

Gore Bay Terminal Modification

EIS Scoping Report

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Prepared for

Shell Refining Australia Pty Ltd

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Glossary of Terms

Abbreviation	Description
AGO	Automotive Gas Oil
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
ASS	Acid Sulfate Soils
bgl	below ground level
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CBD	Central Business District
CCG	Community Consultative Group
CLM Act	<i>Contaminated Land Management Act 1997</i>
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
COPC	Chemical Of Potential Concern
dB	Decibel
DCP	Development Control Plan
DGRs	Director General Requirements
DPI	NSW Department of Primary Industries
DP&I	NSW Department of Planning and Infrastructure
EARs	Environmental Assessment Requirements
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EPL	Environment Protection Licence
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1997</i>
ha	Hectare
IPA	Intertidal Protection Area
IPN	Industrial Noise Policy
km	Kilometre
LDAR	Leak Detection and Repair
LEP	Local Environmental Plan
LGA	Local Government Area
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas

Abbreviation	Description
LR	Long Range
MHF	Major Hazard Facility
ML	Megalitre
MR	Medium Range
Mt	Million tonnes
Mtpa	Million tonnes per annum
NES	Matter of National Environmental Significance
NGER Act	<i>National Greenhouse and Energy Reporting Act 2007</i>
NO _x	Nitrous Oxides
NPW Act	National Parks and Wildlife Act 1974
NSW State Plan	NSW State Plan: A New Direction for NSW
OEH	NSW Office of Environment and Heritage
OH&S Act	<i>Occupational Health and Safety Act 2000</i>
PAHs	Polycyclic Aromatic Hydrocarbons
PHA	Preliminary Hazard Analysis
PMA Act	<i>Ports and Marine Administration Act 1995</i>
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
REP 2005	<i>Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005</i>
RMS	NSW Roads and Maritime Services
RNE	Register of the National Estate
RTA	NSW Roads and Traffic Authority (now RMS)
SEPP	State Environmental Planning Policy
SO ₂	Sulphur Dioxide
SEWPAC	Department of Sustainability, Environment, Water, Populations and Communities (Commonwealth)
SSD	State Significant Development
SSI	State Significant Infrastructure
TPH	Total Petroleum Hydrocarbons
TSC Act	<i>Threatened Species Conservation Act 2005</i>
VOCs	Volatile Organic Compounds
WM Act	<i>Water Management Act 2000</i>

Executive Summary

Introduction

This Environmental Impact Statement (EIS) Scoping Report has been prepared by AECOM and is submitted to the Department of Planning and Infrastructure (DP&I) on behalf of Shell Refining Australia Pty Ltd (Shell). The Scoping Report provides the DP&I with an overview of Shell's proposed Gore Bay Terminal Modification (the Project) in Greenwich, NSW.

The Project

The proposal for the modification of the Gore Bay Terminal comprises:

- Modification of the Gore Bay Terminal for continued use as a finished fuels Terminal (which is received by ship, stored in tanks and transferred by pipeline), including potential replacement of infrastructure (if required);

The major Project components include:

- The repair and preparation of current refined and crude storage tanks ;
- Reduction in storage tanks from the current 20 tanks in use;
- Modifications to safeguarding systems (including tank bunds where necessary);
- Improvements in tank fire water deluge systems (where necessary) to provide improved tank cooling;
- Modifications to tank instrumentation and tank control systems to enable remote and automated control;
- Inlet manifold systems and remote valves with segregated product distribution piping to respective tanks;
- Revised pumping supply piping systems;
- Changes to site drainage and water treatment to suit reduced operation;
- Appropriate facilities to enable product receipt operations;
- Replacement of the electrical substation and switchboards to improve electrical distribution; and
- Other site infrastructure works to facilitate safe and efficient operations of the Terminal, e.g. lighting, safety shutdown systems, control room facilities, product quality test rooms and amenities.

Purpose of the Scoping Report

This EIS Scoping Report has been prepared to describe the modification of the Terminal. It provides a background to the proposal and the market context within which the Project would operate, provides justification for the Project, sets out the environmental risk assessment undertaken and outlines the potential environmental issues that need to be considered in more detail in the EIS.

Environmental Issues

The key environmental issues that have been identified for the Project include (in no particular order):

- Soil and Groundwater;
- Hazard and Risk;
- Social and economic effects;
- Air Quality and Odour;
- Noise and Vibration;
- Waste;
- Sustainability and Climate Change;
- Surface Water, Process Water and Flooding;
- Landscape Character and Visual Amenity;
- Land Use;

- Aquatic Ecology;
- Road Traffic;
- Infrastructure;
- Heritage; and
- Terrestrial Ecology.

As part of the preparation of the EIS, further assessments would be carried out to refine the potential environmental impacts of the Project and to identify mitigation and management measures to minimise impacts to the environment during the proposed construction and operation of the Project.

1.0 Introduction

1.1 Overview

Shell is seeking approval for the modification of the Gore Bay Terminal for continued use solely as a finished fuels import terminal rather than the current mixed crude oil and finished product import terminal. The Gore Bay Terminal is one of two Shell sites undergoing proposals for change. The other proposal involves the Clyde Refinery site at Rosehill where refining operations would cease, processing units would be demolished and the remaining terminal assets would be modified and the footprint reduced. A further proposal would be made for the any required remediation of the land occupied by the Clyde Refinery processing units and land redevelopment. The Clyde Refinery proposals are subject to separate applications for approval.

Shell's Gore Bay Terminal is located on approximately 10 ha of land at Greenwich on the Lane Cove River, Sydney Harbour. The Terminal is currently used for the import, storage and transfer of oil products and supplies crude oil and finished petroleum products via a 19 km underground pipeline to Shell's Clyde Refinery located at Rosehill. More than four million tonnes of crude oil, feedstock and finished products are imported through Gore Bay Terminal for transfer to Shell's Clyde Refinery via a two way pipeline each year. Figure 1 and Figure 2 show the location of the site.

The Gore Bay Terminal has been operating since the early 1900s. As part of the decision to cease refining at Clyde, Shell is applying to modify the Gore Bay Terminal and modify the Refinery to accommodate solely finished product imports. Shell would continue supplying the domestic fuel market whilst capitalising on their existing land and infrastructure.

Once modified, finished products would be imported to the Gore Bay Terminal by sea going tanker at No. 1 Gore Bay Wharf and transferred simultaneously into storage at Gore Bay and to the Clyde/Parramatta Terminal by the existing pipeline. Fuel Oil will continue to be purely stored at Gore Bay. Other products planned to be temporarily stored at Gore Bay would be transferred to the Clyde/Parramatta Terminal by the Gore Bay – Clyde pipeline following ship departure. Distribution of fuels from the Clyde site would be by pipeline and road haulage, as is current practice. The throughput of the proposed Clyde/Parramatta Terminal is expected to remain approximately the same immediately following the conversion from refining operations. A reduction of approximately 30% in storage capacity would occur at Gore Bay by the completion of the project with removal of redundant tanks and equipment. Shell currently stores crude oil, Automotive Gas Oil (diesel) and Fuel Oil at Gore Bay Terminal. Crude oil would be withdrawn and tanks reconfigured to store Automotive Gas Oil, Jet A-1 and Fuel Oil (refer Plate 1 and Plate 2). The current and proposed fuel storage volumes for Gore Bay are shown in Table 1.

Table 1 Current and proposed fuel storage volumes Gore Bay

Product	Current Volumes (%of current storage capacity)	Future Volumes (% of current storage capacity)
Crude oil (class 3 PG I)	63.0%	0%
Fuels Oil	14.7%	14.5%
Automotive Gas Oil	10.6%	26.8%
Jet A-1 (class 3 PG II)	0.0%	22.4%
Slops / Waste product	0.0%	2.1%
Redundant tanks	11.7%	34.2%

*Note: Ultimate volumes of final product planned to be stored at Gore Bay still to be determined.

Redundant tanks are planned to be demolished and removed from site. Based on current estimates, at least nine¹ of the existing tanks would continue to be used to store finished products. Some adjustments to bunds may also be necessary. Flammable product storage (would reduce by approximately 40% with the remaining flammable product (Jet fuel) of Packaging Group II rather than the current Packaging Group I (Crude oil).

¹ The final number of tanks required is still to be finalised.

There are two wharves at the Gore Bay Terminal site – No.1 and No.2 Gore Cove (refer to Plate 1). Only Wharf 1 (No.1 Gore Cove) is currently planned to be used for product imports. This is the current berth used for product imports. Berth 2 will continue to be used for loading the local maritime bunker vessel for supply of maritime trade in Sydney Harbour. No changes or modifications to the loading wharves are currently planned to Berth 2 as part of this project beyond normal maintenance activities.

Shell is not intending to build any additional pipelines external to the terminal as part of this Project. The current Gore Bay – Clyde pipeline would continue to be used to transfer product from Gore Bay to Clyde. Some sections of the pipework within the Gore Bay facility would be replaced to remove bottlenecks, increase efficiency of the site, improve safeguarding and to cater for the reallocation of products within the existing tanks. Maintenance and inspection of the existing pipelines will continue using the robust integrity systems currently in use which involve a combination of non-destructive testing and visual inspections.

Most of the development at the Gore Bay Terminal existed prior to the enactment of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the need to obtain approval under this legislation. As such, the Terminal has been operating under continuing use rights and without existing development consent. However, the site currently operates under Environmental Protection Licence (EPL) 661, which was granted to Shell on 21 September 2000. EPL 611 authorises Shell to store or generate in excess of 100 tonnes (t) of chemicals and waste, and to store in excess of 100,000 KL of petroleum products on the Gore Bay Terminal premises.

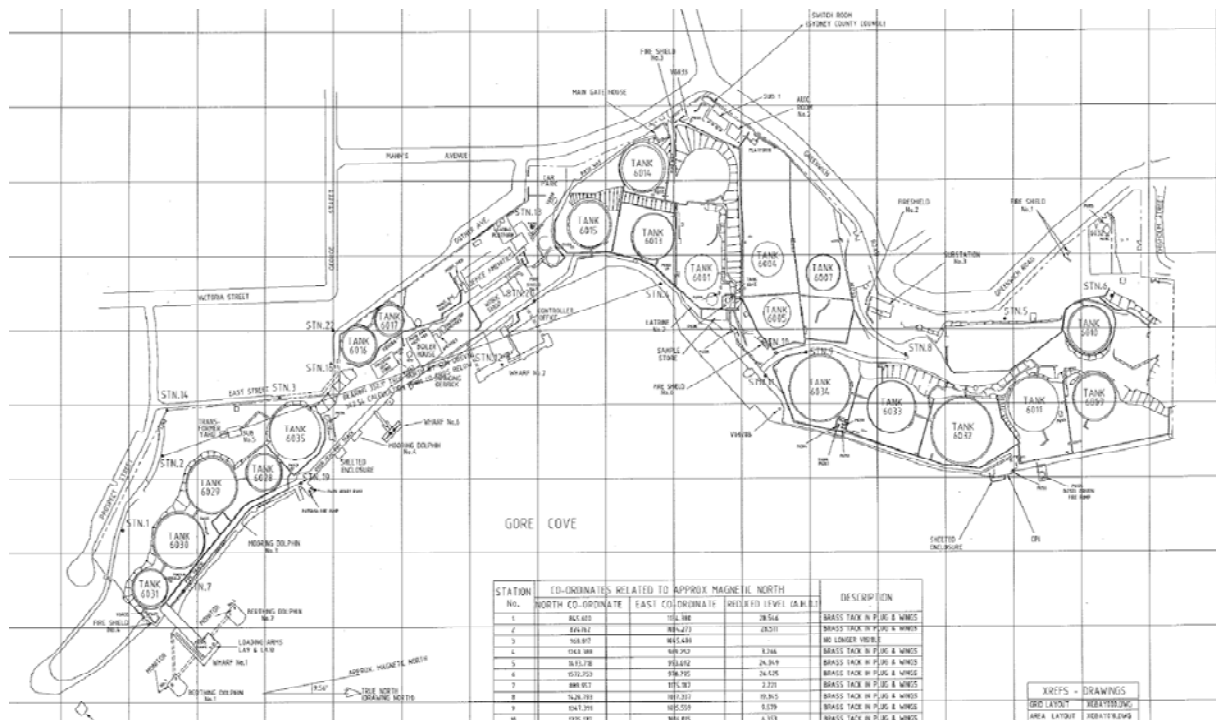


Plate 1 Gore Bay Terminal Land and Tanks

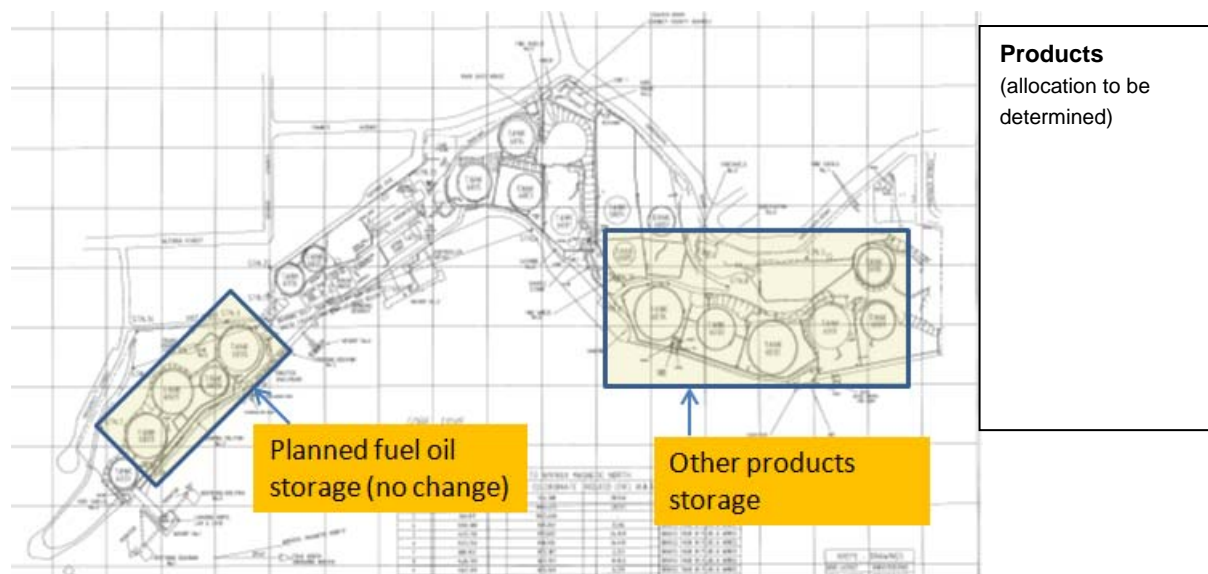


Plate 2 Gore Cove Terminal Tank Allocations

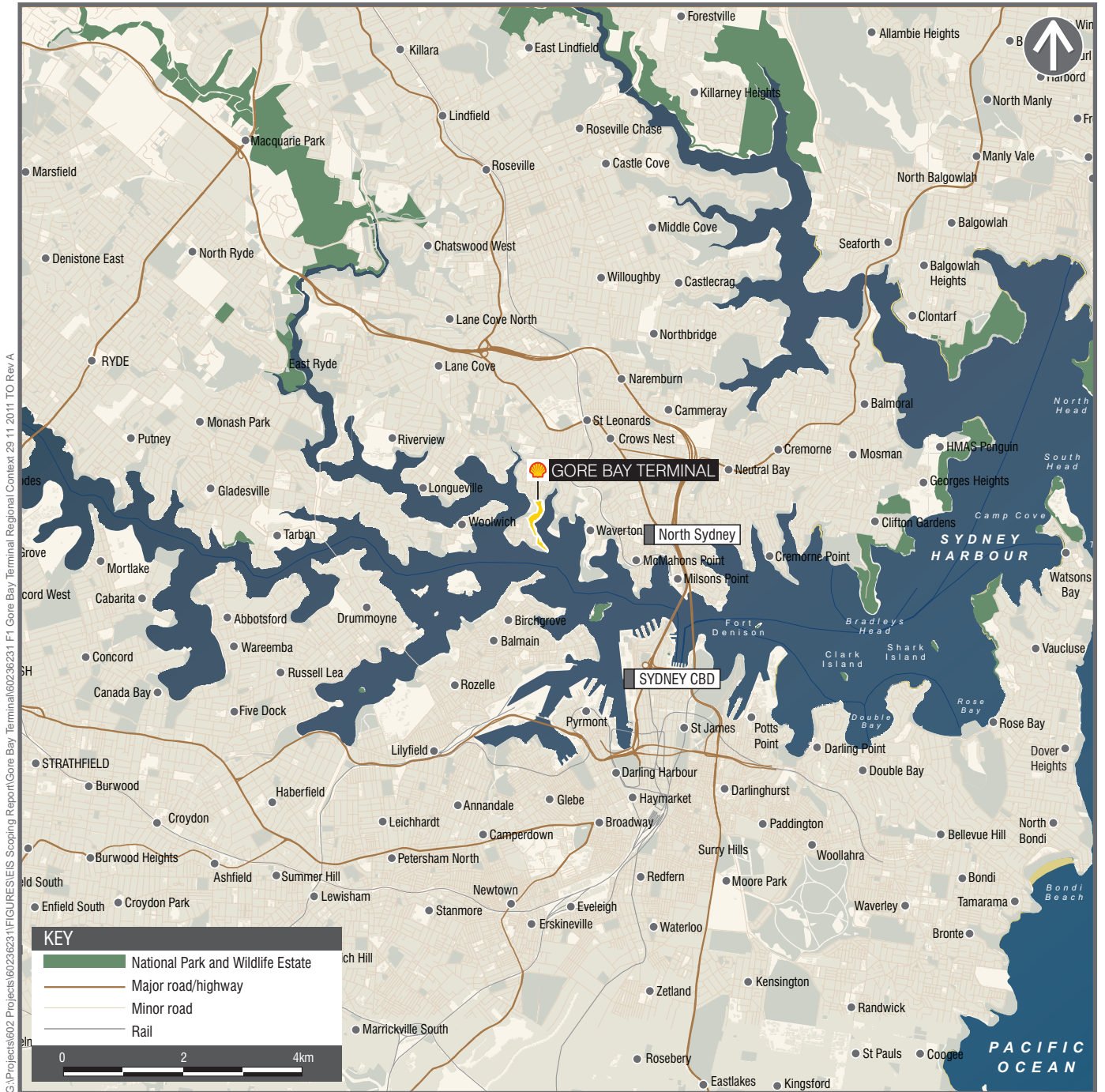
1.2 Scope and Structure of the Report

The purpose of this report is to characterise the proposed modification works at Shell's Gore Bay Terminal (the Project) and to provide an overview of its potential effects on the environment and the community.

This Environmental Impact Statement (EIS) Scoping Report is intended to provide the NSW Department of Planning and Infrastructure (DP&I) and other statutory authorities with sufficient information to establish the key environmental and other issues associated with the proposed Gore Bay modification. The information contained in this report would be used by the DP&I to determine whether the Project is to be assessed as a State Significant Development (SSD), and to develop the Director-General's Environmental Assessment Requirements (EARs) for the EIS. This process is further discussed in Section 4.4.1.

The structure of the EIS Scoping Report is outlined below:

- Sections 1 and 2 provide an introduction to the Project including a description of the site and surrounding area;
- Section 3 includes a description of the proposal and its main components;
- Section 4 describes the legislation applying to the proposed project;
- Section 5 provides details of preliminary consultation undertaken or planned with regulatory authorities;
- Section 6 identifies potential environmental issues, assesses the potential environmental risks associated with the proposed Project and prioritises them;
- Section 7 identifies those impacts which are considered to be of low environmental impact; and
- Sections 8 and 9 discuss the potential environmental impacts of the proposal, including the existing conditions, anticipated environmental impacts, and methodology for further assessment.



