals with Project Relevance

Goal	Comment
Goal 3 – Drive Economic Growth in regional NSW	Through utilising terminal facilities outside of Sydney, the project would support: - Agricultural and mining industries in the Hunter Valley through the provision of diesel fuels; - Local established customers and new customers requiring fuel supply and storage; and - Local household transport and business operations through the provision of petroleum fuels. The addition of jet fuel storage capacity also has the potential to support aviation routes servicing the Hunter Valley in the long-term.
Goal 4 – Increasing the competitiveness of doing business in NSW	The Project would improve the efficiency of the fuel supply chain to business, including the mining sector. This would be achieved by delivering fuels directly to the Hunter Valley through the Port of Newcastle and reducing freight time and costs that would otherwise be incurred by sourcing fuels from Port Botany or beyond.
Goal 5 – Place downward pressure on the cost of living	The Project would contribute to the security of fuel supply in the greater Hunter region and NSW generally. Security of fuel supply would have a stabilising effect on the cost of fuel.
Goal 10 – Improve road safety	By significantly reducing the total kilometres travelled by fuel trucks servicing the Hunter Valley, there would be reduced risks for the travelling public due to a net lower number of heavy vehicles on the road network.
Goal 19 – Invest in critical	Population and GDP growth lead to a natural increase in market demand

Goal	Comment
infrastructure	for refined fuels. With the cessation of fuel refining in NSW, there is an increased demand for refined fuel products storage to meet the needs of NSW consumers. The Project would provide critical infrastructure, which is needed to meet this growing demand.
Goal 22 – Protect our natural environment	By utilising an existing industrial site, the Project avoids the need to disturb a parcel of land in a more environmentally sensitive locale along the Hunter River or within the Hunter region. The Project avoids this level of environmental impact whilst at the same time meeting increased demand for refined fuel products.

7.3.2 The Lower Hunter over the next 20 Years: A Discussion Paper

The Lower Hunter over the next 20 years: A Discussion Paper (The Discussion Paper) was prepared by the DP&E in 2013 to explain the current policies and strategies designed to deliver sustainable growth for the Lower Hunter. Strategies from The Discussion Paper which are relevant to the Project are detailed in **Table 18**.

Table 18 Discussion Paper Strategies with Project Relevance

Strategy	Comment
Providing jobs and economic opportunities	By increasing the supply of a range of fuels directly to the Lower Hunter, the Project supports existing and future economic opportunities in the Lower Hunter.
Providing the infrastructure we need	The Project involves building upon existing import and supply infrastructure to meet growing demand for a range of fuel products in the Lower Hunter.
Protecting our environment	By capitalising on an existing vacant parcel of land which is has been zoned as suitable for ports infrastructure use, the Project avoids the need to commission a greenfield development site to accommodate the growing fuel import needs of the Lower Hunter.
Connecting with surrounding regions	By increasing the supply of a range of fuels directly to the Lower Hunter, the Project supports industries in the lower Hunter and surrounding regions.

7.3.3 Hunter Strategic 2013 Infrastructure Plan

The *Hunter Strategic 2013 Infrastructure Plan* (NSW Government, 2013) (Infrastructure Plan) aims to provide the strategic infrastructure framework to inform future urban growth of the Hunter Metropolitan Area, which includes the five Lower Hunter LGAs of Newcastle, Lake Macquarie, Maitland, Cessnock and Port Stephens. It considers the key economic and social infrastructure requirements to support a growing liveable regional city over the next 20 years.

The Infrastructure Plan identifies the following key issues which are of relevance to the Project:

- Inadequate growth capacity in the existing road and rail access network into the port;
- Ongoing utilisation and availability of port related land; and
- Ensuring adequate capacity of port infrastructure.

The Project would not utilise rail transport although it is located immediately adjacent to a rail line should customers wish to move fuel by rail. The increased truck and shipping movements associated with the Project would be within the movements allowed for under the Mayfield Concept Plan (refer **Section 6.5**). In terms of ancillary port infrastructure, the Project would not put undue pressure on the port, and is likewise consistent with the Mayfield Concept Plan (refer **Section 6.5**).