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FIGURE 1



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2.0 Site and Surrounding Area

2.1 Study Area

The Project site is located in Gore Bay, Greenwich, in the Sydney Metropolitan area, on the upper reaches of Sydney Harbour (refer to Figure 2). The site is located on a small peninsula at the opening of the Lane Cove River, so that waters to the east of the site form part of the Sydney Harbour while waters to the west of the peninsula are from the Lane Cove River.

Sydney Harbour and its tributaries are one of Australia's greatest cultural and commercial resources. This area, which includes the Parramatta and Lane Cove Rivers and Middle Harbour, constitutes a valuable natural and cultural resource, and acts as a major transport corridor, flora and fauna habitat and recreation area. It is also a significant natural scenic feature. Sydney Harbour caters for both commercial shipping and recreational boating activities and is characterised by a combination of port, industrial, residential and recreational land uses throughout.

Gore Bay Terminal is owned and operated by Shell Refining Australia Pty Ltd, The Project area for this EIS scoping report includes the Gore Bay Terminal site in Greenwich.

The Gore Bay Terminal is located at 124 Greenwich Road, Greenwich, four kilometres northwest of the Central Business District (CBD). The site area covers approximately 10 ha and includes several parcels of land (refer to Table 2 for details). The site is zoned as *IN4 Working Waterfront* under the Lane Cove Local Environmental Plan 2009 (LEP 2009).

Table 2 Gore Bay Terminal Property Details (NSW Land and Property Information, 2011)

Gore Bay Terminal Property Details (Greenwich)	
Lot 1 DP 528574	Lot 1 DP 4830
Lot 1 DP 3907	Lot 2 DP 4830
Lot 1 DP 133435	Lot 3 DP 4830
Lot 185 DP 752067	Lot 4 DP 4830
Lot 326 DP 752067	Lot 5 DP 4830
Lot 464 DP 752067	Lot 6 DP 4830
Lot 831 DP 752067	Lot 7 DP 4830
Lot 1201 DP 752067	Lot 8 DP 4830
Lot 1204 DP 752067	Lot 9 DP 4830
Lot 1 DP 880022	

2.2 Surrounding Area

The Gore Bay Terminal is surrounded by residential properties to the north-west, west, and south. A public green space – Hollaway Park, is located adjacent the site to the north. An inlet of Sydney Harbour – Gore Cove, is adjacent and directly to the east. East of Gore Cove is two public green spaces – Gore Cove Reserve and Berry Island Reserve. The Reserves provide public picnic facilities, and are connected by a walking track. There are also residential properties located east of Gore Cove.

Topographically, the Terminal site is characterised by a series of flat benches and terraces cut into the eastern side of the Greenwich peninsula, stepping down to the water in Gore Cove. Many of site's natural sandstone benches have been filled with imported sandstone to form large constructed benches across most of the site area that house many of Terminal's storage tanks (ERM 2010).

The surrounding residential properties and public spaces overlook the site from higher elevations greater than 20m and 30m Australian Height Datum (AHD). From waterfront locations east of Gore Cove, views to the site would be unobscured across the harbour.

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3.0 The Proposal

3.1 Summary

Shell announced in July 2011 that it would progress with the cessation of refining operations at its Clyde Refinery in Rosehill, modify the terminal storage at Clyde and the Gore Bay Terminal storage facilities to accommodate full imports of finished products. The proposal recognises the increased competition from new mega-refineries in Asia, supply and demand realities in our region and Clyde refinery's small scale in comparison to its regional competition.

A description of the existing activities and facilities at the Clyde Refinery site is provided in a separate EIS Scoping Report (AECOM 2011), while current operations at the Gore Bay Terminal are discussed in Section 3.3 below. The proposals would allow Shell to continue to supply the domestic fuel markets and capitalise on their existing land and infrastructure.

The modification of the Gore Bay Terminal would involve the continued use of most of the Fuel Oil tanks, the cleaning and change of product service for tanks at the northern end of the site from crude oil to finished product. The final product mix is still to be determined but is currently proposed to consist of Jet A-1 and AGO/Diesel. Redundant tanks and associated equipment are proposed to be decontaminated, demolished and removed from site.

3.2 The Proponent

Shell is now a global provider to the energy and petrochemical markets with international headquarters in The Hague, Netherlands. The Australian headquarters of the company are located in Melbourne, Victoria. Shell Australia Limited has been operating in Australia since 1901 and currently employs around 2,500 people across the country.

In 2010, Shell reported global revenue in excess of \$368 billion. Across the business in 2010, Shell was operating in over 90 countries, employing in excess of 93,000 personnel. They operated 17 refineries globally and produced 3.3 million barrels of gas and oil daily. Shell operates approximately 43,000 service stations worldwide. In Australia, Coles Express and owner-operators operate the Shell retail service stations.

The main business activities of Shell in Australia are the upstream exploration and production of oil and gas, and the downstream business which includes refining, supplying, manufacturing and marketing of a range of oil products.

Shell's operations in Sydney include:

- The Clyde Refinery which produces 40% of the NSW refined petroleum requirements;
- Parramatta road distribution Terminal - a seven-bay main fuels road gantry joint facility with British Petroleum handling an annual throughput of 2.7 billion litres. This Terminal also includes a packed lubricants warehouse and lube oil tank farm storing finished bulk lubricants;
- Retail operations, approx 210 retail sites operated by Coles Express and dealers;
- Bulk fuel supply of Jet fuel via a pipeline direct to Sydney Airport ;
- Bulk supply to Newcastle via the Hunter pipeline;
- The supply of road bitumen which is produced at the Clyde Refinery;
- The supply of marine fuel and lubricants to clients which include cruise lines, container lines, tankers and ferries; and
- The supply of bulk solvents and specialty chemicals used in the manufacture of paints, resin, adhesives, detergents, and plastics, as well as in the mining sector.

3.3 Background to the Gore Bay Terminal

The Gore Bay Terminal was one of the first oil receiving facilities for Shell in Australia. The Terminal commenced operation in 1901 where it received oil products which were then transported directly from the Terminal by road throughout NSW and barge within Sydney Harbour. The Gore Bay Terminal is the only source of crude oil and

feedstock supplies to the Clyde Refinery in Rosehill. The Terminal is also the last remaining commercial oil Terminal in Sydney Harbour, supplying bunker fuels to visiting cruise liners and other ships.

More than four million tonnes of crude oil, feedstock and finished products are imported through the Terminal by ship for storage and transfer to the Clyde Refinery by pipeline every year. In addition, approximately 300,000 tonnes of finished products are exported from the Terminal by ship annually.

The Terminal receives ships during daylight hours but once berthed, the discharge takes place continuously for between two to five days. On average, there are between 85 – 100 ships movements per annum. Major products received through the Terminal include crude oil, feedstocks, Automotive Gas Oil (diesel), fuel oil, gasoline and Jet A-1. Gore Bay currently stores a proportion of the crude oil, Automotive Gas Oil and Fuel Oil with the majority of product volumes transferred directly to the Clyde Refinery via the Gore Bay – Clyde pipeline. The balance of crude oil is received into the Gore Bay tanks and pumped to Clyde once the ship has departed. Products are stored in 20 above-ground tanks of varying size.

The Gore Bay Terminal currently operates 24 hours per day, 7 days a week. The current workforce for the Terminal is approximately 30, with between six to eight staff on site on a day-to-day basis with additional contractors subject to various works taking place and ships discharging.

With increasing residential development around the Gore Bay Terminal, community and environmental issues have been a major focus of the Terminal's operation, leading to the formation of a Community Consultative Group (CCG) in 1993. Recent initiatives by Shell working in conjunction with the CCG at the Gore Bay Terminal have included changes and improvements to infrastructure and operations which have facilitated reduction of the environmental impacts associated with shipping operations, noise, odour and visual amenity. A Gore Bay Project Reference Group was also recently established which will focus on the proposed changes at the Terminal. Shell has also invested in environmental research to establish the baseline of marine life in areas surrounding the Terminal with regard to marine biology and ecology. These have been regularly updated since the early 1980s.

3.4 Proposed Modification

3.4.1 Overview

Retention of the Gore Bay Terminal is critical to the overall success of the proposed refined products facility at Clyde as alternative supply routes have a very long lead time due to the required approval process and capital investment requirements. Modification of the Gore Bay Terminal for continued use as a finished product terminal (for the receipt, storage and transfer of finished product) would include the product re-allocation within some existing tanks with some potential refurbishment and a range of facility modifications to improve key aspects of the site and improve efficiencies and safeguarding measures.

The Project would identify, retain and utilise as much existing infrastructure and assets at the Gore Bay Terminal as far as reasonably possible. The current components of the Terminal which would largely remain unchanged² include:

- Lay down area;
- Storage area and storage tanks;
- Utility facilities;
- Electrical/Instrumentation facilities;
- Administration facilities;
- Wharf and loading facilities; and
- Pipelines.

Each of these components is discussed briefly below and a conceptual layout of the redeveloped Terminal site is shown in Figure 2.

² As described throughout the document, Shell will be modifying and improving a number of the assets at the site but these will not change the overall scope of operations at the site.

3.4.2 Lay Down Area

The lay down area would only be used during the construction phase to store equipment prior to its installation and the removal of equipment replaced from the site.

3.4.3 Storage Area and Storage Tanks

Shell plans to reduce the number of tanks in operational Gore Bay Terminal from the current 20 tanks. Tanks not required would be decommissioned, decontaminated and demolished.

Storage tank diameters range from 9.74m to 18.29m. Tanks have either external floating roof or are fixed roof-type tanks. Tanks changing service will be inspected and repaired or modified as necessary before re-entering service to suit the proposed product re-allocation. Modifications of existing software and some hardware would improve the safeguarding and automation at the site. Tank bunds would be retained and improved as necessary.

Review of the site drainage systems would be undertaken with the aim of diverting clean stormwater away from interceptors where possible reducing the load on the interceptors to provide greater efficiency and increased capacity of these units.

3.4.4 Utility Facilities

There would be no site utility changes to the Gore Bay Terminal. Existing infrastructure would continue to be used; however, the current high voltage sub-station and switchboards may be replaced with a modified unit and the waste water treatment facility may also be modified to suit the proposed operation. The Terminal would require electricity, water and gas to maintain fire protection, operational activities and staff accommodation during any site construction. A more detailed description of electricity, water, sewerage usage and other infrastructure would be undertaken included in the EIS.

3.4.5 Electrical/Instrumentation Facilities

Instrumentation at the Gore Bay Terminal would be modified. This would include:

- Modifications to tank instrumentation and tank control systems to enable remote and automated control;
- Inlet manifold systems and remote valves with segregated product distribution piping to respective tanks;
- Revised pumping and supply piping systems;
- Revised site electrical systems;
- Changes to fire protection and suppression systems; and
- Safety shutdown systems.

3.4.6 Administration Facilities

The existing administration facilities at Gore Bay Terminal may be internally refurbished to accommodate altered control systems and personnel arrangements and a small product quality test room may be required to be installed in a relocatable structure next to an existing building on the lower section of the site in the modification proposal. No new permanent facilities would be required, although amenities may be modified. The refurbished facilities would be appropriate to enable product receipt operations.

Other ancillary site infrastructure would be modified to facilitate safe and efficient operations (e.g. lighting).

3.4.7 Wharf and Loading Facilities

There are two wharves at the Gore Bay Terminal site – No.1 and No.2 Gore Cove. Under current operations, only Wharf 1 (No.1 Gore Cove) is used for product discharge. While Shell is currently investigating the feasibility of using Wharf 2 (No.2 Gore Cove) as a second ship discharge point, this is believed to be unlikely. No changes or modifications to the wharves are expected to be required.

Ultimately, all products would be delivered to the Gore Bay Terminal via ship, with an estimated eight ships per month following the full import of finished products, growing to approximately 10 ships per month by 2020.

At this stage, dredging beyond normal maintenance dredging is not anticipated to be needed as part of this project, and, therefore, has not been included in this assessment. The maintenance dredging for Berth 1 is performed to remove excess silt inflow and impact on ships. This is managed with Sydney Ports and subject to SEWPac approvals and is not part of this application.

3.4.8 Road Access

Road transport infrastructure providing access to the Gore Bay Terminal in Greenwich is well established and would be adequate to service the construction and heavy industry activities associated with the modification of the Terminal. Traffic would use mostly local high density urban residential roads, particularly Greenwich Road, adjacent to the Project Site, and River Road which connects Greenwich with the Pacific Highway at North Sydney.

Potential traffic impacts are discussed in Section 7.6. It is anticipated that no traffic impact would result from the Project once the modification works have been completed. During the construction phase, a sizeable construction workforce would be travelling to the site by car, and a large volume of truck movements would occur for delivery of equipment, removal of material and other needed supplies. Traffic impacts during construction would be localised and temporary in nature, with a construction phase estimated to last approximately 24 months. Impacts could be managed through the implementation of management measures, and no requirement for road or access change or modification is anticipated to accommodate for the project construction.

3.4.9 Hours of Operation

The Gore Bay Terminal currently operates 24 hours per day, 7 days a week. This would continue once the Terminal has been modified.

Construction works would be confined to daylight hours and are expected to operate within the current noise limitations as provided in EPL 661. In the event that temporary activities are expected to generate higher levels of noise and application to vary the current noise limits for these activities would be sought from the Office of Environment and Heritage.

3.4.10 Workforce

The current workforce may be reduced for the future operation of the Terminal due to the reduced complexity and higher automation of the facility. Possible staff reductions are not yet confirmed.

3.4.11 Site Storage

Based on current estimates, the storage capacity is planned to be reduced by approximately 30% when compared to the current storage arrangement. This would be achieved by the removal of redundant tanks. The currently proposed storage arrangements are shown in Table 1.

The terminal has been designed for a total throughput of approximately 5.6 Billion Litres (BL) per year. This is based on a forecast mix of throughput grades. The total throughput may vary due to different grade mixes and differing replenishment cycle. Some product (including all gasoline) is currently planned to be pumped directly from the ships to Clyde Terminal without requiring storage at Gore Bay.

3.4.12 Shipping

As discussed in Section 3.4.7, all products are delivered into the Terminal via ship. An average of 3.5 x 80-90 kT Long Range (LR) vessels carrying crude oil per month and 1.5 x 45-50 kT Medium Range (MR) vessels carrying part loads of finished product per month are currently received at Gore Bay. The change to solely finished product ships would result in approximately 7.5 Medium Range (MR) vessels of 45-50 kT per month. This would be expected to increase slowly over time as product demand growth in NSW was experienced. Typically finished product ships are the smaller MR type vessels.

An LR ship is typically alongside Gore Bay for 3-4 days discharging. Of the refined fuels import vessels, approximately 50% (Jet A-1 and AGO) can be expected to be unloaded in 1 – ½ days, with the balance of 50% (gasoline) taking 2.5 – 3 days although options are being reviewed to shorten this time. Fuel oil vessels are expected to be unloaded in < 1 day.

At times there may be strategic justification to bring larger Long Range (LR) Vessels which can be of the order of 80 - 90 kT. This would result in a lower number of ships; however the unloading time would result in them being at berth for longer.

Fuel oil shipping movements would remain at an average of one movement per month. Fuel oil stored at Gore Bay is used purely for the supply of vessels in Sydney Harbour. The fuel oil is distributed to the vessels by the "Whitnavigator". This would remain unchanged during future terminal operations.

4.0 Planning Considerations

4.1 Overview

This section identifies the legislative requirements and planning controls relevant to the Project and outlines the key policy and statutory considerations that would be addressed in more detail in the EIS.

The Project would be undertaken in accordance with the requirements of relevant environmental and planning legislation. All associated environmental and planning approvals would be obtained as required for a State Significant Development (SSD) under Part 4 of the EP&A Act, including but not limited to:

- Commonwealth and State Government planning approvals;
- Local government development approvals;
- Operational approvals – such as an Environment Protection Licence (EPL); and
- Other potential approvals required under relevant environmental and planning legislation and regulations.

4.2 Commonwealth Legislative Requirements

4.2.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires the approval of the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities (SEWPaC) for actions that would have, or are likely to have, a significant impact on matters of National Environmental Significant (NES). The EPBC Act lists seven matters of NES which must be addressed when assessing the impacts of a proposal, which are:

- World Heritage properties;
- National Heritage places;
- Wetlands of International Importance;
- Listed threatened species and ecological communities;
- Migratory species protected under international agreements;
- Commonwealth Marine Areas; and
- Nuclear actions.

If potential significant impacts on a matter of NES are identified, then a referral to the Minister would be made in accordance with the requirements of the EPBC Act for a determination as to whether the Project is a Controlled action. There was one RAMSAR wetland located close to the site and a search of the EPBC *Protected Matters Search Tool* identified sixteen world and national heritage properties, two threatened ecological communities, 58 threatened species and 55 migratory species within 5km of the refinery.

The potential impacts on the identified matters of NES as a result of the proposal are discussed in Section 6.0, and would need to be assessed in further detail during the preparation of the EIS, where required. The assessment of the proposed Project's impacts on matters of NES and the environment of Commonwealth land found that there is unlikely to be a significant impact on relevant matters of NES. Accordingly, it is anticipated that the Project would not need to be referred to the SEWPaC.

4.2.2 National Greenhouse and Energy Reporting Act 2007

The *National Greenhouse and Energy Reporting Act 2007* (NGER Act) came into effect in September 2007 and introduced a single national reporting framework for the reporting and dissemination of information about greenhouse gas emissions, greenhouse gas projects and energy use and production by corporations. The NGER Act makes registration and reporting mandatory for corporations whose energy production, energy use or greenhouse gas emissions meet specified thresholds.

Shell reports emissions including those from the Gore Bay Terminal.

4.3 NSW Legislative Requirements

4.3.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (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 that proposals that have the potential to impact on the environment are subject to detailed assessment and provide opportunity for public involvement.

The Gore Bay Terminal currently operates under 'existing use' rights. Section 106 of the EP&A Act define 'existing use' as "the use of a building, work or land for a lawful purpose immediately before the coming into force of an environmental planning instrument which would have the effect of prohibiting that use". However, under Section 107(2) of the Act, the existing use rights would not authorise Shell to continue its operations at Gore Bay under existing use, and the modification project would need to be assessed against the EP&A Act provisions.

The State significant assessment system provides the framework for State significant development (SSD) and State Significant Infrastructure (SSI). A SSD may be declared under Part 4 Clause 89C of the EP&A Act and defined under the State Environmental Planning Policy (SEPP) (State and Regional Development) 2011. The Minister for Planning and Infrastructure is the consent authority for SSDs.

Under *State Environmental Planning Policy (State and Regional Development) 2011*, Schedule 1 Clause 10 (3) identifies 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 under the *Control of Major Hazard Facilities National Standard* may be declared a SSD. The site is currently classified as an MHF, which would remain unchanged upon the modification. We, therefore, believe that the development would be considered a State Significant Development and that the Minister for Planning and Infrastructure would be the consent authority.

Clause 8 stipulates that development is declared to be State Significant Development for the purposes of the Act if development on the land is not permissible without development consent under Part 4 of the Act and if the development is specified in Schedule 1 or 2.

4.3.2 Contaminated Land Management Act 1997

The primary objective of the *Contaminated Land Management Act 1997* (CLM Act) is to establish a process for investigating and remediating land areas where contamination presents a significant risk of harm to human health or some other aspect of the environment. Where land is identified as potentially contaminated, consultation with the NSW Office of Environment and Heritage (OEH) should be undertaken.

The Gore Bay site has been subjected to detailed environmental assessments undertaken by ERM and audited by the OEH assigned auditor. There is an Environmental Management Plan in place to manage any existing contamination of soil and groundwater and details of this management strategy and the ongoing environmental management of the site would be included in the EIS.

4.3.3 Protection of Environmental Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) aims to protect, enhance and restore the quality of the environment in NSW, to reduce risk to human health and promote mechanisms that minimise environmental degradation through a strong set of provisions and offences. An Environmental Protection Licence (EPL) is required from OEH if any of the activities associated with the proposed works are determined to be a 'scheduled activity' under Schedule 1 of the Act.