Further objectives from the Infrastructure Plan which are relevant to the Project are detailed in **Table 19**.

Table 19 Infrastructure Plan Objectives with Project Relevance

Objective	Comment
A cost–effective and competitive coal export industry as a continued driver of growth	The Project would continue to support the mining industry in the Hunter Valley through the provision of diesel fuels.
A diversified and sustainable economy offering employment choice An attractive investment opportunity for the private sector across a range of market sectors	The Project would support: - The diverse range of existing businesses and future investment opportunities which may establish in the region; - Agricultural and mining industries in the Hunter Valley through the provision of diesel fuels; and - Local household transport through the provision of petroleum fuels. The addition of jet fuel storage capacity also has the potential to support aviation routes servicing the Hunter Valley in the long-term.
Well–protected and maintained open spaces and natural environments	By utilising an existing industrial site as the Project location, the Project avoids the need to disturb a parcel of land in a more environmentally sensitive locale along the Hunter River or within the Hunter region.
Strong and efficient connections to national and global markets and services	The Project seeks to improve the efficiency of the fuel supply chain to business, in particular the mining sector. This is achieved by delivering fuels directly to the Hunter Valley through the Port of Newcastle and reducing freight time and costs that would otherwise be incurred by sourcing fuels from Port Botany or beyond. The addition of jet fuel storage capacity also has the potential to support aviation routes at a national level.

7.3.4 Australia's Liquid Fuel Security

Australia's Liquid Fuel Security: A report for NRMA Motoring and Services (Blackburn, 2013) acknowledges that Australia is heavily dependent on refined petroleum product imports to meet its liquid fuel needs. Liquid fuels continue to represent around 48 per cent of total energy consumption in Australia. In turn the transportation sector uses around 70 per cent of all liquid fuel supplies.

Any major interruption to this supply chain would significantly impact the public and private transport market as well as transport logistics. It would also have supply chain impacts for food supply, pharmaceutical supply and utilities. Given the recent reduction in Australia's domestic refining capacity after the closure of the Clyde and Kurnell refineries in recent years, it is important that Australia secures fuel import and storage locations to improve its resilience to any future interruptions to this supply chain.

In this respect, the Project would have a positive effect by securing additional onshore fuel storage.

7.3.5 Australian Energy Resource Assessment

Geoscience Australia and the Bureau of Resources and Energy Economics has released an update of the Australian Energy Resource Assessment originally published in 2010. Australia's energy resources are a key contributor to Australia's economic prosperity. The Assessment provides a snapshot of the nation's current energy resources and identifies the key factors likely to influence their future use.

The Assessment reviews Australia's diverse energy resource base including substantial coal, uranium and gas resources. The Assessment notes that Australia has limited crude oil resources and is increasingly reliant on imports for its transport fuels. While there is potential for alternative energies to be further developed e.g. renewable energies, reliance on imported oil resources will continue into the foreseeable future. The assessment concludes that it is expected that domestic and international demand for Australia's energy resources will continue to rise over the next few decades

The reduction in onshore refining and production of petroleum products and the increased reliance on imported refined products will require a commensurate increase in terminal facilities, to service the import of refined product. It is considered that the Project would play a key role in securing supply of fuel for the Newcastle, Hunter Valley and Northern NSW and over time reduce the reliance on the Sydney market.

7.4 Local Matters

7.4.1 Newcastle Local Environmental Plan

The Site is located within the Newcastle City LGA where the relevant local Environmental Planning Instrument (EPI) is the Newcastle LEP 2012. However, as the Site is identified as being within the boundaries of the Newcastle Port Lease Area and falls under the provisions of the Three Ports SEPP, the provisions of the LEP 2012 do not apply to the Site.

7.4.2 Newcastle Development Control Plan

As discussed in **Section 7.2.6**, consideration of Newcastle DCP is not required.

7.5 Licencing and Other NSW Environmental Approvals

The Project would require several licences and EPL 20193 would be amended to:

- Update the premises description and map to include the new storage tanks and other ancillary features;
- Increase the EPL throughput limit;
- Increase load based licensing (refer **Section 12.2.3**);
- Permit the storage of flammable fuels in the new storage tanks as required;
- Reflect new groundwater monitoring locations (refer **Sections 7.2.7** and **15.2.3**); and
- Reflect signage requirements for petroleum product pipelines linking to new tank storage areas.

Discussions would also take place with the EPA to confirm whether EPL 20193 requires amendments to reflect the following potential changes:

- Additional surface water monitoring or discharge points;
- EPL-specified noise limits and identified sensitive receptors; and
- Requirements for petroleum product pipeline integrity and pressure testing.

The extension of the existing groundwater monitoring network into Lot 36 DP 1191723 and Lot 37 DP 1191723 with new groundwater monitoring bores would also require licensing under Part 5 of the *Water Act 1912*.

An application for a MHF licence would also be made under clause 578 of the WH&S Regulation. In addition, the following documentation would be prepared and provided to WorkCover under Chapter 9 of the WHS Regulation:

- An initial safety case for the MHF (clause 551, WH&S Regulation);
- A subsequent safety case within 24 months of the Facility being determined as a MHF (clause 560, WH&S Regulation);
- A safety assessment (clause 555 of the WH&S Regulation); and
- An emergency plan (clause 557 of the WH&S Regulation).

8.0 Environmental Commitment

8.1 Environmental Policy Statement

Stolthaven operates under a Safety, Health, Environmental and Quality policy (SHEQ) (document BCS-SHE-01-1.1-APP1) which states:

> *Safety, Health, Environmental and Quality (SHEQ) issues are a priority of utmost importance in all Stolthaven Australasian operations.*
>
> *In Stolthaven Australasia we strive not to harm anyone, annoy or alarm our neighbours and minimise our impact to the environment. Our goal is zero injuries and zero incidents. We provide our customers with high quality products and services. All Stolthaven Australasian sites, businesses and functions are required to comply with this policy.*
>
> *Stolthaven Terminals Australasia operates, maintains and strives to continually improve the company's Health, Safety, Environmental and Quality Management System in order to achieve defined objectives.*

The design, planning and impact assessment, construction and operation of the Project, would be undertaken in accordance with this policy.

8.2 Environmental Management Program

8.2.1 Environmental Management System

As part of the construction of the existing Facility and for subsequent modifications, Stolthaven has prepared Construction Environmental Management Plans (CEMPs) providing the framework for the implementation of environmental management requirements necessary for the construction phase of the Facility. Prior to each construction phase, the CEMP was updated and reviewed by the relevant agency stakeholders as nominated by the Development Consent. Subject to consent, the Project would also be subject to a specific CEMP that incorporates the outcomes and recommendations of this EIS.

The existing Facility currently operates in accordance with Stolthaven's Mayfield Environmental Management Plan which incorporates a range of sub-plans and supporting documents including:

- Stormwater Management Plan;
- Groundwater Management Plan;
- Contaminated Soils Management Plan;
- Waste Management Plan;
- Noise Management Plan;
- Traffic Management Plan;
- Air Quality Management Plan;
- Energy Efficiency Management Plan; and
- Landscape Management Plan.

The Facility's environmental management system has been developed in consultation with a range of stakeholders including the PON, Newcastle City Council and DP&E. Stolthaven would amend and update the Facility's environmental management plans to accommodate the changes required by the Project. This update would also be undertaken in further consultation with the appropriate agency stakeholders and incorporate the relevant outcomes and recommendations from the environmental assessment contained in this EIS.

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Part E – Issues Identification

This Part identifies the stakeholder consultation that was undertaken during the project planning and environmental assessment and how this consultation was used to identify the key matters for consideration in this EIS.