The Gore Bay Terminal currently operates under existing licence EPL No. 661, which allows Shell to carry out the following operations on the premises:

Fee Based Activity	Scale
Chemical storage waste generation	> 100 t generated or stored
Waste storage – Hazardous, restricted solid, liquid, clinical & related waste& Asbestos waste	0 – All
Petroleum products storage – Sydney Basin	> 100,000 kL of active storage capacity

A revised EPL would be required to address the requirements for the construction phase and the ongoing operations once the modification works have been completed. A revised EPL would need to be substantially

consistent with the development consent granted pursuant to the SSD application [refer section 89K of the *Environmental Planning and Assessment Act*].

4.3.4 Threatened Species Conservation Act 1995

The *Threatened Species Conservation Act 1995* (TSC Act) identifies and protects threatened native plants and animals and provides for species recovery and threat abatement programs. The objectives of the Act are to conserve biological diversity and promote sustainable development, prevent the extinction of native plants and animals, protect habitat that is critical to the survival of endangered species, eliminate or manage threats to biodiversity, properly assess the impact of development on threatened species and to encourage co-operative management in the conservation of threatened species. These objectives are achieved through:

- Listing of threatened species, populations and communities;
- Requiring recovery and threat abatement actions to be undertaken where threatened species are impacted; and
- Providing a vehicle to improve degraded environments, and to protect areas of high conservation value to threatened species.

A search of the Atlas of NSW Wildlife (OEH, 2011) was conducted for a 10 km radius area around the Gore Bay Terminal site which returned 274 threatened species listed under the TSC Act – including 140 flora species and 134 fauna species, which may occur in the search area.

The potential impact on these species as a result of the proposal is discussed in Section 7.3, and would need to be assessed in further detail during the preparation of the EIS, where required. Generally, it is anticipated that impact on threatened species would be low due to the fact the works program would be confined to the site and the project would involve upgrading an existing terminal facility rather than introducing a new or different operations.

4.3.5 Work Health and Safety Act (2011) (WHS Act) and Regulation (2011)

The Gore Bay Terminal is currently classified as a Major Hazard Facility (MHF) under the *Occupational Health and Safety Regulation 2001*, and, therefore, WorkCover NSW would require notification of the proposal. MHFs are industrial sites such as oil refineries, chemical processing plants and large LPG depots that store, handle or process specific hazardous materials in quantities above threshold limits as defined in Schedule 8 of the Act.

Chapter 6B of the Regulation applies to MHFs and the objective of this Chapter is to put in place measures aimed at preventing major accidents occurring at MHFs, and protecting the health and safety of people at work and the public from hazards leading to or arising from major accidents. Chapter 6B of the Regulation required operators of MHFs to minimise the likelihood and consequences from a major accident by having in place a range of additional safety controls such as:

- Hazard identification and risk assessment;
- Safety management system;
- Emergency plans and security plans; and
- Preparation and submission of a safety report.

The National Standard for the Control of Major Hazard Facilities [NOHSC: 1014(2002)] (MHF National Standard) provides the framework to achieve a harmonised approach for safety controls at a MHF. Shell is in the process of submitting a new Safety Report to WorkCover for a new MHF Licence. Shell will have submitted their new Safety Report by February 2012.

4.3.6 Ports and Marine Administration Act (1995)

The *Ports and Marine Administration Act 1995* (PMA Act) establishes the three state owned Port Corporations including Sydney Ports Corporation, and the Roads and Maritime Service. The PMA Act sets out the objectives and functions of the Port Corporations which include:

- To be a successful business;
- To promote and facilitate trade through its port facilities;
- To ensure that its port safety functions are carried out properly;

- To promote and support a competitive commercial environment in port operations; and
- To improve productivity and efficiency in its ports and the port related supply chain.

The proposed Project is unlikely to amend any activities undertaken within Sydney Port, other than the increase in ship movements; however consultation with both Sydney Ports and NSW Maritime would be undertaken during preparation of the EIS.

4.3.7 Heritage Act 1977

The *Heritage Act 1977* (Heritage Act) aims to protect and conserve non-Aboriginal cultural heritage, including scheduled heritage items, sites and relics. The *Heritage Act* is administered by the Heritage Council of NSW.

The *Heritage Act* makes provision for a place, building, work, relic, moveable object, precinct, or land to be listed on the State Heritage Register. If an item is the subject of an interim listing, or is listed on the State Heritage Register, a person must obtain approval under section 60 of the *Heritage Act* for works or activities that may impact on these items.

A desktop search of the NSW State Heritage Register and the LEP 2009 identified over 150 heritage listed sites within 500 metres of the Terminal, 18 of which are within 100 metres of the Project site (refer Table 5). The Shell Park at the Gore Bay Terminal is heritage listed under the LEP 2009 as two separate archaeological properties as well as being part of a conservation area. The Shell Installation at Gore Bay Terminal is also listed as a Heritage site under the LEP 2009 and NSW State Heritage Register however, approval from the Heritage Council would not be required if the Project is declared a SSD.

4.3.8 National Parks and Wildlife Act 1974

The *National Park and Wildlife Act 1974* (NPW Act) aims to prevent the disturbance and/or destruction of any items or sites of Aboriginal heritage significance and the removal of identified threatened species. It is an offence to harm or desecrate an Aboriginal object or place under Section 86 of the Act. Any such activity may only be undertaken in accordance with an Aboriginal Heritage Impact Permit (AHIP) issued by OEHL under Section 90 of the Act.

Section 7.1 discusses the potential for the modification works to impact on items of Aboriginal significance. Despite the presence of 24 Aboriginal sites within a 200 m zone around the Terminal site, it is predicted that there is very little potential for the presence of *in situ* Aboriginal sites given the land use history of the site. Accordingly, it is not anticipated that approval from OEHL would be required. However, an extensive search of the Aboriginal Heritage Information Management System (AHIMS) would need to be conducted as part of the EIS process to confirm this assumption.

4.4 State Environmental Planning Policies

4.4.1 State Environmental Planning Policy (State and Regional Development) 2011

The *Environmental Planning and Assessment Act 1979* (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 that proposals that have the potential to impact on the environment are subject to detailed assessment and provide opportunity for public involvement.

The State significant assessment system provides the framework for State significant development (SSD) and State significant infrastructure (SSI). A SSD may be declared under Part 4 Division 4.1 Section 89C of the Act and defined under the *State Environmental Planning Policy (SEPP) (State and Regional Development) 2011*.

As previously discussed in Section 4.3.1, the proposed development may be declared a SSD under either Schedule 1 Clause 10 (2) this being a liquid storage development with a capital investment expected to be greater than \$30 million, or Clause 10 (3) as "a development for the purpose of storage of dangerous goods in such quantities that constitute the development as a major hazard facility". As an SSD, the proposed development of the finished product terminal at the Gore Bay Terminal site is to be assessed under Division 4.1, Part 4 of the EP&A Act (SSD), and is likely to be determined by the Minister for Planning.

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

The *State Environmental Planning Policy 33 – Hazardous and Offensive Development* (SEPP 33) provides definitions of hazardous and offensive development, to ensure that in determining whether a development is a hazardous or offensive industry, the consent authority has sufficient information to assess whether the

development is hazardous or offensive and that any measures proposed to be employed to reduce the impact of the development are taken into account. Part 1, Clause 3 describes potentially hazardous industry as:

'development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:

- 1) *to human health, life or property, or*
- 2) *to the biophysical environment,*

and includes a hazardous industry and a hazardous storage establishment.'

Part 4, Clause 1 defines a hazardous industry as:

'a development for the purposes of an industry which, when the development is in operation and when all measures proposed to reduce or minimise its impact on the locality have been employed (including, for example, measures to isolate the development from existing or likely future development on other land in the locality), would pose a significant risk in relation to the locality:

- a) *to human health, life or property, or*
- b) *to the biophysical environment.'*

A hazardous storage establishment is defined as:

'any establishment where goods, materials or products are stored which, when in operation and when all measures proposed to reduce or minimise its impact on the locality have been employed (including, for example, measures to isolate the establishment from existing or likely future development on the other land in the locality), would pose a significant risk in relation to the locality:

- a) *To human health, life or property, or*
- b) *To the biophysical environment.'*

The change in products stored at Gore Bay would reduce the current hazard profile of Gore Bay. The site, however, would still remain classified as a Major Hazard Facility and a Preliminary Hazard Analysis would still be required as part of the development application to show the changes to the risk profile of the site. This analysis would be a component of the EIS.

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

In practice, *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55) makes all remediation works in NSW either permissible with development consent (Category 1 remediation works) or permissible without development consent (Category 2 remediation works). In broad terms, Category 1 works include those remediation activities with a greater scale, intensity and potential for environmental impacts, while Category 2 works are relatively more benign (SEPP 55 provides a more comprehensive list of activities that fall within each category).

SEPP 55 requires the consent authority to consider whether land is contaminated as part of the assessment of a development application, and if it is, whether it is suitable or could be made suitable through remediation, for the intended land use. The EIS would provide further consideration of any contamination issues associated with the site.

4.5 Other Strategic Policy Developments

4.5.1 Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005

The *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* (REP 2005) seeks to ensure that the catchment, foreshores, waterways and islands of Sydney Harbour are recognised, protected, enhanced and maintained: as an outstanding natural asset, a public asset of national and heritage significance and for existing and future generations. It also aims to ensure a healthy, sustainable environment on land and water and to achieve a high quality and ecologically sustainable urban environment.

The Gore Bay Terminal is located on land adjacent to waters zoned as W1 Maritime Waters under the REP 2005. Tankers berthing at the Terminal are located within these waters. Under the REP 2005, commercial port facilities and dredging activities are permissible with consent. Objectives of the zone include:

- a) *to give preference to and protect waters required for the effective and efficient movement of commercial shipping, public water transport and maritime industrial operations generally,*
- b) *to allow development only where it is demonstrated that it is compatible with, and will not adversely affect the effective and efficient movement of, commercial shipping, public water transport and maritime industry operations,*
- c) *to promote equitable use of the waterway, including use by passive recreation craft.*

The change of the Gore Bay Terminal to an import terminal of solely finished products in MR-type vessels would result in an increase in ship movements when compared to the current crude oil vessels. This is not expected to alter the effectiveness and efficiency of commercial shipping movements, public water transport and maritime industrial operations in the harbour. The proposed works would not promote unequal use of the waters in the Harbour, and it would be compatible with commercial shipping, public water transport and maritime industry operations. As a result, the development would align with the objectives of the maritime waters zone under the REP 2005.

4.5.2 Sydney Harbour Foreshore and Waterways Area DCP 2005

The area relevant to this Development Control Plan (DCP) is the Foreshores and Waterways Area as defined in Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005.

This DCP is a revision of the DCP for Sydney and Middle Harbours Regional Environmental Plan and Parramatta River Regional Environmental Plan and has been revised to accompany Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005. Whilst the revision is only minor and updates cross-referencing with Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005, it also introduces new design guidelines and visual assessment criteria for boat storage. A fuller, more comprehensive revision of the DCP is proposed in the future.

The DCP provides detailed design guidelines for development and criteria for natural resource protection for the area identified as Foreshores and Waterways area. It also includes performance-based criteria and guidelines relating to matters such as foreshore access, visual and natural environments, recreation and maritime industrial uses are established by the DCP with the aim of:

- protecting ecological communities within the area covered by SREP (Sydney Harbour Catchment) 2005;
- ensuring that the scenic quality of the area is protected or enhanced;
- providing siting and design principles for new buildings and waterside structures within the area; and
- identifying potential foreshore access locations in the area.

The Gore Bay Terminal site does not contain any ecological communities mapped under the DCP, and does not border more than one landscape character type, therefore no investigations of ecological or landscape controls under the DCP would be required.

4.5.3 Lane Cove Local Environmental Plan 2009

The LEP 2009 aims to establish Lane Cove's sustainability in environmental, social and economic terms, based on ecologically sustainable development, inter-generational equity, the application of the precautionary principle and the relationship of each property in Lane Cove with its locality. It also seeks to protect, maintain and effectively manage public and privately-owned watercourses and areas of riparian land, foreshores and bushland, ensure that development does not adversely affect the water quality or ecological systems of riparian land or other areas of natural environment, and conserve heritage items (clause 1.2).

The Gore Bay Site is located on land that is zoned IN4 – Working Waterfront under the LEP 2009. Within this zone, development for the purpose of heavy industries, light industries and port facilities; *inter alia*, are permissible with development consent. Development for the purpose of hazardous industries or offensive industries is prohibited.

In the context of the existing operations and proposed modification of the existing facilities at the Gore Bay Site, the development would constitute a 'port facility' (the definition of which includes facilities for the loading or

unloading freight onto or from vessels and associated receipt, land transport and storage facilities) if the fuels to be unloaded from vessels at the site can be appropriately characterised as 'freight'. In the absence of a definition of 'freight' in the LEP 2009 to the contrary, the ordinary English usage of 'freight' (as "*commercial transportation of goods by a vessel or vehicle*") is considered a reasonable description of the fuels to be received and stored at the site.

If the proposed development on the Gore Bay site cannot be characterised as a port facility, then an alternative characterisation as a heavy industry is possible (noting that heavy industry includes a heavy industrial storage establishment, which in turn incorporates development for the purpose of a liquid fuel depot under the LEP 2009).

The development is unlikely to be characterised as a hazardous industry or offensive industry (which are both prohibited) due to the fact that when the site is in operation, it would not pose a significant risk in relation to the locality to human health, life or property or to the biophysical environment when all measures proposed to reduce or minimise its impact on the locality have been employed. This would be further assessed as part of the EIS including by the preparation of the PHA in accordance with the requirements of SEPP 33 (refer to Section 4.4.2).

The development at the Gore Bay Site would therefore comply with applicable land use planning criteria and established amenity standards (for noise, odour etc).

Development consent is required for any demolition activities to be conducted on the Gore Bay Site, in accordance with clause 2.7 of the LEP 2009.

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5.0 Project Consultation

In order to undertake a comprehensive environmental assessment of the Project, clear and effective consultation with the community and government agencies would be undertaken. The key objectives of the consultation would be to:

- Initiate and maintain open communication to ensure all stakeholders are clear about the scope of the Project;
- Provide an understanding of the regulatory approval process to stakeholders;
- Seek local information and input into the Project by providing a range of opportunities for stakeholders to identify key issues for consideration; and
- Proactively work with the community to propose strategies to maximise benefits and minimise any possible negative impacts from the Project.

Shell holds and chairs quarterly a Gore Bay Community meeting which provides operational updates and listens to and addresses community concerns. The last two meetings (June & Sept) tabled and discussed the proposed project and established a Gore Bay Project Reference Group specifically to discuss aspects of the proposed changes to the operation of the Gore Bay facility. The first meeting of this group was held on the 16 November 2011 and involves both members of the community and representatives from the Local Council.

Consultation with relevant government agencies and non government stakeholders has commenced, and would continue during preparation of the EIS and for the duration of the proposed modification of the Gore Bay Terminal. Some of the key stakeholders consulted to date include:

- Department of Planning and Infrastructure;
- Department of Premiers and Cabinet;
- Department of Resources and Energy;
- Department of Roads and Ports
- Sydney Ports Corporation;
- Roads and Maritime Service;
- Department of Industry and Investment;
- WorkCover NSW;
- Sydney Water;
- Energy Australia;
- Office of Environment and Heritage; and
- Lane Cove Council.

Shell is committed to engaging with all relevant stakeholders to ensure that the potential impacts identified from the Project are understood and documented and where possible avoided or minimised. To achieve this, Shell undertakes stakeholder consultation with the aim to provide stakeholders with an opportunity to express their views and concerns and to provide feedback and involvement in the EIS process.

This consultation program would be ongoing throughout the EIS process and would continue during Project implementation. A community engagement and consultation strategy would be developed for the Project which would be implemented as part of the EIS. It is anticipated that the strategy would involve development of project newsletters, community information sessions, FAQs, and contact details for any enquiries.

Shell would utilise a variety of communication tools and activities to inform and receive feedback from stakeholders including meetings, newsletters and presentations. Shell would ensure all the issues identified and the resultant outcomes from consultation would be recorded and fed back into the EIS process.

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6.0 Potential Environmental Issues

This Section describes available background information and the potential environmental impacts of the proposed Project. The methods of assessment that would be used in undertaking technical studies to support the EIS are also presented.

Potential environmental issues associated with the Project have been identified based on existing data and knowledge of the site held by Shell, preliminary desktop investigations and understanding of the statutory framework and general approvals requirements. The issues identified for preliminary screening include (in no particular order):

- Land Use;
- Social and economic effects;
- Air Quality and Odour;
- Noise and Vibration;
- Soil and Groundwater;
- Landscape Character and Visual Amenity;
- Heritage;
- Hazard and Risk;
- Terrestrial Ecology;
- Aquatic Ecology;
- Waste Management;
- Road Traffic;
- Infrastructure Provision; and
- Sustainability and Climate Change.

These issues are reviewed here as a basis for determining those of Low, Moderate and High priority.

6.1 Social and Economic Effects

6.1.1 Existing Environment

The Gore Bay Terminal site, located in the Lane Cove LGA, is situated on the waterfront of Gore Cove within Sydney Harbour which is under the jurisdiction of Sydney Ports. Sydney's port has been crucial to the economic development of Australia since it became the country's first major trade gateway more than 200 years ago. Today, Sydney's port handles more than \$50 billion of international and domestic trade annually and supports more than 17,000 jobs.

The area surrounding the Gore Bay Terminal site is predominantly urban residential and the area is well served by supporting road and port infrastructure.

A range of community infrastructure and services are available in the Lane Cove LGA to support residents and workers including educational facilities, health services, sport/leisure and recreation facilities and aged care support services.

6.1.2 Issues for Consideration

It is expected that during the operational phase of the Project there would be between 30-50 employees across both sites (Clyde Refinery and Gore Bay Terminal) with varying work patterns, including 24/7 shift work in addition to day work rosters. The type of roles for employment would include tank farm operators, movement's controllers, shore officers, administration, maintenance and engineering.

There would be no change to basic services supplied externally to the Gore Bay Terminal site. The Terminal would require electricity, water and gas equivalents to other Terminals to maintain fire protection, operational activities and staff accommodation. It is anticipated that the vast majority of the construction and operational workforce would reside in the Sydney Metropolitan area.

Community consultation would also be required throughout the planning phase of this Project. Shell currently has well established community forums, which would be utilised to ensure the community are well informed of planned activities.

6.1.3 Method of Assessment

As part of the preparation of the EIS consideration of the social and economic impact of the Project would be undertaken. The assessment would identify the social and economic profile of the Lane Cove LGA as well as the wider Sydney Metropolitan region in terms of its residents, workforce, industrial and tourism base etc.

The assessment would also identify positive and negative social and environmental impacts associated with the project and, where appropriate, measures recommended to minimise any potential negative impacts.

6.2 Soil and Groundwater

6.2.1 Existing Environment

6.2.1.1 Soil

Gore Bay Terminal is located on Hawkesbury Sandstone, which forms sheet-like to massive formations of medium to coarse-grained quartz material with minor shale and laminate lenses (ERM, 2008). Based on the Sydney 1:100 000 Geological Sheet 9130 (Edition 1, 1983), there is a basalt dyke roughly in the centre of the site oriented roughly in a west-north west, east-south-easterly direction.

Four geological layers have been identified on the site, which are detailed in Table 3.