9.0 Stakeholder Engagement

9.1 Consultation with Department of Planning and Environment

Since its original proposal to establish a Bulk Fuel Terminal in the Port of Newcastle, Stolthaven has been in continual contact with DP&E to provide updates on its future development intentions, and to obtain DP&E feedback on statutory approval requirements.

In August 2104, Stolthaven prepared a scoping document entitled *State Significant Development – Scoping Report, Stolthaven Fuel Terminal, Mayfield* (AECOM, Aug 2014). This was lodged with a request for Project SEARs with DP&E on 21 August 2014.

Subsequent confirmation was received that the Project could be assessed as SSD on 30 June 2015 and this confirmation included the SEARs for the preparation of the EIS.

In preparing this EIS, the SEARs have been addressed as required by section 89G of the EP&A Act. Each of the matters raised by the Secretary-General for consideration in the EIS is outlined in **Table 20**, together with the relevant sections of the EIS where each matter is addressed.

Table 20 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements	Response / Section of EIS
General Requirements	
- The Environmental Impact Statement (EIS) must include the minimum form and content requirements in clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*.	**Table 12 and Table 13**
In addition, the EIS must include: - A description of the following within the site and any associated areas: • Historical operations/activities; • Existing and approved operations/facilities, including any statutory approvals that apply to these operations/facilities; • A summary of the conditions of the existing approval (SSD 6664) that are no longer relevant and justification for modifying or removing such conditions for the proposed development; and • How the proposed development would interact with other existing and approved port and industrial operations in the vicinity of the site.	**Section 3.0 and Part F** **Section 3.4.2**
- A detailed description of the proposed development, including: • Need for the proposed development; • Justification for the proposed development; • Likely scope and sequence or stage/s of the development during construction and operation; and • Plans of any proposed building works.	**Sections 1.5, 4.2, 6.0, 6.3 and 26.0**
• Consideration of all relevant environmental planning instruments, including identification and justification of any inconsistencies with these instruments; • A clear demonstration that the proposed development is consistent with all environmental assessment requirements set out in the Concept Plan for the Port Facilities at Mayfield (MP 09_0096) and any subsequent modifications of this approval; • A risk assessment of the potential environmental impacts of the proposed development, identifying the key issues for further assessment;	**Section 7.2.2** **Section 6.5** **Section 10.0**
Secretary's Environmental Assessment Requirements	**Response / Section of EIS**

General Requirements	
- A detailed assessment of the key issues specified below, and any other significant issues identified in this risk assessment, which includes: • A description of the existing environment, using sufficient baseline data; • An assessment of the potential impacts of all stages of the proposed development, including any cumulative impacts, taking into consideration relevant guidelines, policies, plans and statutes and the Mayfield Concept Plan (MP 09_0096); and • A description of the measures that would be implemented to avoid, minimise and if necessary, offset the potential impacts of the proposed development, including proposals for adaptive management and/or contingency plans to manage any significant risks to the environment.	**Sections 11.0** **Section 25.0**
• A consolidated summary of all proposed environmental mitigation management and monitoring measures, highlighting commitments included in the EIS; • Identification of which existing environmental management plans would be revised to encompass the proposed development; and • A description of the proposed development in relation to any existing environmental management plans that may need to be updated.	**Section 25.0** **Section 24.1** **Section 24.1**
- The EIS must also be accompanied by a report from a qualified quantity surveyor providing: • A detailed calculation of the capital investment value (as defined in clause 3 of the Environmental Planning and Assessment Regulation 2000) of the proposal, including details of all assumptions and components from which the CIV calculation is derived; • A close estimate of the jobs that will be created during the construction and operational phases of the proposed development; and • Certification that the information provided is accurate at the date of preparation.	**Appendix F**
- Further the Department would prefer this operation to operate under a single, modern development consent. Consequently, the Department encourages you to develop the proposal with this preference in mind, and to consider surrendering all existing planning consents for the site if the development application is approved.	**Sections 3.4.2**
Strategic Context	
- Justification for the proposed development and suitability of the site; - Demonstration that the proposed development is generally consistent with all relevant planning strategies and environmental planning instruments, and justification for any inconsistencies; and - Demonstration that the proposal is consistent with the aims and objectives of the Mayfield Concept Plan (MP 09_0096).	**Section 26.0**, **Section 7.2** **Section 6.5**
Hazards and Risks	
- A Preliminary Hazards Analysis (PHA) prepared in accordance with Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazardous Analysis. The PHA should: • Identify the hazards arising out of the development and the existing site as well as any external hazards to determine the potential for both on and offsite impacts; • Outline and justify the use of the adopted risk criteria; • Estimate the cumulative risks from the proposed development, the existing site and the overall site; • Demonstrate that the proposed development complies with the criteria set out in Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Safety Planning, Work Health and Safety Act 2011 and the Work Health and Safety Regulation 2011; • Estimate the cumulative impacts from the overall site and the surrounding potentially hazardous developments (existing and proposed)	**Section 11.0** and **Appendix D** and **Appendix E**