Table 3 Gore Bay Terminal Geology (ERM 2010)

Geological Unit	Description
Fill Material	A highly porous unit along the eastern site perimeter at a depth of up to 6.75m (Coffey and Hollingsworth, 1975) predominantly comprised of sandstone boulders, clasts and fragments derived from former bedrock outcrops at the site. There are also minor fragments of construction waste including concrete blocks and steel pipes.
Silty Sands and Sandy Clays	This unit is present as poorly sorted silty-sand, sandy silt and sandy clay in the northern and central portions of the site. Beneath the northern reach of the seawall, fill material is underlain by a thin layer of plastic clay, directly overlying a poorly sorted layer of clay sand and in the central portion of the site, the seawall is underlain by dark grey to black sandy loam and sandy clay to a depth of at least 4.5m below ground level (bgl).
Sandstone Bedrock	This unit comprises Hawkesbury Sandstone at depths between 4m and 12m bgl, and is exposed in numerous vertical rock faces in the west of the site. The sandstone is comprised of yellow to orange, brown and grey medium to coarse grained massive and cross bedded sandstone units between m and 5m thick.
Gore Bay Sediment	The Gore Bay seabed in close proximity to the seawall consists of silty clay and sandy clay sediment overlying moderately to highly weathered sandstone bedrock. There are also minor and relatively discontinuous bands of sand and silty sand with shell inclusions evident throughout the profile (Woodward-Clyde 2002).

6.2.1.2 Groundwater

Groundwater within the eastern portion of the site occurs between 1.0m and 3.1m below ground level (bgl), in the layers of fill material located behind the seawall. The groundwater in this half of the site is hydraulically connected to Sydney Harbour and therefore the groundwater flow direction varies with the tidal regime. At low tide, groundwater discharges into Gore Bay, and at periods of high tide, the groundwater in this area is recharged.

In the western portion of the site, groundwater is present in the sandstone bedrock up to depths of 17.5m bgl. The prevailing direction of groundwater flow in the west is likely to follow site topography and to be in an easterly direction towards Gore Bay.

6.2.1.3 Soil and groundwater contamination

Fifteen previous soil and groundwater investigation phases have been undertaken by ERM (2010) since 1990 at the Gore Bay site for assessment of the subsurface conditions. Based on these investigations, and with

consideration of the historic use of the site, the investigations have addressed the following Chemicals of Potential Concern (COPC):

- Total Petroleum Hydrocarbons (TPH);
- Volatile Organic Compounds (VOCs) including Benzene, Toluene, Ethylbenzene and Xylene (BTEX);
- Polycyclic Aromatic Hydrocarbons (PAHs); and
- Heavy metals.

The potential on-site source for these COPCs is historical product spillages or losses from the product storage or handling infrastructure (tanks and pipes). Products stored (past or present) include:

- Dobane;
- Lubricating oil;
- Crude oil;
- Finished fuel products;
- Bituminous products;
- Waste products;
- Other hydrocarbon products including benzene, toluene and acetone; and
- Fuel additives.

Soil and groundwater investigations have previously been undertaken at the site which has been approved by OEHL. These investigations included sub surface mapping characterisation and development of a conceptual site model. A groundwater monitoring network has also been established around the Gore Bay Terminal to ensure conditions remain acceptable. On site groundwater investigations have identified elevated concentrations of TPH, BTEX and PAH constituents, as well as elevated metal concentrations in certain locations (ERM, 2010).

The site is subject to an OEHL approved Soil and Groundwater Management Plan (SGMP 2010). The aim of this plan is to provide a long term approach with regard to management of the site and to facilitate the development of a Conceptual Site Model at the Terminal. The key aims of the SGMP are:

- Manage residual Phase Separated Hydrocarbons identified within the sub surface of the operating areas;
- Regular monitoring of groundwater and the potential for offsite migration; and
- Assess changes in conditions and establish trigger and response levels to assist in the prevention of potential risks to the environment and human health.

Regular groundwater monitoring is undertaken in accordance with EPL 661. The data obtained from the monitoring would be used to further develop and refine the conceptual site model.

Comparison criteria for ecological receptors remains as ANZECC (2000), however the following best represents the Tier 1 screening criteria that have been adopted:

- For Soil, the Tier 1 screening criteria to be applied is as follows:
- Cooperative Research Centre for Contaminant Assessment and Remediation of the Environment (CRC CARE) Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater (Friebel and Nadebaum 2011);
- NEPM (1999) - Assessment of Site Contamination, Schedule B (1) - Guideline on the Investigation Levels for Soil and Groundwater, Soil Health Investigation Levels for commercial/industrial land (HIL F); and
- New South Wales Environmental Protection Agency (NSW EPA), Contaminated Sites Guidelines for Assessing Service Station Sites – Threshold Concentrations for Sensitive Land Use (Protection of Human Health).

For groundwater, the Tier 1 screening criteria to be applied is as follows:

- Cooperative Research Centre for Contaminant Assessment and Remediation of the Environment (CRC CARE) Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater (Friebel and Nadebaum 2011); and

- AZECC/ARMCANZ, Australian and New Zealand Guidelines for Fresh and Marine Water Quality, 2000 (ANZECC 2000).

6.2.1.4 Acid Sulphate Soils (ASS)

A review of the LEP 2009 Acid Sulphate Soil Risk Maps identified that the Gore Bay Terminal is not in close proximity to any areas where ASS are present. Class 5 ASS, classified as having the lowest risk, occurs directly north of the site within Hollaway Park.

6.2.2 Issues for Consideration

Further investigations into soil and groundwater contamination at the site may be necessary to add to limited existing data and draw a more comprehensive picture of potential contamination issues on site, hence allowing for a better understanding of potential environmental impacts resulting from the proposal.

Depending on the nature of construction activities on the site (to be finalised), there is potential for existing soil and groundwater contaminants to be mobilised and or exposed. The management of contaminated materials would need to be considered during the preparation of the EIS so as not to pose a potential threat to the receiving surrounding environment, including Sydney Harbour waters.

The transition of the Terminal to store finished products is not predicted to involve any extensive earthworks. As there is no ASS within the proposed works areas, there would be no activation of acids as a result of any construction activities.

6.2.3 Method of Assessment

A detailed review of all previous groundwater contamination investigations would also be necessary to determine the effect of the proposed works on the hydrogeology and quality of the groundwater present below ground level on the site. Future management protocols upon the removal of any tanks would be outlined in the EIS.

6.3 Air Quality and Odour

6.3.1 Existing Environment

The air quality in the area surrounding the Gore Bay Terminal is impacted by emissions from residential areas including traffic emissions from cars and, to a lesser extent, heavy vehicles using the local and regional road network.

6.3.2 Issues for Consideration

There would be some impacts on air quality during the modification of the Gore Bay Terminal. These impacts would be localised to the vicinity of works and may include emissions from construction machinery and vehicles and fugitive dust generation and odours. These impacts can be mitigated through use of dust suppression techniques (e.g. water sprays to exposed areas, covers on truck loads, use of wheel washes) and through use of well maintained machinery.

Atmospheric emissions associated with the operation of the Terminal may include:

- Carbon dioxide (CO₂);
- Carbon monoxide (CO);
- Nitrogen oxides (NO_x);
- Sulphur dioxide (SO₂);
- Volatile organic compounds (VOCs); and
- Particulates and dust.

These emissions are likely to emanate from a number of areas within the Terminal such as storage tanks, pipelines, loading arms at the berths etc – and also from ship, truck and private vehicle transport. The principal emissions from the operating Terminal currently consist of NO_x and CO₂ from the boilers.

Emissions at the Gore Bay Terminal are modelled using TANK model and LDAR program. In addition, as part of a health study at Gore Bay monitoring was undertaken at the boundary to determine ground level concentrations during various operations at the Terminal.

6.3.3 Method of Assessment

A detailed air quality assessment would be prepared as part of the EIS and this assessment would be prepared in accordance with relevant guideline documents including the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DEC 2005).

The assessment would address potential air quality impacts during both the modification of the Gore Bay Terminal taking into account both prevailing and worst case atmospheric conditions and the location of sensitive receptors in the areas surrounding the site. The assessment would recommend both design and management measures to mitigate any potential impacts that are identified.

Potential scope 1, 2 and 3 greenhouse gas emissions from the project would be calculated and an assessment would be made of the potential emissions to the environment (National Greenhouse Accounts Factors DECC 2008). Reasonable and feasible measures would be recommended to reduce these emissions where possible.

6.4 Noise and Vibration

6.4.1 Existing Environment

The site is surrounded by residential properties to the north-west, west, and south. A public green space – Hollaway Park, is located adjacent the site to the north. An inlet of Sydney Harbour – Gore Cove, is adjacent and directly to the east. East of Gore Cove are two public green spaces – Gore Cove Reserve and Berry Island Reserve. The Reserves provide public picnic facilities, and are connected by a walking track. There are also residential properties located east of Gore Cove.

6.4.2 Issues for Consideration

Under EPL 661, Gore Bay has a noise emission limit of 55 dB(A) during the day and 50 dB(A) at night for the general operation of its premises. However, these levels do not apply to essential maintenance works which may generate high noise providing that: they are undertaken during standard working hours, appropriate mitigation measures are implemented, residents are notified in advance of the noise generating works, and a complaint handling response is developed and implemented.

Noise at Gore Bay is currently monitored daily at the site's boundary by hand held noise monitors. However, the current monitoring programme is not in accordance with the NSW Industrial Noise Policy (INP).

During the construction phase of the Project, noise impacts would result from site preparation activities, construction activities and modification works. Noise would also be generated from the transportation of materials and equipment associated with these activities. If the noise emanating from these temporary activities is likely to breach the current noise limits imposed on the site and/or noise mitigation measure as deemed to be ineffective, a temporary variation would be sought.

Following the completion of the modification works, noise levels are anticipated to be equivalent to those currently existing at the site. Noise would be predominantly generated from pumps, power generators and general ship loading operations at the berth. Operations would continue to occur 24 hours per day, 7 days a week

6.4.3 Methods of Assessment

An assessment of noise and vibration for the proposed Project would be undertaken and the methodology proposed for the assessment would include:

- Determine existing background noise levels;
- Determine sound power levels of all acoustically significant plant and equipment to be operated during modification;
- Analyse noise data with reference to local weather conditions and cumulative impacts;
- Impact assessment (modelling) of construction and operational noise and vibration, including consideration of cumulative impacts, sleep disturbance impacts and traffic noise at identified nearest sensitive receivers, for day, evening and night time periods under calm and prevailing meteorological conditions;
- Identify noise management strategies and mitigation measures, as required; and
- Identify any residual environmental risk.

The assessment would be undertaken in accordance with government policy and guidance, including:

- the *Interim Construction Noise Guidelines* (DECC, 2009);

- the *NSW Industrial Noise Policy* (EPA, 2000); and
- the *NSW Road Noise Policy* (DECCW, 2011).

Management controls would be recommended to minimise potential noise impacts. Where required, noise attenuation would be incorporated into the design of major noise sources in the Gore Bay Terminal.

6.5 Surface Water, Process Water and Flooding

6.5.1 Existing Environment

Gore Bay Terminal is located within the Parramatta River sub-catchment and is managed by the Sydney Metropolitan Catchment Management Authority. The Parramatta River is the main tributary of Sydney Harbour, extending from Blacktown Creek in the west to the confluence of the Lane Cove River in the east. The Parramatta River catchment area is over 257km², with the estuary covering 12km².

The Parramatta River is one of the most urbanised catchments in Australia. Historical land uses have highly modified the nature of the estuary, with a range of sediments and pollutants entering the estuary which have impacted on water quality and habitat values.

Water quality across the Parramatta River catchment is varied across location and over time (Laxton *et al.* 2008). There are a number of environmental concerns in regards to the general health of the Parramatta River including turbid water, sickness from primary contact with the water, excessive algae and weed growth, unhealthy fauna, gross pollutants in waterways, oil and grease presence in the water and loss of creek habitats including vegetation and fauna shelters. Table 4 details the factors affecting water quality of the Parramatta River between 1990 and 2007.

Table 4 Factors affecting water quality in the Parramatta between 1990 and 2007 (Laxton et al. 2008)

Environmental factor	Impact on Water Quality
Nitrogen and Phosphorous presence	Nitrogen and Phosphorous concentrations in Parramatta River range between 0.5-2mg/L and 0.05-0.25mg/L respectively. High nutrient concentrations have resulted in increases in weed and algal growth.
Turbidity	During wet weather turbidity is considered to be poor.
Faecal Coliforms	Levels are generally safe for secondary contact during dry weather, but conditions are unsafe during wet weather due to significant sewer overflows.
Sediment	Sediment levels are higher than what would be expected in a natural system.
Oils	Oil concentrations are considered to be significant as a result of uncontrolled runoff from many roads and hardstand areas.
Heavy Metals	Heavy metal concentration is not considered to be detrimentally affecting water quality; however, levels are up to 12 times higher than acceptable levels in bottom sediments.

Surface water around the Gore Bay Terminal generally flows towards Sydney Harbour, either directly via surface watercourses, or via stormwater infrastructure on site (the detail of which is currently unknown). The nearest freshwater surface watercourses are Gore and Berry Creeks, which are intermittent streams meandering through urban areas to the north of the site before entering the Harbour at inlets located directly to the north-west and north-east of the site, respectively.

The site is not located within a known flood plain, and no history of flooding is known for the area.

Bunds and containment walls have been constructed on benches around the tanks. Drainage is controlled by a network of stormwater drains which collect surface water runoff and spillages from across most of the site and direct into one of the two corrugated plate interceptors. The hydrocarbon product that rises to the surface of the CPIs is skimmed off and then directed through waste oil flow lines to the waste oil aboveground storage tank before being directed into crude oil. Treated stormwater from the separator is then discharged into Gore Bay (ERM 2010).

Rainfall runoff that is collected outside of the bunded areas on-site flows into stormwater drain infrastructure and eventually discharges into Sydney Harbour. In unsealed areas of the site where there are areas of exposed bedrock, rainfall would also infiltrate into the subsurface.

6.5.2 Issues for Consideration

Construction activities associated with the Project such as earthworks (expected to be minimal) have the potential to generate excess spoil and expose soil to the effects of erosion which, in turn, has the potential to affect downstream water quality through transport of sediments into Gore Bay via surface runoff.

There is also a risk of accidental spills or leaks of hydrocarbons or other hazardous substances used on site which may impact on water quality in Gore Bay. Potential impacts on water quality in Gore Bay would need to be investigated during the EIS process. Details on existing bunding and any improvements would be detailed in the EIS.

6.5.3 Method of Assessment

Preparation of the EIS would include an assessment of potential stormwater impacts on the surrounding receiving environment. Mitigation measures would be recommended to address potential impacts.

The assessment would also include a study of bund water treatment capacity and the potential impacts of high rainfall or flood events.

6.6 Landscape Character and Visual Amenity

6.6.1 Existing Environment

The Gore Bay Terminal is the only industrial development in the suburb of Greenwich and is on waterfront land along Sydney Harbour. The area surrounding the Terminal comprises urban residential development and parklands including Manns Point Park, Hollaway Park and Greenwich Point reserve along the Sydney Harbour foreshore. The area is generally characterised by double storey houses and parks, with the storage tanks, ships and ancillary buildings and structures associated with the Terminal.

The Gore Bay Terminal site is currently comprised of 20 storage tanks of varying sizes. The site is on land which is stepped down towards the harbour and contains limited vegetation. The site is visible from a number of surrounding vantage points including Berry Island reserve on the eastern side of Gore Cove, Balls Head Reserve, and residential properties in Greenwich and Wollstonecraft.

6.6.2 Issues for Consideration

The modification would be comparable to the existing Terminal in Gore Bay with no planned external changes to the administration facilities or wharves. Following the modifications and products changes, the number of storage tanks at the Gore Bay facility is expected to be reduced³.

The modifications to the facility would not alter the landscape of the Terminal significantly except where the removal of redundant tanks may offer some slight improvements to the views from areas surrounding the site. The landscape would be compatible with the existing nature of the site.

There is likely to be some visual impacts during the construction period of the Project including building activities, and general site works. These impacts would be restricted to the construction period of the Project and would be assessed as part of the EIS.

6.6.3 Method of Assessment

The EIS would consider the extent of visual impacts associated with the modification of the Gore Bay Terminal. As tanks are likely to be removed rather than constructed, the net effect to the visual landscape should include a slight improvement.

³ The final tank allocations and numbers are still to be determined, however, all current options would require a reduced number of tanks at the site.

6.7 Hazard and Risk

6.7.1 Existing Environment

The Gore Bay Terminal is over 100 years old and is the only industrial facility in the suburb of Greenwich. Since its construction, urban residential development has encroached to the immediate boundary of the site. These residential receivers are therefore the main sensitive receivers to the Gore Bay Terminal. The Terminal is currently declared as a Major Hazard Facility.

6.7.2 Issues for Consideration

The key consequences that can result in harm or damage to the adjacent residential properties in close proximity to the Terminal may include:

- Damage and/or injury from the ignition of substances within an adjacent residential or community area resulting from a release within the Terminal site;
- Damage and/or injury from radiant heat from a fire within the Terminal site;
- Damage and/or injury from blast overpressure resulting from an explosion on the Terminal site; and
- Injury from inhalation, ingestion or contact with a toxic gas cloud within an adjacent residential or community area resulting from a release within the Terminal site.

In addition to the above, there are a number of possible releases of vapours and liquids that can occur from the storage tanks and loading facilities which have been identified in the hazard assessment and included in the MHF Safety Report

6.7.3 Method of Assessment

Hazard identification and screening would be undertaken and a PHA would be undertaken as part of the EIS, in accordance with the provisions of SEPP 33.

The EIS would therefore incorporate an assessment of all potential hazards and risks. The results of the risk assessment would include development of appropriate controls to minimise risks during construction and operation of the Project.

The assessment would assist in identifying the scope and nature of control measures including emergency and fire response plans, fire and rescue training and natural disaster contingency plans (nine of which are currently in place). Specific attention would be given to the assessment and mitigation of risks on the health and safety of:

- the workforce within the site;
- shipping and berthing facilities within Gore Bay; and
- Surrounding infrastructure and residential properties.

Further assessment of the berth and Gore Bay would be undertaken as part of the EIS.

7.0 Other Issues of Consideration

7.1 Heritage

7.1.1 Existing Environment

The Project area at Gore Bay Terminal has been an industrial space for over 100 years, and has been disturbed by land filling practices and the associated industrial infrastructure. The urban residential development has been moderately disturbed through land filling practices and the levelling of the ground surface.

A basic search of the AHIMS (OEH 2011) revealed the presence of 24 Aboriginal sites recorded within a 200m buffer around the Gore Bay Terminal site. Given the land use history of the site, it is predicted that there is very little potential for the presence of in situ Aboriginal sites.

Desktop searches of the Australian Heritage Database, NSW State Heritage Register and the LEP 2009 identify over 150 heritage listed sites within 500m of the Terminal, 18 of which are within 100m of the Project Site (refer Table 5). Of the listed sites, none are of Aboriginal significance.

The Shell Park at the Gore Bay Terminal is listed as an archaeological item under the LEP 2009 as it contains various archaeological properties (Table 4). The site is also located within the Greenwich Conservation Area which covers most of the Greenwich peninsula. This conservation area is also heritage listed under the LEP 2009.

Other heritage listed sites within 100m of the Project Site include parts of the road reserve, houses, terraces and semi detached dwellings.

Table 5 Heritage listed sites within 100m of the Gore Bay Terminal

Type of Listing	Significance Level	Property Details	Distance from the Gore Bay Terminal
Archaeological	Local Government	124 Gother Avenue Fells Shale Oil Refinery – various sites	0m (part of the Project Site)
Archaeological	Local Government	124 Greenwich Road Shell Installation – various sites	0m (part of the Project Site)
Archaeological	Local Government	O'Connell St—Bond Reserve Former Bond Store	150m west
General	Local Government	Greenwich Peninsula South Conservation Area	0m (part of the Project Site)
General	Local Government	Road reserve Greenwich Point (various streets) Streetscape elements (sandstone steps, outcrops, kerbing and retaining wall)	0m (directly west of the site)
General	Local Government	House 52 Chisholm Street Lot 4, DP 3907	35m north
General	Local Government	House 12 St. Lawrence Street Lot A, DP 410040	45m west
General	Local Government	House 50 Chisholm Street Lot 5, DP 3907	48m north
General	Local Government	Terrace 16 St. Lawrence Street Lot A, DP 63023	60m south-west
General	Local Government	Terrace 20 St. Lawrence Street Lot C, DP 63023	61m south-west

Type of Listing	Significance Level	Property Details	Distance from the Gore Bay Terminal
General	Local Government	House 48 Chisholm Street Lot 6, DP 3907	62m north
General	Local Government	Terrace 22 St. Lawrence Street Lot D, DP 63023	72m south-west
General	Local Government	House 24 St. Lawrence Street Lot 2, DP 165814	80m south-west
General	Local Government	Semi-detached dwelling 7 St. Lawrence Street Lot 2, DP 933519	81m west
General	Local Government	Eswick 2 Albert Street Lot A, DP 162307	87m south-west
General	Local Government	Semi-detached dwelling 5 St. Lawrence Street Lot 1, DP 933519	90m west
General	Local Government	House 163 Greenwich Road Lot 2, DP 73303	100m north-west
General	Local Government	Terrace 18 St. Lawrence Street Lot B, DP 63023	100m west

The proposed modification of the Terminal is likely to involve tank repairs and tank cleaning. There is limited potential for these works to detrimentally impact on any heritage items or places that may exist in the vicinity of the Terminal site.

It is not anticipated that the modification of the Terminal would impact on any known or unknown items of Aboriginal heritage as the Terminal site has been heavily disturbed by previous land uses and filling practices. Whilst it could be considered likely that the site was utilised by Indigenous peoples prior to European Settlement due to the close proximity to water bodies, the land use since that time would have impacted considerably on known and unknown heritage values across the site. However, an extensive search of the AHIMS would need to be conducted to determine the precise location of the 24 Aboriginal sites located within 200m of the Terminal, and the potential impacts, if any, of the proposed development on these sites. At this stage it is considered that an assessment under the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW, 2010) would be sufficient. If this due diligence identifies any issues, further assessment would be undertaken, in accordance with the steps outlined in the Code of Practice.

A Heritage Assessment Report for Historic heritage would be produced for the modification of the Gore Bay Terminal, following a desktop literature review to confirm that there are adequate measures in place to avoid any known existing sites and to identify and mitigate any impacts on any new sites discovered during the survey.

7.2 Land Use

Land use within the Lane Cove Local Government Area (LGA) is dominated by low, medium and high density residential developments. The Gore Bay Terminal is situated on land classified in the LEP 2009 as IN4 – Working Waterfront. The objectives of this zone are to:

- Retain and encourage waterfront industrial and maritime activities;
- Identify sites for maritime purposes and for activities that require direct waterfront access;

- Ensure that development does not have an adverse impact on the environment and visual qualities of the foreshore;
- Encourage employment opportunities; and
- Minimise any adverse effect of development on land uses in other zones.

The Gore Bay Terminal site is located adjacent to two areas zoned as E2-Environmental Conservation which comprise Hollaway and Manns Point Park.

The land surrounding the site is comprised of urban residential properties which are classified as low and high density residential, areas of public recreation and areas of environmental conservation. The Sydney Harbour Foreshores and Waterways Areas DCP (2005) identifies Gore Cove (in which the Gore Bay Terminal is located) as Landscape Character 11 as part of its landscape assessment. This landscape is defined as being highly developed and comprising waterside industrial uses with a strong visual presence.

The modification of the Terminal would not affect the land use of any adjacent properties.

7.3 Terrestrial Ecology

The Gore Bay Terminal site, since it began operations in 1901 has been heavily disturbed by human activity. The surrounding area is similarly heavily modified and characterised by residential/urban land use with associated buildings, structures and hard stand areas for roads and car parking.

The site itself has been cleared of vegetation for the berth Terminal and storage tanks and is largely hardstand. Small areas of vegetation still exist in Hollaway Park to the north and Manns Point Park to the south, while scattered vegetation exists along the Terminal site border and residential properties to the west. It is also likely that the site supports some grasses and established weed infestations.

Berry Island Reserve is located just across Gore Bay, 300m east of the Terminal site. Berry Island Reserve, an Aboriginal cultural site and now recreational reserve, is an important area of harbourside bushland. The Reserve consists of two remnant vegetation communities which are part of the Sydney Sandstone Complex - Sydney Sandstone Gully Forest and the perimeter of the Island is influenced by scattered shallow rock pools at low tide and sections of sandy beach shoreline with small scattered patches of seagrasses. The waters surrounding Berry Island are part of a large Intertidal Protection Area (IPA) for Sydney Harbour. There are no known vulnerable or threatened flora or fauna species in Berry Island Reserve as confirmed in the *Threatened Species Conservation Act, 1995* (North Sydney Council, nd)

Searches of threatened species databases (NSW TSC Act and Commonwealth EPBC Act – refer to Appendix A) list a number of threatened flora and fauna species which have been recorded and / or may occur within a 10 km radius around the area, as follow:

- Two hundred and seventy four threatened species protected under the TSC Act, including 140 flora and 134 fauna species (8 frogs, 7 reptiles, 86 birds, 31 mammals, 1 insect and 1 gastropod species). Three birds, 1 bat and 1 plant species have been recorded within 1km of the Terminal, all sightings being from Hollaway Park and Berry Island Reserve to the north-east and east of the Terminal, respectively.
- Fifty-eight threatened species protected under the EPBC Act, including 18 birds, 3 frogs, 1 fish, 3 frogs, 9 mammals, 6 reptiles, 4 sharks and 17 flora species.
- Fifty-five migratory species protected under the EPBC Act, 13 migratory marine birds, 13 migratory marine species, 8 migratory terrestrial birds, and 21 migratory wetland birds.

The site has existed since 1901 as a fuels import and storage facility although there have been a number of changes and alterations since then. As a result there is limited likelihood that threatened flora or fauna species would be located on the site and this would need to be confirmed as part of the EIS.

7.4 Aquatic Ecology

The EPBC Act protected matters report indicates that 77 listed marine species (including 47 bird, 22 fish, two mammals and six reptiles species) and nine whale and other cetacean species that may or are likely to occur in the Gore Bay area.

No wharf modification or dredging works would be required as part of the Project, therefore no disturbance to bottom sediments and associated potential impact to aquatic ecology is anticipated.⁴

7.5 Waste Management

The identification and assessment of waste streams likely to be generated at the Gore Bay Terminal would be undertaken as part of the EIS study and appropriate controls developed and implemented in the EMP.

A detailed waste management plan would be developed for the construction phase. This may be handled by a construction company or Shell depending on the scope of the contract and the capacities of the contractors.

Current waste streams from the Gore Bay Terminal include:

- Solid - Domestic office, drums/containers, used hoses and pipework, spent activated carbon, soil and excavation material;
- Liquid/Sludge - Ethylene Glycol, Interceptor Sludge, non-conformance products, off spec fuels, oily water mixtures or emulsions, PCBs, sampling waste, gantry slops & pipeline interface, surplus solvents, waste oil; and
- Various Recyclables - batteries, E waste, Lighting, Green waste, mixed recyclables (plastic, glass etc), paper and cardboard, metal waste.

The overall generation of waste materials would be identified during the EIS and further assessment is expected to define changes in generation and management of slops from finished products.

7.6 Road Traffic

The road transport infrastructure providing access to the Gore Bay Terminal in Greenwich is well established and would be adequate to service the construction and heavy industry activities associated with the modification of the Terminal. Traffic would use mostly local high density urban residential roads, particularly Greenwich Road, adjacent to the Project site, and River Road which connects Greenwich with the Pacific Highway at North Sydney.

During construction, the construction workforce would be travelling to and from the Gore Bay Terminal site by car. There would also be a number of deliveries of plant equipment, building materials and other supplies occurring predominantly by truck. As much equipment and traffic would be parked within the site boundaries during the construction phase to minimise the disruption to the surrounding community, so that the potential impact would be similar to that that currently occurs during major work programs occasionally undertaken at the site and already experienced by surrounding residents.

During the operation of the Terminal at Gore bay, most road traffic would be associated with staff movements to and from the site, which would occur mostly during shift changes. There would also be some truck movements to and from site for the delivery of materials and products required for the day to day operation of the Terminal as currently happens.

As part of the assessment, recommendations would be made for any mitigation measures to address any potential traffic impacts. In preparing this assessment, relevant guideline documents from Lane Cove Council and the RMS, including the RTA's (now RMS) *Guide to Traffic Generating Development (2002)* would be reviewed, and consultation would be undertaken with these agencies as appropriate.

7.7 Infrastructure Provision

There would be no change to basic services supplied externally to the Gore Bay Terminal site. The Terminal would however, require electricity, water and gas equivalent to other Terminals to maintain fire protection, operational activities and staff accommodation.

Due to the operation of the Terminal prior to this Project and the limited changes to the structure and operation of the Gore Bay Terminal site, the use of existing sewer system would remain.

⁴ Note: This does not include the ongoing maintenance dredging of Berth 1 which is not part of this application.

The EIS document would assess the capacity of existing utility infrastructure (sewer, water, electricity, gas) servicing the site and would investigate how any required modification of this infrastructure can be provided to the site in the most economic and environmentally sustainable manner.

7.8 Sustainability and Climate Change

It is anticipated that the NSW coastal zone will experience some physical impacts of climate change and associated sea level rise. It is currently predicted that there is to be a sea level rise of 0.4m by 2050 and 0.9m by 2100 compared with 1980 levels (DECCW, 2009).

The Gore Bay Terminal has an elevation ranging from 1.5m AHD in the east side of the site to 18m AHD in the western area, and is located some 8km from the mouth of Sydney Harbour.

Rainfall has declined by around 50 mm per decade along the Sydney Coast, however, the frequency and severity of extreme rainfall events has been increasing (CSIRO, 2010). The long term trend is difficult to determine.

The impact of climate change and sea level rise on the site would be investigated further in the EIS. The EIS would consider issues of sustainability and climate change relating to the modification of Gore Bay Terminal. Key issues which would be considered would include potential increases in water level and flooding, energy and water consumption requirements.

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8.0 Risk Assessment

This chapter identifies the key environmental and social issues associated with the Project and applies a prioritisation matrix to rank issues in terms of their relevance and importance to the assessment of the potential impacts of the Project. The results of the prioritisation exercise are reflected in the level of assessment of each of the key issues within the EIS.

8.1 Methodology

The categories used to prioritise issues are set out in Table 6. Each issue was allocated a ranking between 1 and 3 for the likelihood of occurrence of environmental impacts and a number between 1 and 3 for the potential environmental consequence of unmanaged effects. The two numbers were added together to provide a numerical ranking for the issue, which was then used to characterise each issue into high, medium and low priority using an issues prioritisation matrix.

Table 6 Categories for likelihood and consequence of potential environmental effects

Likelihood of Effect		Consequence of Effect	
3 High (Probable)	There is likely to be an environmental effect	3 High (Major)	International or national implications, major adverse environmental change, serious or long term cumulative impacts, mitigation measures not available.
2 Medium (Possible)	There is potential for an environmental effect	2 Medium (Moderate)	Regional implications, moderate adverse environmental change, modest or medium-term cumulative impacts, non-standard mitigation measures required.
1 Low (Improbable)	There is little potential for an environmental effect	1 Low (Minor or insignificant)	Localised implications, imperceptible or short-term cumulative impacts, standard mitigation measures appropriate or none required.

Issues were prioritised to reflect that a higher degree of assessment is required for issues with a greater likelihood and consequence. Table 7 presents the issues prioritisation matrix that was used to identify priority environmental and social issues for assessment.

Table 7 Issues Prioritisation Matrix

Likelihood of Effect	Consequence of Effects		
	1 Insignificant or Minor	2 Moderate	3 Major
1 Improbable	2 Low Priority	3 Low Priority	4 Medium Priority
2 Possible	3 Low Priority	4 Medium Priority	5 High Priority
3 Probable	4 Medium Priority	5 High Priority	6 High Priority

8.2 Issue Prioritisation

The results of the prioritisation of environmental issues related to the Project are shown below in Table 8. This assessment prioritises issues for assessment in the EIS but does not consider the application of mitigation measures to manage the issue. In all cases, appropriate mitigation measures, chosen based upon the experience of regulators and other similar projects would be implemented to minimise potential impacts. These measures would be described in detail in the EIS.

Table 8 Issues Prioritisation for Gore Bay Terminal

Issue	Likelihood	Consequence	Priority
Land Use			
Design and mitigation measures are provided between incompatible land uses to minimise noise and amenity impacts	1	2	3 Low Priority
Views of the remaining natural elements along the foreshore and behind existing development are preserved in a continuous unbroken line to soften the impact of the built form	1	2	3 Low Priority
The maritime nature of industrial uses on the harbour is preserved. Pressure for these uses to relocate is minimised	1	2	3 Low Priority
The scale and height of existing development is maintained and has regard to the visual dominance of the surrounding residential areas	1	2	3 Low Priority
The existing character, natural, cultural and heritage features of the area are retained	1	2	3 Low Priority
Social and Economic			
Direct and indirect job creation during construction	1	1	1 (Low Priority)
Impacts to local residents	2	2	4 (Medium Priority)
Direct and indirect job creation during operation	1	1	2 (Low Priority)
Air Quality and Greenhouse Gas			
Air quality impacts on closest residential receivers during construction	2	2	4 (Medium Priority)
Air quality impacts on closest residential receivers during operation	2	2	4 (Medium Priority)
Impacts on greenhouse gas emissions	2	2	4 (Medium Priority)
Soil and Groundwater			
Potential disturbance and mobilisation of contaminated soil and groundwater during construction	2	1	3 (Low Priority)
Potential disturbance and mobilisation of ASS during construction	1	2	3 (Low Priority)
Potential impacts on soil and groundwater from spills/leaks during operation	2	2	4 (Medium Priority)
Noise and Vibration			
Noise impacts on closest residential receivers during construction	2	2	4 (Medium Priority)
Noise impacts on closest residential receivers during operation	2	3	5 (High Priority)

Issue	Likelihood	Consequence	Priority
Surface Water, Process Water and Flooding			
Surface water quality impacts on Gore Bay during construction works	2	2	4 (Medium Priority)
Supply and disposal/re-use of process water for the Terminal	2	2	4 (Medium Priority)
Managing quantity & quality of surface water run-off	2	2	4 (Medium Priority)
Potential for flooding of the site	1	2	3 (Low Priority)
Landscape and Visual Amenity			
Visual amenity impacts during construction	2	1	3 (Low Priority)
Visual amenity impacts from wharf and ship operations	2	1	3 (Low Priority)
Heritage			
Impacts on known or unknown sites/items of Aboriginal heritage significance	1	2	3 (Low Priority)
Impacts on known or unknown sites/items of European heritage significance	2	2	4 (Medium Priority)
Hazards and Risks			
Exposure of closest residential areas to hazard and risk	2	3	5 (High Priority)
Impacts on safety of harbour shipping and infrastructure as a result of Shell tankers	2	3	5 (High Priority)
Terrestrial Ecology			
Impacts on terrestrial flora and fauna species and EECs during construction	1	2	3 (Low Priority)
Impacts on terrestrial flora and fauna species and EECs during operation	1	2	3 (Low Priority)
Aquatic Ecology			
Impacts to aquatic ecology due to operation of tankers	1	1	3 (Low Priority)
Waste Management			
Waste generated during construction	2	2	4 (Medium Priority)
Waste generated during operations	2	1	3 (Low Priority)
Road Traffic			
Road traffic impacts during construction	1	2	3 (Low Priority)
Road traffic impacts during operation	1	2	3 (Low Priority)
Infrastructure Provision			
Capacity of road infrastructure to service the Terminal	1	2	3 (Low Priority)
Capacity of sewer infrastructure to service the Terminal	1	2	3 (Low Priority)
Capacity of water infrastructure to service the Terminal	1	2	3 (Low Priority)

Issue	Likelihood	Consequence	Priority
Capacity of power infrastructure to service the Terminal	1	2	3 (Low Priority)
Capacity of storm water infrastructure to service the Terminal	1	2	3 (Low Priority)
Sustainability and Climate Change			
Resource efficiency during operation of Terminal	2	2	4 (Medium Priority)
Potential impact on Terminal from sea level rise and storm surge	1	2	3 (Low Priority)

9.0 Conclusion

The Gore Bay Terminal modification project includes the reconfiguration of tanks and changes of existing facilities to meet higher standards of performance and efficiency. The declaration of the site as one of SSD is being sought under Part 4, Division 4.1 of the EP&A Act to facilitate the reconfiguration of the site as an ongoing finished product import facility. This EIS Scoping report has described the key components of the Project and includes an initial assessment of the key environmental issues associated with the Project. It has been prepared to assist the Director General in providing targeted Environmental Assessment Requirements, which would form the basis for preparation of the detailed EIS for the Project.

Issues were prioritised based on their likelihood of occurrence and potential significance of consequences in the absence of mitigation and management measures. The objective of the prioritisation process was to identify the issues that require more detailed assessment in the EIS. The outcome of the prioritisation process is summarised in Table 9.

Table 9 Environmental Issues Prioritisation

High Priority Issues	Moderate Priority Issues	Low Priority Issues
Hazard and Risk	Air Quality	Land Use
Noise	Surface Water, Process Water and Flooding	Landscape and Visual Amenity
	Waste	Terrestrial Ecology
	Sustainability and Climate Change	Aquatic Ecology
	Social and Economic	Road Traffic
		Infrastructure
		Heritage
		Soil and Groundwater

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Appendix A

DECCW Threatened Species Database

Appendix A DECCW Search



Australian Government

Department of Sustainability, Environment,
Water, Population and Communities

EPBC Act Protected Matters Report: Coordinates

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information about the EPBC Act including significance guidelines, forms and application process details can be found at <http://www.environment.gov.au/epbc/assessmentsapprovals/index.html>

Report created: 03/11/11 14:11:42



[Summary](#)

[Details](#)

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[Other matters protected by
the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



This map may contain data which are
©Commonwealth of Australia (Geoscience
Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 5.0Km

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see <http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html>.

World Heritage Properties:	6
National Heritage Places:	7
Wetlands of International Significance (Ramsar Wetlands):	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	1
Threatened Species:	47
Migratory Species:	53

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage/index.html>

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at <http://www.environment.gov.au/epbc/permits/index.html>.