and demonstrate that the proposed development does not increase the cumulative risk of the area to unacceptable levels; and • Address all relevant recommendations arising from the Buncefield accident. - An evaluation of the impacts of the transport of Dangerous Goods to and from the site in the immediate vicinity.	
Soil and Water	
- An assessment of potential impacts to remediation works, soil and stability, groundwater and surface water resources during the construction and operation of the proposed development; - A detailed water balance for the development outlining the measures to minimise water use and any potential for a sustainable water supply; - Wastewater predictions, and the measures that would be implemented to treat, reuse and/or dispose of this water; - The proposed erosion and sediment controls during construction; - The proposed stormwater management system and updates to the original approved soil and water control measures and management protocols and procedures for the expansion; - How ecological and human health risks posed by contaminants in the context of past, existing and future land uses would be managed; and - How the proposed development would not interfere with the remediation works previously undertaken on the site including appropriate consultation and approval from the Site Auditor.	**Section 15.0**
Traffic and Transport	
- Details of traffic types and volumes (including shipping) likely to be generated during construction and operation; - Details key transport routes, site access, internal roadways, infrastructure works and parking; - Detailed plans of the proposed layout of the internal road network and parking onsite in accordance with the relevant Australian standards; - An assessment of the predicted impacts of this traffic on the safety and capacity of the surrounding road network in accordance with the Mayfield Concept Plan (MP 09_0096), including consideration of cumulative traffic impacts from other developments, using SIDRA or a similar traffic model; - Demonstration that the impacts of the development are consistent with the criteria and/or limits established in the Mayfield Concept Plan (MP 09_0096); and - Details of any upgrades to road or shipping infrastructure.	**Section 13.0**
Noise and Vibration	
- A description of all potential noise and vibration sources, including construction, operational and transport sources; - A quantitative assessment of construction, operational and transport noise and vibration impacts to surrounding receivers from onsite and offsite activities in accordance with the relevant EPA guidelines and the Mayfield Concept Plan Noise Model (MP 09_0096); - Demonstration that the impacts of the development are consistent with the criteria and/or limits established in the Mayfield Concept Plan (MP 09_0096); and - Details of the proposed management, mitigation and monitoring measures.	**Section 14.0**
Air Quality	
- A description of all potential air emissions including particular matter, individual toxic air pollutants and odours and their sources, including construction, operational and transport sources;	**Section 12.3**