Commonwealth Lands:	23
Commonwealth Heritage Places:	24
Listed Marine Species:	73
Whales and Other Cetaceans:	9

Critical Habitats:	None
Commonwealth Reserves:	None

Report Summary for Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

Place on the RNE:	981
State and Territory Reserves:	2
Regional Forest Agreements:	None
Invasive Species:	15
Nationally Important Wetlands:	None

Details

Matters of National Environmental Significance

World Heritage Properties [[Resource Information](#)]

Name	Status
Australian Convict Sites - Cockatoo Island	Declared Property
Australian Convict Sites - Cockatoo Island	Declared Property
Australian Convict Sites - Hyde Park Barracks	Declared Property
Australian Convict Sites - Hyde Park Barracks	Declared Property
Sydney Opera House NSW	Declared property
Sydney Opera House - Buffer Zone NSW	Declared property

National Heritage Places [[Resource Information](#)]

Name	Status
Historic	
Independent Theatre NSW	Indicative place
Cockatoo Island NSW	Listed place
First Government House Site NSW	Listed place
Hyde Park Barracks NSW	Listed place
Sydney Harbour Bridge NSW	Listed place
Sydney Opera House NSW	Listed place
Colonial Sydney NSW	Nominated place

Threatened Ecological Communities [[Resource Information](#)]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Turpentine-Ironbark Forest in the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area

Threatened Species **[Resource Information]**

Name	Status	Type of Presence
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BIRDS[Anthochaera phrygia](#)

Regent Honeyeater [82338]	Endangered	Species or species habitat likely to occur within area
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[Botaurus poiciloptilus](#)

Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
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[Diomedea exulans antipodensis](#)

Antipodean Albatross [82269]	Vulnerable	Species or species habitat may occur within area
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[Diomedea exulans gibsoni](#)

Gibson's Albatross [82271]	Vulnerable	Species or species habitat may occur within area
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[Fregetta grallaria grallaria](#)

White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area
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[Lathamus discolor](#)

Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
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[Macronectes giganteus](#)

Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
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[Macronectes halli](#)

Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
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[Pterodroma neglecta neglecta](#)

Kermadec Petrel (western) [64450]	Vulnerable	Species or species habitat may occur within area
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[Rostratula australis](#)

Australian Painted Snipe [77037]	Vulnerable	Species or species habitat may occur within area
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[Sternula nereis nereis](#)

Fairy Tern (Australian) [82950]	Vulnerable	Species or species habitat known to occur within area
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[Thalassarche bulleri](#)

Buller's Albatross [64460]	Vulnerable	Species or species habitat may occur within area
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[Thalassarche cauta cauta](#)

Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
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[Thalassarche cauta salvini](#)

Salvin's Albatross [82343]	Vulnerable	Species or species habitat may occur within area
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[Thalassarche cauta steadi](#)

White-capped Albatross [82344]	Vulnerable	Species or species habitat may occur within area
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[Thalassarche melanophris impavida](#)

Campbell Albatross [82449]	Vulnerable	Species or species habitat may occur within area
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FISH[Prototroctes maraena](#)

Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area
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FROGS[Heleioporus australiacus](#)

Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat likely to occur within area
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[Litoria aurea](#)

Green and Golden Bell Frog [1870] Vulnerable Species or species habitat likely to occur within area

[Mixophyes balbus](#)

Stuttering Frog, Southern Barred Frog (in Victoria) [1942] Vulnerable Species or species habitat likely to occur within area

MAMMALS

[Chalinolobus dwyeri](#)

Large-eared Pied Bat, Large Pied Bat [183] Vulnerable Species or species habitat may occur within area

[Dasyurus maculatus maculatus \(SE mainland population\)](#)

Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184] Endangered Species or species habitat may occur within area

[Eubalaena australis](#)

Southern Right Whale [40] Endangered Species or species habitat likely to occur within area

[Isoodon obesulus obesulus](#)

Southern Brown Bandicoot [68050] Endangered Species or species habitat likely to occur within area

[Megaptera novaeangliae](#)

Humpback Whale [38] Vulnerable Species or species habitat known to occur within area

[Petrogale penicillata](#)

Brush-tailed Rock-wallaby [225] Vulnerable Species or species habitat may occur within area

[Potorous tridactylus tridactylus](#)

Long-nosed Potoroo (SE mainland) [66645] Vulnerable Species or species habitat may occur within area

[Pseudomys novaehollandiae](#)

New Holland Mouse [96] Vulnerable Species or species habitat likely to occur within area

[Pteropus poliocephalus](#)

Grey-headed Flying-fox [186] Vulnerable Roosting known to occur within area

PLANTS

[Acacia bynoeana](#)

Bynoe's Wattle, Tiny Wattle [8575] Vulnerable Species or species habitat likely to occur within area

[Caladenia tessellata](#)

Thick-lipped Spider-orchid, Daddy Long-legs [2119] Vulnerable Species or species habitat likely to occur within area

[Cryptostylis hunteriana](#)

Leafless Tongue-orchid [19533] Vulnerable Species or species habitat may occur within area

[Darwinia biflora](#)

[14619] Vulnerable Species or species habitat likely to occur within area

[Eucalyptus camfieldii](#)

Camfield's Stringybark [15460] Vulnerable Species or species habitat likely to occur within area

[Melaleuca biconvexa](#)

Biconvex Paperbark [5583] Vulnerable Species or species habitat may occur within area

[Pimelea curviflora var. curviflora](#)

[4182] Vulnerable Species or species habitat likely to occur within area

[Tetratheca glandulosa](#)

Glandular Pink-bell [2350] Vulnerable Species or species habitat likely to occur within area

REPTILES[Caretta caretta](#)

Loggerhead Turtle [1763] Endangered Species or species habitat likely to occur within area

[Chelonia mydas](#)

Green Turtle [1765] Vulnerable Species or species habitat likely to occur within area

[Dermochelys coriacea](#)

Leatherback Turtle, Leathery Turtle, Luth [1768] Endangered Species or species habitat likely to occur within area

[Eretmochelys imbricata](#)

Hawksbill Turtle [1766] Vulnerable Species or species habitat likely to occur within area

[Hoplocephalus bungaroides](#)

Broad-headed Snake [1182] Vulnerable Species or species habitat likely to occur within area

[Natator depressus](#)

Flatback Turtle [59257] Vulnerable Species or species habitat likely to occur within area

SHARKS[Carcharias taurus \(east coast population\)](#)

Grey Nurse Shark (east coast population) [68751] Critically Endangered Species or species habitat may occur within area

[Carcharodon carcharias](#)

Great White Shark [64470] Vulnerable Species or species habitat may occur within area

[Pristis zijsron](#)

Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442] Vulnerable Species or species habitat may occur within area

[Rhincodon typus](#)

Whale Shark [66680] Vulnerable Species or species habitat may occur within area

Migratory Species**[Resource Information]**

Name	Status	Type of Presence
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Migratory Marine Birds[Apus pacificus](#)

Fork-tailed Swift [678] Species or species habitat may occur within area

[Ardea alba](#)

Great Egret, White Egret [59541] Species or species habitat may occur within area

[Ardea ibis](#)

Cattle Egret [59542] Species or species habitat may occur within area

[Diomedea antipodensis](#)

Antipodean Albatross [64458] Vulnerable* Species or species habitat may occur within area

[Diomedea gibsoni](#)

Gibson's Albatross [64466] Vulnerable* Species or species habitat may occur within area

Macronectes giganteus			
Southern Giant-Petrel [1060]	Endangered		Species or species habitat may occur within area
Macronectes halli			
Northern Giant-Petrel [1061]	Vulnerable		Species or species habitat may occur within area
Sterna albifrons			
Little Tern [813]			Species or species habitat may occur within area
Thalassarche bulleri			
Buller's Albatross [64460]	Vulnerable		Species or species habitat may occur within area
Thalassarche cauta (sensu stricto)			
Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*		Species or species habitat may occur within area
Thalassarche impavida			
Campbell Albatross [64459]	Vulnerable*		Species or species habitat may occur within area
Thalassarche salvini			
Salvin's Albatross [64463]	Vulnerable*		Species or species habitat may occur within area
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable*		Species or species habitat may occur within area
Migratory Marine Species			
Balaenoptera edeni			
Bryde's Whale [35]			Species or species habitat may occur within area
Caperea marginata			
Pygmy Right Whale [39]			Species or species habitat may occur within area
Carcharodon carcharias			
Great White Shark [64470]	Vulnerable		Species or species habitat may occur within area
Caretta caretta			
Loggerhead Turtle [1763]	Endangered		Species or species habitat likely to occur within area
Chelonia mydas			
Green Turtle [1765]	Vulnerable		Species or species habitat likely to occur within area
Dermochelys coriacea			
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered		Species or species habitat likely to occur within area
Eretmochelys imbricata			
Hawksbill Turtle [1766]	Vulnerable		Species or species habitat likely to occur within area
Eubalaena australis			
Southern Right Whale [40]	Endangered		Species or species habitat likely to occur within area
Lagenorhynchus obscurus			
Dusky Dolphin [43]			Species or species habitat may occur within area
Lamna nasus			
Porbeagle, Mackerel Shark [83288]			Species or species habitat likely to occur within area
Megaptera novaeangliae			
Humpback Whale [38]	Vulnerable		Species or species habitat known to occur within area
Natator depressus			
Flatback Turtle [59257]	Vulnerable		Species or species habitat likely to occur within area
Rhincodon typus			

Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Breeding may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Breeding likely to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Breeding may occur within area
Xanthomyza phrygia		
Regent Honeyeater [430]	Endangered*	Species or species habitat likely to occur within area

Migratory Wetlands Species

Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Arenaria interpres		
Ruddy Turnstone [872]		Species or species habitat known to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]		Species or species habitat known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]		Species or species habitat known to occur within area
Calidris ruficollis		
Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris tenuirostris		
Great Knot [862]		Species or species habitat known to occur within area
Charadrius bicinctus		
Double-banded Plover [895]		Species or species habitat known to occur within area
Charadrius leschenaultii		
Greater Sand Plover, Large Sand Plover [877]		Species or species habitat known to occur within area
Charadrius mongolus		
Lesser Sand Plover, Mongolian Plover [879]		Species or species habitat known to occur within area

[Gallinago hardwickii](#)

Latham's Snipe, Japanese Snipe
[863]

Species or species habitat known to occur within area

[Heteroscelus brevipes](#)

Grey-tailed Tattler [59311]

Species or species habitat known to occur within area

[Limosa lapponica](#)

Bar-tailed Godwit [844]

Species or species habitat known to occur within area

[Limosa limosa](#)

Black-tailed Godwit [845]

Species or species habitat known to occur within area

[Numenius madagascariensis](#)

Eastern Curlew [847]

Species or species habitat known to occur within area

[Numenius phaeopus](#)

Whimbrel [849]

Species or species habitat known to occur within area

[Pluvialis fulva](#)

Pacific Golden Plover [25545]

Species or species habitat known to occur within area

[Rostratula benghalensis s. lat.](#)

Painted Snipe [889]

Vulnerable*

Species or species habitat may occur within area

[Tringa stagnatilis](#)

Marsh Sandpiper, Little
Greenshank [833]

Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Lands

[[Resource Information](#)]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Defence - HMAS PLATYPUS - SPDU FOR DISPOSAL

Defence - FOREST LODGE (SYDNEY) TRG DEP

Commonwealth Land - Australian National University

Commonwealth Land - Australian Postal Commission

Commonwealth Land - Australian Broadcasting Corporation

Commonwealth Land - Australian Broadcasting Commission

Commonwealth Land - Telstra Corporation Limited

Commonwealth Land - Australian & Overseas Telecommunications Corporation

Commonwealth Land - Australian Telecommunications Corporation

Defence - COCKATOO ISLAND DOCKYARD

Defence - DSTO PYRMONT - (SEE SITE 1177)

Defence - HMAS WATERHEN

Defence - NORTH SYDNEY - HYDRO OFFICE

Commonwealth Land - Australian Postal Corporation

Defence - MILLER'S POINT TRAINING DEPOT

Commonwealth Land - Airservices Australia

Defence - DEFENCE PLAZA SYDNEY

Commonwealth Land -
 Commonwealth Land - Commonwealth Bank of Australia
 Commonwealth Land - Australian Telecommunications Commission
 Commonwealth Land - Defence Housing Authority
 Commonwealth Land - Reserve Bank of Australia
 Defence - SPECTACLE ISLAND

Commonwealth Heritage Places **[Resource Information]**

Name	Status
Historic	
Annandale Post Office NSW	Indicative Place
Admiralty House Garden and Fortifications NSW	Listed place
Admiralty House and Lodge NSW	Listed place
Barracks Block NSW	Listed place
Biloela Group NSW	Listed place
Cockatoo Island Industrial Conservation Area NSW	Listed place
Customs Marine Centre NSW	Listed place
Fitzroy Dock NSW	Listed place
General Post Office NSW	Listed place
Kirribilli House NSW	Listed place
Kirribilli House Garden & Grounds NSW	Listed place
Mess Hall (former) NSW	Listed place
Military Guard Room NSW	Listed place
Power House / Pump House NSW	Listed place
Prison Barracks Precinct NSW	Listed place
Pyrmont Post Office NSW	Listed place
Reserve Bank NSW	Listed place
Snapper Island NSW	Listed place
Spectacle Island Explosives Complex NSW	Listed place
Sutherland Dock NSW	Listed place
Sydney Customs House (former) NSW	Listed place
Underground Grain Silos NSW	Listed place
Woolwich Dock NSW	Listed place
North Sydney Post Office NSW	Nominated place

Listed Marine Species **[Resource Information]**

Name	Status	Type of Presence
Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Arenaria interpres		

Ruddy Turnstone [872]		Species or species habitat known to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]		Species or species habitat known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]		Species or species habitat known to occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Calidris ruficollis		
Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris tenuirostris		
Great Knot [862]		Species or species habitat known to occur within area
Charadrius bicinctus		
Double-banded Plover [895]		Species or species habitat known to occur within area
Charadrius leschenaultii		
Greater Sand Plover, Large Sand Plover [877]		Species or species habitat known to occur within area
Charadrius mongolus		
Lesser Sand Plover, Mongolian Plover [879]		Species or species habitat known to occur within area
Charadrius ruficapillus		
Red-capped Plover [881]		Species or species habitat known to occur within area
Diomedea antipodensis		
Antipodean Albatross [64458]	Vulnerable*	Species or species habitat may occur within area
Diomedea gibsoni		
Gibson's Albatross [64466]	Vulnerable*	Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Heteroscelus brevipes		
Grey-tailed Tattler [59311]		Species or species habitat known to occur within area
Himantopus himantopus		
Black-winged Stilt [870]		Species or species habitat known to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat may occur within area
Lathamus discolor		

Swift Parrot [744]	Endangered	Species or species habitat likely to occur within area
Limosa lapponica		
Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa		
Black-tailed Godwit [845]		Species or species habitat known to occur within area
Macronectes giganteus		
Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli		
Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Breeding may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Breeding likely to occur within area
Numenius madagascariensis		
Eastern Curlew [847]		Species or species habitat known to occur within area
Numenius phaeopus		
Whimbrel [849]		Species or species habitat known to occur within area
Philomachus pugnax		
Ruff (Reeve) [850]		Species or species habitat known to occur within area
Pluvialis fulva		
Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Recurvirostra novaehollandiae		
Red-necked Avocet [871]		Species or species habitat known to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Breeding may occur within area
Rostratula benghalensis s. lat.		
Painted Snipe [889]	Vulnerable*	Species or species habitat may occur within area
Sterna albifrons		
Little Tern [813]		Species or species habitat may occur within area
Thalassarche bulleri		
Buller's Albatross [64460]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta (sensu stricto)		
Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*	Species or species habitat may occur within area
Thalassarche impavida		
Campbell Albatross [64459]	Vulnerable*	Species or species habitat may occur within area
Thalassarche salvini		
Salvin's Albatross [64463]	Vulnerable*	Species or species habitat may occur within area
Thalassarche steadi		
White-capped Albatross [64462]	Vulnerable*	Species or species habitat may occur within area
Tringa stagnatilis		
Marsh Sandpiper, Little	Little	Species or species habitat known to occur within area

Fish

[Acentronura tentaculata](#)

Shortpouch Pygmy Pipehorse
[66187]

Species or species habitat may occur within area

[Festucalex cinctus](#)

Girdled Pipefish [66214]

Species or species habitat may occur within area

[Filicampus tigris](#)

Tiger Pipefish [66217]

Species or species habitat may occur within area

[Heraldia nocturna](#)

Upside-down Pipefish, Eastern
Upside-down Pipefish, Eastern
Upside-down Pipefish [66227]

Species or species habitat may occur within area

[Hippichthys penicillus](#)

Beady Pipefish, Steep-nosed
Pipefish [66231]

Species or species habitat may occur within area

[Hippocampus abdominalis](#)

Bigbelly Seahorse, Eastern
Potbelly Seahorse, New
Zealand Potbelly Seahorse
[66233]

Species or species habitat may occur within area

[Hippocampus whitei](#)

White's Seahorse, Crowned
Seahorse, Sydney Seahorse
[66240]

Species or species habitat may occur within area

[Histiogamphelus briggsii](#)

Crested Pipefish, Briggs'
Crested Pipefish, Briggs'
Pipefish [66242]

Species or species habitat may occur within area

[Lissocampus runa](#)

Javelin Pipefish [66251]

Species or species habitat may occur within area

[Maroubra perserrata](#)

Sawtooth Pipefish [66252]

Species or species habitat may occur within area

[Notiocampus ruber](#)

Red Pipefish [66265]

Species or species habitat may occur within area

[Phyllopteryx taeniolatus](#)

Common Seadragon, Weedy
Seadragon [66268]

Species or species habitat may occur within area

[Solegnathus spinosissimus](#)

Spiny Pipehorse, Australian
Spiny Pipehorse [66275]

Species or species habitat may occur within area

[Solenostomus cyanopterus](#)

Robust Ghostpipefish,
Blue-finned Ghost Pipefish,
[66183]

Species or species habitat may occur within area

[Solenostomus paegnius](#)

Rough-snout Ghost Pipefish
[68425]

Species or species habitat may occur within area

[Solenostomus paradoxus](#)

Ornate Ghostpipefish,
Harlequin Ghost Pipefish,
Ornate Ghost Pipefish [66184]

Species or species habitat may occur within area

[Stigmatopora argus](#)

Spotted Pipefish, Gulf Pipefish [66276] Stigmatopora nigra		Species or species habitat may occur within area
Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277] Syngnathoides biaculeatus		Species or species habitat may occur within area
Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279] Trachyrhamphus bicoarctatus		Species or species habitat may occur within area
Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280] Urocampus carinirostris		Species or species habitat may occur within area
Hairy Pipefish [66282] Vanacampus margaritifer		Species or species habitat may occur within area
Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area

Mammals

Arctocephalus forsteri		
New Zealand Fur-seal [20] Arctocephalus pusillus		Species or species habitat may occur within area
Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area

Reptiles

Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Species or species habitat likely to occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Vulnerable	Species or species habitat likely to occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Species or species habitat likely to occur within area
Pelamis platurus		
Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area

Whales and Other Cetaceans

[**Resource Information**]

Name	Status	Type of Presence
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Mammals

Balaenoptera edeni		
Bryde's Whale [35] Caperea marginata		Species or species habitat may occur within area
Pygmy Right Whale [39] Delphinus delphis		Species or species habitat may occur within area
Common Dophin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area

Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Extra Information

Places on the RNE

[Resource Information]

Note that not all Indigenous sites may be listed.

Name	Status
Natural	
Glebe Island Dyke Exposures NSW	Indicative Place
Parramatta and Lane Cove Rivers Landscapes NSW	Indicative Place
Lane Cove Bushland Park NSW	Registered
Indigenous	
Berry Island Reserve NSW	Registered
Historic	
ABC Gore Hill NSW	Identified Place
AWA Building (former) NSW	Indicative Place
Aberdeen House NSW	Indicative Place
Angus and Son Building NSW	Indicative Place
BBC Hardware NSW	Indicative Place
Balls Head Coal Loader NSW	Indicative Place
Bathurst House NSW	Indicative Place
Blackwood NSW	Indicative Place
Buckle House (former) NSW	Indicative Place
Burns Bay Sewerage Aqueduct NSW	Indicative Place
Cammeray Conservation Area NSW	Indicative Place
Careening Cove Conservation Area NSW	Indicative Place
Carrum Carrum NSW	Indicative Place
Century House NSW	Indicative Place
Chatswood Urban Conservation Area NSW	Indicative Place
Christian Brothers High School (former) NSW	Indicative Place
Coles Fosseys 1915 Building (former) NSW	Indicative Place
Coles Fosseys 1935 Building (former) NSW	Indicative Place
Coolooba NSW	Indicative Place
Cremorne Conservation Area NSW	Indicative Place
Cremorne Point Conservation Area NSW	Indicative Place

<u>Criterion Hotel NSW</u>	Indicative Place
<u>Crows Nest Road Conservation Area NSW</u>	Indicative Place
<u>Darrell Lea Shop (Facade) NSW</u>	Indicative Place
<u>Douglass Lane NSW</u>	Indicative Place
<u>Drummoyne Avenue Group NSW</u>	Indicative Place
<u>Drummoyne Fire Station NSW</u>	Indicative Place
<u>Dry Stone Wall and Water Channel NSW</u>	Indicative Place
<u>Dudley House NSW</u>	Indicative Place
<u>Dunaverty NSW</u>	Indicative Place
<u>Edward Street Conservation Area NSW</u>	Indicative Place
<u>Elismere & Studley Royal NSW</u>	Indicative Place
<u>Eventide including Front Fence NSW</u>	Indicative Place
<u>Fayworth House NSW</u>	Indicative Place
<u>Fire Station (former) NSW</u>	Indicative Place
<u>Flat Rock Creek Bridge NSW</u>	Indicative Place
<u>Foley Bros Warehouses (former) NSW</u>	Indicative Place
<u>Gates and Fence of North Sydney Demonstration School NSW</u>	Indicative Place
<u>George Bosch Chambers NSW</u>	Indicative Place
<u>Gladesville Bridge NSW</u>	Indicative Place
<u>Greenwich Baths NSW</u>	Indicative Place
<u>Haymarket Post Office NSW</u>	Indicative Place
<u>Holtermann Estate Conservation Area (A) NSW</u>	Indicative Place
<u>Holtermann Estate Conservation Area (B) NSW</u>	Indicative Place
<u>Holtermann Estate Conservation Area (C) NSW</u>	Indicative Place
<u>Holtermann Estate Conservation Area (D) NSW</u>	Indicative Place
<u>Home Yardage Building NSW</u>	Indicative Place
<u>Honda NSW</u>	Indicative Place
<u>House NSW</u>	Indicative Place
<u>House and Garden NSW</u>	Indicative Place
<u>IBM Centre (former) NSW</u>	Indicative Place
<u>Iver NSW</u>	Indicative Place
<u>John Sands Building (former) NSW</u>	Indicative Place
<u>Kenilworth NSW</u>	Indicative Place
<u>Kindersley House NSW</u>	Indicative Place
<u>King George Hotel (former) NSW</u>	Indicative Place
<u>Kurraba Point Conservation Area NSW</u>	Indicative Place
<u>Lane Cove House NSW</u>	Indicative Place
<u>Laurelbank NSW</u>	Indicative Place
<u>Lavender Bay Conservation Area NSW</u>	Indicative Place
<u>Leamington NSW</u>	Indicative Place
<u>Legion House NSW</u>	Indicative Place
<u>Lincoln Building NSW</u>	Indicative Place
<u>Longueville Pool NSW</u>	Indicative Place
<u>Lower Kirribilli Conservation Area NSW</u>	Indicative Place
<u>Man O'War Steps & Jetty NSW</u>	Indicative Place
<u>Manufacturers House NSW</u>	Indicative Place
<u>Marist Brothers Provincialate of Sydney NSW</u>	Indicative Place
<u>McCallum Pool NSW</u>	Indicative Place
<u>McLaren Street Conservation Area NSW</u>	Indicative Place
<u>McMahons Point North Conservation Area NSW</u>	Indicative Place

McMahons Point South Conservation Area NSW	Indicative Place
Milson Park NSW	Indicative Place
Milson Road Group NSW	Indicative Place
Mobarik NSW	Indicative Place
National Building NSW	Indicative Place
Neptune Engineering including Bay Foreshores NSW	Indicative Place
Neutral Bay Fire Station NSW	Indicative Place
North Sydney Fire Station (former) NSW	Indicative Place
Painters and Dockers Union Hall NSW	Indicative Place
Park and Oaks Avenues Conservation Area NSW	Indicative Place
Pitt Street Gardens NSW	Indicative Place
Plateau Conservation Area NSW	Indicative Place
Pyrmont Point NSW	Indicative Place
Qantas House (former) NSW	Indicative Place
Raben Footwear NSW	Indicative Place
Rockleigh Grange NSW	Indicative Place
Rozelle Railway Goodline Viaduct NSW	Indicative Place
Sewer Vent Shaft NSW	Indicative Place
Shalimar, Including Garden, Fence and Gates NSW	Indicative Place
Simpson House NSW	Indicative Place
Sir John Young Hotel NSW	Indicative Place
Slipway and Wharf NSW	Indicative Place
St Josephs Convent Group NSW	Indicative Place
St Leonards Catholic Church NSW	Indicative Place
St Leonards Park & North Sydney Oval NSW	Indicative Place
St Marks Catholic Church NSW	Indicative Place
St Marks Catholic Church Group NSW	Indicative Place
St Marks Community Hall NSW	Indicative Place
St Marks Presbytery NSW	Indicative Place
St Peters Anglican Church NSW	Indicative Place
St Peters Presbyterian School Hall NSW	Indicative Place
St Thomas Anglican Church Memorial Hall NSW	Indicative Place
Sydney Harbour Landscape Area NSW	Indicative Place
Sydney Hospital Nightingale Wing NSW	Indicative Place
Tambourine Bay Baths NSW	Indicative Place
Tarella NSW	Indicative Place
Union / Bank / Thomas Streets Conservation Area NSW	Indicative Place
Walker / Ridge Streets Conservation Area NSW	Indicative Place
Water Police Station (former) NSW	Indicative Place
Waterside Workers Federation Building NSW	Indicative Place
Ways Terrace Group NSW	Indicative Place
Whaling Road Conservation Area NSW	Indicative Place
White Bay Power Station NSW	Indicative Place
William Croft Building (former) NSW	Indicative Place
Wollstonecraft Conservation Area NSW	Indicative Place
Worrall Theatre Complex & St Lukes Chapel NSW	Indicative Place
HMAS Platypus NSW	Interim List

ANZ Bank NSW	Registered
ANZ Bank NSW	Registered
ANZ Bank (former) NSW	Registered
ASN Hotel (former) NSW	Registered
Accountants House NSW	Registered
Administration Building A Sydney Technical College NSW	Registered
Admiralty House Garden and Fortifications NSW	Registered
Admiralty House and Lodge NSW	Registered
Agar Steps & Adjacent Trees NSW	Registered
Agar Steps Houses NSW	Registered
Albion Place Group NSW	Registered
Alcee NSW	Registered
Alfred Street Entrance Luna Park NSW	Registered
Alfreds Terrace NSW	Registered
All Saints Anglican Church NSW	Registered
All Saints Rectory NSW	Registered
Alroy NSW	Registered
American Express Tower (former) NSW	Registered
Ammunition Store (former) NSW	Registered
Angel Hotel (former) NSW	Registered
Annabel Lea NSW	Registered
Annandale North Public School NSW	Registered
Annandale Post Office NSW	Registered
Araluen NSW	Registered
Araluen House NSW	Registered
Archibald Fountain NSW	Registered
Ardath NSW	Registered
Arden Lea NSW	Registered
Argyle Cut and Argyle Street Space NSW	Registered
Argyle House NSW	Registered
Argyle Place Park NSW	Registered
Argyle Place Precinct NSW	Registered
Argyle Precinct NSW	Registered
Argyle Stores NSW	Registered
Argyle Sub-Station NSW	Registered
Argyle Terrace NSW	Registered
Art Gallery of NSW NSW	Registered
Astor Apartment Building NSW	Registered
Australasian Steam Navigation Company Building NSW	Registered
Australian Financial Press Building NSW	Registered
Australian Hotel NSW	Registered
Australian Joint Stock Bank (former) NSW	Registered
Australian Museum NSW	Registered
Australian Workers Union Building NSW	Registered
BMA House NSW	Registered
Bakery (former) NSW	Registered
Bakery House and Loft (former) NSW	Registered
Balmain Civic Group NSW	Registered
Balmain Cooperative Society Building (former) NSW	Registered

<u>Balmain Courthouse, Police Station and Post Office NSW</u>	Registered
<u>Balmain Public School NSW</u>	Registered
<u>Balmain Volunteer NSW</u>	Registered
<u>Banco Court Building NSW</u>	Registered
<u>Banking House and Westpac Bank NSW</u>	Registered
<u>Barrack House NSW</u>	Registered
<u>Barracks Block NSW</u>	Registered
<u>Bathurst NSW</u>	Registered
<u>Bayfield NSW</u>	Registered
<u>Belvedere NSW</u>	Registered
<u>Beneficial House NSW</u>	Registered
<u>Bentham NSW</u>	Registered
<u>Bettington and Merriman Streets Group NSW</u>	Registered
<u>Biloela Group NSW</u>	Registered
<u>Blacksmith and Machine Shop NSW</u>	Registered
<u>Blair Athol NSW</u>	Registered
<u>Blenerne NSW</u>	Registered
<u>Booth House (former) NSW</u>	Registered
<u>Briarbank NSW</u>	Registered
<u>Bristol Arms Hotel NSW</u>	Registered
<u>Brooklyn Hotel NSW</u>	Registered
<u>Broughton House NSW</u>	Registered
<u>Buildings NSW</u>	Registered
<u>Burns Philp Building (former) NSW</u>	Registered
<u>CBC Bank Facade (former) NSW</u>	Registered
<u>CSR Cooperage Building (former) NSW</u>	Registered
<u>CSR Gate House (former) NSW</u>	Registered
<u>CSR Laboratory B Building (former) NSW</u>	Registered
<u>CSR Main Office Building (former) NSW</u>	Registered
<u>CSR Managers House (former) NSW</u>	Registered
<u>CSR Store House (former) NSW</u>	Registered
<u>CSR Tablet House (former) NSW</u>	Registered
<u>Cadmans Cottage Space NSW</u>	Registered
<u>Cadmans Cottage including Grounds and Trees NSW</u>	Registered
<u>Cahill Expressway Space NSW</u>	Registered
<u>Callan Park Conservation Area NSW</u>	Registered
<u>Callan Park House NSW</u>	Registered
<u>Cambridge NSW</u>	Registered
<u>Cambridge Street Precinct NSW</u>	Registered
<u>Campbell Street Group NSW</u>	Registered
<u>Campbells Cove Space NSW</u>	Registered
<u>Campbells Storehouse NSW</u>	Registered
<u>Captain Arthur Phillip Fountain NSW</u>	Registered
<u>Carabella Street Group NSW</u>	Registered
<u>Carey Cottage NSW</u>	Registered
<u>Carla Zampatti Building NSW</u>	Registered
<u>Carleith NSW</u>	Registered
<u>Carlson Terrace NSW</u>	Registered
<u>Castlereagh Street Group NSW</u>	Registered

Central Police Courts NSW	Registered
Chamber of Commerce Building (former) NSW	Registered
Charles Parsons and Company Building (former) NSW	Registered
Chatswood South Uniting Church & Grounds NSW	Registered
Chief Secretarys Building NSW	Registered
Chinese Christian Church NSW	Registered
Christ Church Anglican Church, Gates & Grounds NSW	Registered
Christ Church Anglican Rectory NSW	Registered
Cintra NSW	Registered
Circular Quay West / Campbells Storehouse Space NSW	Registered
City House NSW	Registered
City Mutual Life Assurance Building NSW	Registered
City South Telephone Exchange NSW	Registered
City Tattersalls Club NSW	Registered
Cleland Bond Store NSW	Registered
Cleverton NSW	Registered
Cliff Tunnel and Chamber NSW	Registered
Clifton (including Front Fence) NSW	Registered
Clifton Villa NSW	Registered
Clivedon NSW	Registered
Clyde Bank NSW	Registered
Cockatoo Island Industrial Conservation Area NSW	Registered
College Street Group NSW	Registered
Colonial Mutual Building Facade NSW	Registered
Commercial Building NSW	Registered
Commercial Building (former) NSW	Registered
Commercial Buildings NSW	Registered
Commercial Buildings NSW	Registered
Commercial High School (former) NSW	Registered
Commercial Stores (former) NSW	Registered
Commercial Terrace NSW	Registered
Commercial Terrace NSW	Registered
Commercial Terrace NSW	Registered
Commercial Terrace NSW	Registered
Commercial Terrace Houses NSW	Registered
Commonwealth Bank NSW	Registered
Commonwealth Bank NSW	Registered
Commonwealth Bank NSW	Registered
Commonwealth Bank and Gallipoli Club NSW	Registered
Commonwealth Trading Bank Building NSW	Registered
Comus Villa NSW	Registered
Coney Island Luna Park NSW	Registered
Congregational Church NSW	Registered
Congregational Manse NSW	Registered
Conservatorium of Music NSW	Registered
Convicts Dungeon (former) NSW	Registered
Coorabel NSW	Registered

Copy of Choragic Monument of Lysicrates NSW	Registered
Coralynn NSW	Registered
Corio NSW	Registered
Corn Exchange and Fruit Market (former) NSW	Registered
Corner Shop NSW	Registered
Coroners Court (former) NSW	Registered
Cottage NSW	Registered
Cottage NSW	Registered
Cottage NSW	Registered
Cottage NSW	Registered
Cottages and Gardens NSW	Registered
Council Terrace Houses NSW	Registered
Cranbrook Avenue Group NSW	Registered
Crows Nest Fire Station NSW	Registered
Croxted NSW	Registered
Crystal Palace Luna Park NSW	Registered
Culwalla Chambers NSW	Registered
Culwalla Chambers Group NSW	Registered
Cumberland Street Group NSW	Registered
Cunningham Monument NSW	Registered
Curators Residence (former) NSW	Registered
Customs House Hotel NSW	Registered
Customs Marine Centre NSW	Registered
Daily Telegraph Building (former) NSW	Registered
Dalgety Terrace NSW	Registered
Dalgetys Bond Store (former) NSW	Registered
Danchen House (former) NSW	Registered
David Jones Department Store NSW	Registered
Dawes Point Park and Reserve NSW	Registered
Dawn Fraser Swimming Pool NSW	Registered
Daybreak NSW	Registered
Delphin House NSW	Registered
Department Store Group NSW	Registered
Domain Lodge and Gate Piers NSW	Registered
Don Bank NSW	Registered
Door and Surrounds School of Rural Studies NSW	Registered
Drill Hall (former) NSW	Registered
Drummoyne Telephone Exchange NSW	Registered
Duke of Edinburgh Hotel NSW	Registered
Dundee Arms (former) NSW	Registered
Dunheved NSW	Registered
Dunkirk Hotel NSW	Registered
Dymocks Building NSW	Registered
ES&A Bank (former) NSW	Registered
Eaton Street Group NSW	Registered
Edinburgh Castle Hotel NSW	Registered
Education Department Building NSW	Registered
Edwardian Buildings Group NSW	Registered
Edwardian Commercial Group NSW	Registered
Edwin Davey & Sons Flour Mill NSW	Registered

Elder Smith Goldsbrough Mort and Company No 3 Woolstore NSW	Registered
Elder Smith Goldsbrough Mort No 1 Woolstore NSW	Registered
Electricity Substation NSW	Registered
Ellesmere NSW	Registered
Elsetta NSW	Registered
Entrance Face and Towers Luna Park NSW	Registered
Entrance Gates (original work) NSW	Registered
Erskine Street Watch House Group NSW	Registered
Esher NSW	Registered
Esslemont and Grounds NSW	Registered
Eumalga including Stone Wall, Gates and Posts NSW	Registered
Eurodux NSW	Registered
Eurondella NSW	Registered
Euthella NSW	Registered
Everleigh Glendoon NSW	Registered
Exchange Hotel NSW	Registered
Fairhaven NSW	Registered
Farmers and Graziers No 2 Woolstore (former) NSW	Registered
Farmers and Graziers Woolstore No1 NSW	Registered
Father Michael Rohan Memorial School NSW	Registered
Fernbank NSW	Registered
Festival Records Building NSW	Registered
Fig Tree House NSW	Registered
Fig and Coral Trees Luna Park NSW	Registered
Fire Brigade Amenities Building NSW	Registered
Fire Brigade Headquarters NSW	Registered
Fire Station NSW	Registered
First Government House Site NSW	Registered
Fitzroy Dock NSW	Registered
Five Storey Building NSW	Registered
Fort Denison NSW	Registered
Fort Street School (former) (western addition) NSW	Registered
Fortuna NSW	Registered
Four Dwellings and former Shop NSW	Registered
Frazer Fountain NSW	Registered
Garden Palace Gates (original work) NSW	Registered
Gardeners Cottage NSW	Registered
Garibaldi Inn (former) NSW	Registered
General Post Office NSW	Registered
Genoa NSW	Registered
Gents Lavatory and Stone Walls NSW	Registered
Geological and Mining Museum NSW	Registered
George Patterson House NSW	Registered
George Street / Kendall Lane Precinct NSW	Registered
George Street Business Precinct NSW	Registered
Georgian Cottage NSW	Registered
Georgian Terrace NSW	Registered

Georgian Terrace NSW	Registered
Georgian Townhouses NSW	Registered
Georgian Warehouse (former) NSW	Registered
Glasgow Arms Hotel NSW	Registered
Glebe Conservation Area NSW	Registered
Glebe Courthouse NSW	Registered
Glebe Island Bridge NSW	Registered
Glebe Post Office NSW	Registered
Glebe Town Hall NSW	Registered
Glen Mahr NSW	Registered
Glencairn NSW	Registered
Glenrock NSW	Registered
Glenview NSW	Registered
Gloucester Street North Precinct NSW	Registered
Gloucester Street North, Gloucester Walk and Escarpment Space NSW	Registered
Glover Cottages NSW	Registered
Goat Island Ammunition Store Group NSW	Registered
Goat Island Precinct NSW	Registered
Gore Hill Memorial Cemetery NSW	Registered
Government House NSW	Registered
Government House, Associated Buildings and Garden NSW	Registered
Gowing Brothers Building NSW	Registered
Grace Brothers Ltd Building NSW	Registered
Grace Building NSW	Registered
Grafton Bond Store (former) NSW	Registered
Grahames Corner NSW	Registered
Graythwaite including Gardens and Outbuildings NSW	Registered
Greigs Building NSW	Registered
Gresham Hotel (former) NSW	Registered
Guard Room (former) NSW	Registered
Guardhouse and Officers Quarters (former) NSW	Registered
Hall Building B Sydney Technical College NSW	Registered
Hamilton and The Hermitage NSW	Registered
Hardware House (former) NSW	Registered
Harrington Argyle Precinct NSW	Registered
Harrington Place Space NSW	Registered
Harris Street Conservation Area NSW	Registered
Hastings NSW	Registered
Hawken and Vance Produce Exchange (former) NSW	Registered
Hayling NSW	Registered
Haymarket Urban Conservation Area NSW	Registered
Headquarters of the Australasian Federation League (former) NSW	Registered
Health Commission Building (former) NSW	Registered
Health Department Building (former) NSW	Registered
Helensleigh NSW	Registered
Henry Lawson Memorial NSW	Registered
Herbarium Seed House NSW	Registered

Irene NSW	Registered
Isere NSW	Registered
Italianate House NSW	Registered
Italianate Terrace NSW	Registered
Italianate Terrace NSW	Registered
Ivanhoe NSW	Registered
J A D Gibson and Company (facade) NSW	Registered
J H Geddes Woolstore (former) NSW	Registered
Jobbins Terrace NSW	Registered
John Street Terrace Group NSW	Registered
Johnstons Creek Sewer Aqueduct NSW	Registered
Josie NSW	Registered
Kaoota NSW	Registered
Kareela NSW	Registered
Kareela NSW	Registered
Kellys Bush NSW	Registered
Kent Street Terrace Group East Side NSW	Registered
Kent Street Terrace Group West Side NSW	Registered
Kent Street Warehouse Group NSW	Registered
Kent Street Warehouse Group 2 NSW	Registered
Kien Hay Centre NSW	Registered
Kiola NSW	Registered
Kirkbride Block NSW	Registered
Kirribilli House NSW	Registered
Kirribilli House Garden & Grounds NSW	Registered
Kirribilli Neighbourhood Centre NSW	Registered
Kyarra NSW	Registered
Kyle House NSW	Registered
LEP House Facade NSW	Registered
Labrena NSW	Registered
Lands Department Building NSW	Registered
Lantana NSW	Registered
Letraset House NSW	Registered
Lewis Wolfe Levy Fountain NSW	Registered
Lilyvale NSW	Registered
Lilyville NSW	Registered
Linsley Terrace NSW	Registered
Lisgar House NSW	Registered
Lismore Hotel (former) NSW	Registered
Longs Lane Precinct NSW	Registered
Loombah NSW	Registered
Lord Nelson Hotel NSW	Registered
Lord Wolseley Hotel NSW	Registered
Loreto Convent NSW	Registered
Low Level Sewage Pumping Station No 2 NSW	Registered
Lower Fort Street West Side Group NSW	Registered
Lower Fort Street East Side Group NSW	Registered
Lugano NSW	Registered
Luna Park Precinct NSW	Registered
Lyndcote NSW	Registered
Lyndhurst NSW	Registered