- A quantitative assessment of the air quality and odour impacts of the proposed development on surrounding receivers in accordance with the relevant EPA guidelines and the Mayfield Concept Plan Air Quality Model (MP 09_0096); - Demonstration that the impacts of the development are consistent with the criteria and/or limits established in the Mayfield Concept Plan (MP 09_0096); and - Details of all proposed and potential upgrades to the approved air quality/odour control measures and management protocols and procedures for the expansion.	
Greenhouse Gas	
- A quantitative assessment of the potential greenhouse gas emissions of the proposed development, and qualitative assessment of the potential impacts of these emissions on the environment; and - A detailed description of the measure that would be implemented onsite to ensure that the proposed development is energy efficient.	**Section 18.2** **Section 18.3**
Waste Management	
- Identification of any additional waste/s generated during the construction and operation of the proposed development; and - Details of waste minimisation, management, treatment and disposal measures undertaken in accordance with the relevant guidelines.	**Section 19.2** **Section 19.3**
Visual Amenity	
- An assessment of the potential visual impacts of the proposed development on the amenity of the surrounding area.	**Section 17.0**
Cumulative Impacts	
- Including the existing onsite operations, all existing industrial facilities in the area and other nearby approved developments, particularly in relation to air, traffic and noise.	**Section 22.0**
Socio-economic Impacts	
- Including a comprehensive assessment of the potential economic and social impacts of the development and a quantification of the increased demand on services and public infrastructure.	**Section 16.0**
Heritage	
- Including an assessment of the potential impacts of the development on any archaeological resources of the site, in accordance with the Mayfield Concept Plan (MP 09_0096).	**Section 20.2**
Plans and Documents	
- The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Environmental Planning and Assessment Regulation 2000. These documents should be included as part of the EIS rather than as separate documents.	
Consultation	
- During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. - In particular you must consult with: • The City of Newcastle; • Environment Protection Authority; • Roads and Maritime Services; • WorkCover; • Hunter Development Corporation; • Office of Environment and Heritage; • NSW Department of Primary Industries; • Port of Newcastle;	**Section 9.0**

• Commonwealth Department of Defence; and • The local community and stakeholders. - The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	
Further Consultation After Two Years	
- If you do not lodge an EIS for the development within 2 years of the issue date of these SEARs, you must consult with the Secretary in relation to the requirements for lodgement.	NA
References	
- The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans as identified.	Noted.

9.2 Agency Consultation

As required by the SEARs consultation with a number of government agencies was undertaken during the environmental assessment of the Project. A number of these agencies, notably PON and NCC have been in ongoing discussions regarding Stolthaven's Mayfield Facility. Despite this, specific consultation was undertaken in relation to the Project.

The following Government departments and agencies provided input into the DP&E's SEARs for consideration in this EIS:

- Newcastle City Council on 4 June 2015;
- OEH on 1 June 2015;
- EPA on 2 June 2015;
- The Department of Primary Industries, including inputs from the NSW Office of Water; and
- WorkCover.

Consultation letters were also issued to the following agencies and organisations on 31 August 2015, asking for their further comment on the Project:

- Commonwealth Department of Defence;
- The Department of Primary Industries;
- The EPA;
- Hunter Development Corporation;
- NSW Office of Water;
- OEH;
- Roads and Maritime Services; and
- WorkCover.

No additional comments were received from these agencies during the preparation of the EIS.

9.3 Community Consultation

Stolthaven is a committed and responsible corporate citizen, and strongly believes that regular communication with residents and neighbouring industries is central to the creation of harmonious relationships.

It carries out regular meetings with community groups, in particular the Correct Planning and Consultation for Mayfield Group (CPCMG) to which Stolthaven provides updates on current and planned site works and activities, as well as future development plans.

Stolthaven met with CPCMG in April 2014 to discuss its plans to increase throughput for the existing Facility and provided a high level overview of intentions for future projects on the former BHP steelworks site. At that meeting, following a description of the Project, a question and answer format was introduced. Stolthaven held a subsequent community meeting with CPCMG on 17 November 2015 to provide an update on the ongoing development plans for the Mayfield operation. Key matters raised and the responses provided at these meetings are documented in **Table 21**.

Table 21 Community Consultation – Matters Raised

Matter	Response / Section of the EIS
Clarification regarding the applications Stolthaven is seeking approval for.	Refer to description of the Project in **Section 6.0**.
Has Stolthaven paid the s94 developer contributions for the Stages of the Project that are currently in operation.	Yes. Stolthaven has paid the required contributions in consultation with Newcastle City Council.
Transport: - What will the impact on trucking numbers be as a result of the Project. - Can rail be used as an alternative to trucks?	A full Traffic Impact Assessment has been undertaken as summarised in **Section 11.0**. Stolthaven is currently investigating the potential to use rail as an alternative to trucks.
Future Plans	Stolthaven provided the community group with an overview of its strategic plan for the Site. Specific details of future development would be presented to the community group as it becomes available and be provided as part of future development applications.
Requested ongoing Community Consultation	Stolthaven has committed to providing regular briefing and communications to the CPCMG in accordance with its Project plans.

As described in **Section 1.6.3**, this EIS will be placed on public exhibition during which time the community will have the opportunity to review the Project documentation and make formal submission to DP&E regarding the Project.

9.4 Site Auditor

During the planning and construction of the existing Facility, a review and signoff, of the construction documentation, including the designs, work methods and approaches for the management of onsite remediation works were provided to the Site Auditor. In accordance with Conditions 2, 3 and 4, Schedule 3 of Development Consent SSD 6664 evidence was provided to DP&E that the Site Auditor had confirmed that all works associated with the development:

- Met the requirements of the Remediation Notice and the CSMP; and
- Have been constructed in accordance with the requirements of the Remediation Notice and the CSMP; and
- Would be constructed to address any risk of harm to human health posed by the potential ingress of volatile vapours into buildings and confined spaces.

The proposed tanks would be constructed in an identical manner to the existing tanks at the Facility. Stolthaven proposes to use the same contactors and construction methods as previously reviewed and approved by the Site Auditor. Despite this, prior to any works being undertaken in relation to the construction of the proposed tanks, Stolthaven would undertake further consultation with the Site Auditor to confirm the works would be undertaken in accordance with the Remediation Notice and the CSMP. Similarly following completion of works the Site Auditor's confirmation would be sought that the works were undertaken as proposed.

Evidence of the Site Auditor's approval would be provided to DP&E at each stage and no works would proceed until the Site Auditor's approval has been received and this has been acknowledged by DP&E. Furthermore, the Site Auditor would confirm that the Project would be constructed to address any risks of harm to human health as a result of volatile vapour ingress.

Further background regarding the remediation of the Site and the remediation and CSMP documents is provided in **Section 3.3**.

10.0 Identification of Key Environmental Issues

10.1 Approach to Identification of Key Environmental Issues

An initial screening of potential issues for consideration in the EIS was undertaken as part of the original Project Approval environmental assessment process. The initial screening process has been re-evaluated in this EIS to include additional information regarding the key environmental and social issues associated with the Project, and to also include additional issues of concern that have been identified as part of the EIS and associated stakeholder consultation process.

The risk screening process has determined the likely level of assessment required to adequately and appropriately address each issue identified. The risk screening considered the significance of each potential environmental impact, and also the likely level of stakeholder interest in each issue. Including stakeholder perception of potential environmental impacts is an important part of determining the level of assessment that should be applied, given that key stakeholder concerns may not necessarily align with a purely technical analysis of environmental risks.

The overall environmental assessment significance was determined by selecting the highest result from both the environmental assessment screening process and the expected stakeholder interest. The overall environmental assessment score enabled the determination of the sensitivity of each issue for the Project, and whether a detailed specialist investigation or desktop analysis would be appropriate. Where a high level of stakeholder interest is expected, a potential environmental impact has been determined to be a key issue requiring a detailed assessment irrespective of the outcomes of environmental risk screening.

10.1.1 Environmental Risk Screening

The preliminary environmental risk screening for the Project was undertaken using an ordinal (comparative measurement) scale to consider the likelihood of an environmental impact occurring and the consequence of that impact should it not be mitigated. The likelihood and consequence of each impact have been combined through the significance screening matrix (refer to **Table 22**) to establish the likely significance of the issue for the environmental assessment of the Project.

Table 22 Significance Screening Matrix

Likelihood of Effect	Consequence of Unmitigated Effect		
	Minor (1)	Moderate (2)	Major (3)
Improbable (1)	Very Low (2)	Low (3)	Medium (4)
Possible (2)	Low (3)	Medium (4)	High (5)
Probable (3)	Medium (4)	High (5)	Very High (6)

The allocation of risk is based upon the following considerations:

Likelihood of effect

1) Improbable: imperceptible or short term cumulative impacts;

2) Possible: modest or medium term cumulative impacts; and

3) Probable: serious or long term cumulative impacts.

Consequences of unmitigated effect

1) Minor: minor environmental change;

2) Moderate: moderate adverse environmental change; and

3) Major: important adverse environmental change.

The ranking of issues aims to prioritise the issues for assessment and does not consider the application of mitigation measures to manage the environmental effects. In all cases, appropriate and proven mitigation measures would be used to minimise potential impacts. These mitigation measures are summarised in **Section 25.0** of this EIS.

10.1.2 Review of Expected Community Interest

The expected level of community stakeholder interest in each potential environmental issue identified has been considered, based on a broad review of key issues raised in meetings that have occurred between Stolthaven and the stakeholder group, CPCMG (refer **Section 9.0**) since the original Project Approval application was lodged in 2011. Potential environmental impacts have been assigned an expected level of stakeholder interest as shown in **Table 23**.

Table 23 Screening Levels – Expected Community Interest

Level of Interest	Environmental Aspects
High level of interest	- Hazard and risk - Air quality - Traffic and transport - Noise and vibration
Medium level of interest	- Soil and water - Visual amenity - Greenhouse gas - Social and Economic - Waste
Low level of interest	- Heritage (indigenous and non-indigenous) - Ecology.

10.2 Issues Prioritisation

This environmental risk analysis prioritises environmental issues in the absence of appropriate safeguard measures to manage environmental effects. This analysis was then used to inform the environmental assessment and the engineering and environmental design of the Project and in the identification of appropriate safeguards. The prioritisation of environmental issues relating to the Project is provided in **Table 24**.

Table 24 Prioritisation of Environmental Issues

Issue	Likelihood	Consequence	Priority
Hazard and risk	3	3	6 (Very high)
Air quality	2	2	4 (Medium)
Traffic and transport	2	2	4 (Medium)
Noise and vibration	2	2	4 (Medium)
Soil and water	2	2	4 (Medium)
Social and economic	2	2	4 (Medium)
Visual amenity	2	2	4 (Medium)
Greenhouse gas	2	1	3 (Low)
Waste	1	1	2 (Low)
Heritage (indigenous and non-indigenous)	1	2	3 (Low)
Ecology	1	1	2 (Low)

In summary, the environmental risks ranked as the highest priority for the Project include hazard and risk, air quality, traffic and transport, noise and vibration, soil and water, social and economic and visual amenity. Technical specialist studies have been undertaken to assess the potential impacts associated with the key issues of hazard and risk, air quality, traffic and transport and noise and vibration. Other key issues of soil and water,

social and economic impacts and visual amenity were also informed by these technical specialist studies and desktop assessment as appropriate. An assessment of these key issues based on a summary of technical specialist findings is provided in **Part F**.

Based on this risk ranking process and the impact assessments carried out for the EIS, a number of reasonable and feasible mitigation measures have been identified for the Project to minimise identified risks. Mitigation measures developed during the assessment process are presented in detail in **Part F** and summarised in **Section 25.0**. A residual risk assessment was undertaken to assess the significance of environmental effects of the Project after the application of mitigation measures to manage those effects. The results of the residual risk assessment are provided in **Section 23.0**.

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