Lyndhurst NSW	Registered
MMI Building NSW	Registered
MWS&DB Building (1939) (former) NSW	Registered
Macknade House (former) NSW	Registered
Macquarie House NSW	Registered
Macquarie Place Buildings Group NSW	Registered
Macquarie Place Park & Structures NSW	Registered
Macquaries Obelisk NSW	Registered
Macquaries Wall and Gateway NSW	Registered
Main Gates (former) NSW	Registered
Maritime Services Board Building (former) NSW	Registered
Mark Foys Building (former) NSW	Registered
Martin Place GPO Precinct NSW	Registered
Martin Place Urban Conservation Area NSW	Registered
Maruna NSW	Registered
Marveen Duplex NSW	Registered
Masonic Club NSW	Registered
Maybanke Kindergarten NSW	Registered
McCafferys Building NSW	Registered
McComas and Price Williams Wool Press NSW	Registered
Melba NSW	Registered
Memorial to World War One NSW	Registered
Mens Lavatory NSW	Registered
Mercantile Hotel NSW	Registered
Merimbah NSW	Registered
Merriman Street Precinct NSW	Registered
Meryla NSW	Registered
Mess Hall (former) NSW	Registered
Mia Mia NSW	Registered
Military Guard Room NSW	Registered
Millers Point Post Office NSW	Registered
Millinery House NSW	Registered
Milsons Point Public School (former) NSW	Registered
Milthorpe NSW	Registered
Milton Terrace NSW	Registered
Mint Building, Wing of Rum Hospital (former) NSW	Registered
Mirvac Trust Building NSW	Registered
Montefalco NSW	Registered
Moocooboolah NSW	Registered
Moore Stairs NSW	Registered
Moorefield House NSW	Registered
Morts Dock Historic Site NSW	Registered
Mr John and Merivale Building NSW	Registered
Mrs Quirks Cottage NSW	Registered
Muirbank NSW	Registered
Myall NSW	Registered
NSW Department of Labour & Industry Building (former) NSW	Registered
NSW Government Railway Administrative Building NSW	Registered
NSW Permanent Building Society Building	Registered

<u>(former) NSW</u>	
<u>NSW Sports Club Five Storey Building NSW</u>	Registered
<u>NSW Sports Club Four Storey Building NSW</u>	Registered
<u>Nalpa NSW</u>	Registered
<u>National Bank (former) NSW</u>	Registered
<u>National Trust Centre NSW</u>	Registered
<u>New Metcalfe Bond NSW</u>	Registered
<u>New Metcalfe Bond / George Street Precinct NSW</u>	Registered
<u>New South Wales Club House (former) NSW</u>	Registered
<u>New York Hotel NSW</u>	Registered
<u>Nicholson Street Public School NSW</u>	Registered
<u>North Sydney Courthouse NSW</u>	Registered
<u>North Sydney Olympic Pool Complex NSW</u>	Registered
<u>North Sydney Post Office Group NSW</u>	Registered
<u>North Sydney Technical High School (former) NSW</u>	Registered
<u>North Sydney Telephone Exchange NSW</u>	Registered
<u>Norwood NSW</u>	Registered
<u>Nutcote and Garden NSW</u>	Registered
<u>Oatlands NSW</u>	Registered
<u>Obelisk NSW</u>	Registered
<u>Observatory Park NSW</u>	Registered
<u>Observer Hotel NSW</u>	Registered
<u>Obyin, Including Stone Walls NSW</u>	Registered
<u>Old Training Block, Fort Street School (former) NSW</u>	Registered
<u>Opera House Gate Royal Botanic Gardens NSW</u>	Registered
<u>Oreldalodge NSW</u>	Registered
<u>Orient Hotel NSW</u>	Registered
<u>Original Public School & Eulbertie NSW</u>	Registered
<u>Osborne House NSW</u>	Registered
<u>Ozanam House and Marist Chapel NSW</u>	Registered
<u>PMG Stores Building (former) NSW</u>	Registered
<u>Pacific Highway Group NSW</u>	Registered
<u>Pair of Joined Houses NSW</u>	Registered
<u>Pair of Neo Classic Town Houses NSW</u>	Registered
<u>Pair of Semi-detached Houses NSW</u>	Registered
<u>Pair of Stone Houses NSW</u>	Registered
<u>Pair of Stone Houses NSW</u>	Registered
<u>Palisade Hotel NSW</u>	Registered
<u>Palisade Hotel and adjoining Terraces NSW</u>	Registered
<u>Pangas House NSW</u>	Registered
<u>Paragon Hotel (former) NSW</u>	Registered
<u>Paraza NSW</u>	Registered
<u>Parker Galleries NSW</u>	Registered
<u>Parliament House NSW</u>	Registered
<u>Passy NSW</u>	Registered
<u>Paterson, Reid and Bruce Ltd Building NSW</u>	Registered
<u>Peniarth NSW</u>	Registered
<u>Perpetual Trustee Company Building NSW</u>	Registered
<u>Pilgrim House NSW</u>	Registered

Pinnacle House NSW	Registered
Pitt / King Street Group NSW	Registered
Pitt Son and Badgery Wool Store NSW	Registered
Pitt Street Group NSW	Registered
Pitt Street Uniting Church NSW	Registered
Playfair, George, Hickson Space NSW	Registered
Plaza Theatre (former) NSW	Registered
Police Station NSW	Registered
Police Station (former) NSW	Registered
Police Station (former) NSW	Registered
Power House / Pump House NSW	Registered
Powerhouse Museum (Stage One) NSW	Registered
Powerhouse Museum (Stage Two) NSW	Registered
Premises NSW	Registered
Presbyterian Church NSW	Registered
Presbyterian Church (former) NSW	Registered
Presbyterian Church Group NSW	Registered
Presbyterian Hall NSW	Registered
Presbyterian Manse NSW	Registered
Prison Barracks Precinct NSW	Registered
Pyrmont / Ultimo Centre NSW	Registered
Pyrmont Bridge NSW	Registered
Pyrmont Bridge Hotel NSW	Registered
Pyrmont Bridge Road Hotel NSW	Registered
Pyrmont Conservation Area NSW	Registered
Pyrmont Fire Station NSW	Registered
Pyrmont Point Carriageway Dividing Fence NSW	Registered
Pyrmont Point Escarpment Face NSW	Registered
Pyrmont Point Escarpment Palisade Fence and Stone Gateposts NSW	Registered
Pyrmont Point Railway Cutting & Tunnel NSW	Registered
Pyrmont Post Office NSW	Registered
Pyrmont Power Station Building A NSW	Registered
Pyrmont Public School (former) NSW	Registered
Pyrmont Square Group NSW	Registered
Pyrmont and Murray Streets Residential Group NSW	Registered
Quarrymans Hotel NSW	Registered
Quedgley NSW	Registered
Queen Victoria Building NSW	Registered
Queens Place Group NSW	Registered
Queensland Insurance Building NSW	Registered
Railway Viaduct NSW	Registered
Rawson Institute for Seamen (former) NSW	Registered
Red Cross House NSW	Registered
Redleaf NSW	Registered
Regency Townhouses NSW	Registered
Registrar Generals Department Building NSW	Registered
Registry Office NSW	Registered
Reinga NSW	Registered
Reserve Bank NSW	Registered

Residence and Shop NSW	Registered
Retail Traders Association of NSW Building (former) NSW	Registered
Reussdale NSW	Registered
Reynolds Cottage and Shop NSW	Registered
Richard Johnson Memorial NSW	Registered
Richmond NSW	Registered
Richmond Villa NSW	Registered
Robert Burns Statue NSW	Registered
Robert Reid and Company Warehouse NSW	Registered
Rocklands NSW	Registered
Rosamond NSW	Registered
Royal Australian College of Physicians Building NSW	Registered
Royal Australian Naval House NSW	Registered
Royal Automobile Club NSW	Registered
Royal Botanic Gardens and Domain NSW	Registered
Royal College of Radiologists Building NSW	Registered
Royal Edward Victualling Yard Group NSW	Registered
Royal Exchange Assurance Building (former) NSW	Registered
Royal George Hotel (former) NSW	Registered
Royal Pacific Hotel NSW	Registered
Rozelle Public School NSW	Registered
Rydal NSW	Registered
Saintonge NSW	Registered
Sanderslaben NSW	Registered
Schute, Bell, Badgery & Lumby Store NSW	Registered
Seaforth House NSW	Registered
Semi detached Houses NSW	Registered
Sergeant Majors Row Terraces NSW	Registered
Shelbourne Hotel NSW	Registered
Shelter House NSW	Registered
Ship Inn Hotel (former) NSW	Registered
Shipping Agents Office (former) NSW	Registered
Shipwrights Arms Hotel (former) NSW	Registered
Shop NSW	Registered
Shop NSW	Registered
Shop & House NSW	Registered
Shops Residences and Offices NSW	Registered
Shops and Hotel Group NSW	Registered
Shops and Offices NSW	Registered
Sierra Lucena NSW	Registered
Sir John Robertson Statue NSW	Registered
Sirius Anchor and Cannon NSW	Registered
Sirius House NSW	Registered
Skinners Family Hotel (former) NSW	Registered
Smith Copeland Warehouse (former) NSW	Registered
Snapper Island NSW	Registered
Societe Generale House NSW	Registered
Soul Pattinson and Company Building NSW	Registered
Spectacle Island Explosives Complex NSW	Registered

Sport House including Original Interiors NSW	Registered
Sportsgirl Building NSW	Registered
St Andrews Anglican Cathedral and Chapter House NSW	Registered
St Andrews Congregational Church and Hall NSW	Registered
St Augustines Church and Former Church NSW	Registered
St Bedes Church, School & Presbytery NSW	Registered
St Brigids Catholic Church & School NSW	Registered
St Francis Xaviers Catholic Church NSW	Registered
St Francis Xaviers Church School Hall NSW	Registered
St Francis Xaviers Presbytery NSW	Registered
St Georges Free Presbyterian Church NSW	Registered
St Ignatius College Riverview Main Building NSW	Registered
St Ives NSW	Registered
St James Anglican Church NSW	Registered
St John House NSW	Registered
St Johns Anglican Church NSW	Registered
St Johns Anglican Parish Hall NSW	Registered
St Johns Rectory (former) NSW	Registered
St Johns Road Group NSW	Registered
St Josephs College NSW	Registered
St Kevins NSW	Registered
St Marks Anglican Church NSW	Registered
St Marys Cathedral NSW	Registered
St Marys Catholic Church NSW	Registered
St Patricks Catholic Church NSW	Registered
St Patricks Convent NSW	Registered
St Patricks Convent Chapel NSW	Registered
St Patricks Hall and School NSW	Registered
St Pauls Presbyterian Church (former) NSW	Registered
St Peter Chanel Catholic Church NSW	Registered
St Peters Presbyterian Church NSW	Registered
St Peters Presbyterian Church and Manse NSW	Registered
St Peters Presbyterian Manse NSW	Registered
St Peters Presbyterian Schoolhouse NSW	Registered
St Philips Anglican Church NSW	Registered
St Thomas Anglican Church NSW	Registered
St Thomas Anglican Church Group NSW	Registered
St Thomas Anglican Church Rectory NSW	Registered
St Thomas Kindergarten Hall NSW	Registered
Stafford Terrace (part) NSW	Registered
Star Hotel NSW	Registered
State Library of NSW NSW	Registered
State Library of NSW Forecourt NSW	Registered
State Theatre NSW	Registered
Statue of Albert the Good NSW	Registered
Statue of Dunmore Lang NSW	Registered
Statue of King Edward VII NSW	Registered
Stone Cottage and Adjacent Stone Wall NSW	Registered
Stone Wall NSW	Registered

Stone Wall, Entrance Gate and Sentry Box NSW	Registered
Stoneleigh NSW	Registered
Strand Arcade and street facade NSW	Registered
Sugar House NSW	Registered
Sunnyside NSW	Registered
Sunnyside and Grounds NSW	Registered
Supreme Court Building NSW	Registered
Supreme Court Group NSW	Registered
Surry Hotel (former) NSW	Registered
Susannah Place Terrace NSW	Registered
Suspension Bridge NSW	Registered
Sussex Street Group NSW	Registered
Sussex Street Technical College (former) NSW	Registered
Sutherland Dock NSW	Registered
Sydney Ancher House NSW	Registered
Sydney Arcade (former) NSW	Registered
Sydney City Markets Group NSW	Registered
Sydney Customs House (former) NSW	Registered
Sydney Grammar School NSW	Registered
Sydney Harbour Bridge NSW	Registered
Sydney Hospital NSW	Registered
Sydney Hospital Nurses Annex NSW	Registered
Sydney Observatory NSW	Registered
Sydney Opera House and Surrounds NSW	Registered
Sydney Sailors Home (former) NSW	Registered
Sydney School of Arts (former) NSW	Registered
Sydney Technical College Group NSW	Registered
Sydney Town Hall NSW	Registered
Sydney Trades Hall NSW	Registered
T S Mort Statue NSW	Registered
Tank Stream Tunnel NSW	Registered
Tatler Hotel (former) NSW	Registered
Taunton and Eldon NSW	Registered
Technological Museum (former) NSW	Registered
Telford Trust Building NSW	Registered
Telford Type Roadway NSW	Registered
Terana NSW	Registered
Terminus Hotel NSW	Registered
Terrace NSW	Registered
Terrace NSW	Registered
Terrace NSW	Registered
Terrace NSW	Registered
Terrace NSW	Registered
Terrace NSW	Registered
Terrace NSW	Registered
Terrace NSW	Registered
Terrace NSW	Registered
Terrace Facade NSW	Registered
Terrace House NSW	Registered
Terrace House NSW	Registered
Terrace House NSW	Registered
Terrace Houses NSW	Registered

The Chalet NSW	Registered
The Cobbles NSW	Registered
The Counting House NSW	Registered
The Eagles NSW	Registered
The Garrison Church NSW	Registered
The Gladstone NSW	Registered
The Great Synagogue NSW	Registered
The Haven NSW	Registered
The Herbarium NSW	Registered
The Hub NSW	Registered
The Jacaranda Including Outbuilding NSW	Registered
The Judges House NSW	Registered
The Lodge NSW	Registered
The Rocks Conservation Area NSW	Registered
Three Victorian Residences NSW	Registered
Town Hall NSW	Registered
Town Hall NSW	Registered
Town Hall Group NSW	Registered
Town House NSW	Registered
Townhouse NSW	Registered
Townhouses NSW	Registered
Towns Store NSW	Registered
Traffic Court Group (former) NSW	Registered
Traffic Court No 1 (former) NSW	Registered
Traffic Court No 2 (former) NSW	Registered
Tranby NSW	Registered
Transport House NSW	Registered
Treago NSW	Registered
Treasury Building & Premiers Office NSW	Registered
Trust Building NSW	Registered
Tucker and Company Warehouse NSW	Registered
Twin Residences NSW	Registered
Two Fig Trees NSW	Registered
Two Storey House NSW	Registered
Ultimo Conservation Area NSW	Registered
Ultimo Post Office (former) NSW	Registered
Ultimo Sewage Pumping Station NSW	Registered
Ultimo Uniting Church Group NSW	Registered
Undercliff Cottage (former) NSW	Registered
Underground Grain Silos NSW	Registered
Union Bank (former) NSW	Registered
Union Bond Store NSW	Registered
Unwins Coach House NSW	Registered
Unwins Store NSW	Registered
Vailele NSW	Registered
Veredelaise NSW	Registered
Victoria Lodge NSW	Registered
Victorian Shops NSW	Registered
Vienna NSW	Registered
View Terrace Facade NSW	Registered
Vine House NSW	Registered

Vinetta NSW	Registered
Visitors Accommodation (former) NSW	Registered
Vulcan Hotel NSW	Registered
Wainload NSW	Registered
Wairoa NSW	Registered
Waite and Bull Building NSW	Registered
Waiwera and St Claire NSW	Registered
Wales House NSW	Registered
Walker Street Group NSW	Registered
Walsh Bay Wharves NSW	Registered
Walshale NSW	Registered
Walter Burley Griffin Incinerator NSW	Registered
Walton and Herberton NSW	Registered
Wandella NSW	Registered
Ward 14 and 15 NSW	Registered
Warehouse NSW	Registered
Warehouse NSW	Registered
Warehouse NSW	Registered
Warehouse (former) NSW	Registered
Warehouse (former) NSW	Registered
Warehouse (former) NSW	Registered
Warehouse (former) NSW	Registered
Warehouse (former) NSW	Registered
Warehouse Facade NSW	Registered
Warehouse Group NSW	Registered
Warehouse and Factory Facade (former) NSW	Registered
Warehouses NSW	Registered
Warehouses NSW	Registered
Warehouses (former) NSW	Registered
Warehouses (former) NSW	Registered
Warehouses (former) NSW	Registered
Warehouses (former) NSW	Registered
Warrawillah NSW	Registered
Watch House NSW	Registered
Watch House (former) NSW	Registered
Ways Terrace NSW	Registered
Westpac Bank NSW	Registered
Westpac Bank (former) facade NSW	Registered
Westpac Bank Archives (former) NSW	Registered
Wharf 19, 20 & 21 NSW	Registered
Wharf Road Precinct NSW	Registered
Whites Creek Sewer Aqueduct NSW	Registered
Wild Cat Luna Park NSW	Registered
Wilona House NSW	Registered
Winden NSW	Registered
Windermere NSW	Registered
Windermere Chambers NSW	Registered
Windmill Street North Side Group NSW	Registered
Windmill Street Southside Group NSW	Registered
Windradine NSW	Registered
Winery Warehouse NSW	Registered
Winsbury Terrace NSW	Registered

Wongonui & Wlangarua NSW	Registered
Woodbank NSW	Registered
Woodstock NSW	Registered
Woodstock NSW	Registered
Woodville NSW	Registered
Woolbrokers Arms Hotel NSW	Registered
Woolloomooloo Finger Wharf NSW	Registered
Woolstores No 1 Group NSW	Registered
Woolstores No 2 Group NSW	Registered
Woolwich Dock NSW	Registered
Working Mens Institute NSW	Registered
Wurley Court NSW	Registered
Wyaldara NSW	Registered
Wybalena NSW	Registered
Wybalena NSW	Registered
Wyoming NSW	Registered
YMCA Building Facade (former) NSW	Registered
Yandra NSW	Registered
York Street Group NSW	Registered
Young Princess Hotel (former) NSW	Registered
Ysabel NSW	Registered

State and Territory Reserves [[Resource Information](#)]

Sydney Harbour, NSW
Cadmans Cottage, NSW

Invasive Species [[Resource Information](#)]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
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Frogs

[Bufo marinus](#)

Cane Toad [1772]		Species or species habitat likely to occur within area
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Mammals

[Felis catus](#)

Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
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[Oryctolagus cuniculus](#)

Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
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[Vulpes vulpes](#)

Red Fox, Fox [18]		Species or species habitat likely to occur within area
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Plants

[Alternanthera philoxeroides](#)

Alligator Weed [11620]		Species or species habitat likely to occur within area
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[Asparagus asparagoides](#)

Bridal Creeper, Bridal Veil		Species or species habitat likely to occur within area
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Creeper, Smilax, Florist's
Smilax, Smilax Asparagus
[22473]

[Cabomba caroliniana](#)

Cabomba, Fanwort, Carolina
Watershield, Fish Grass,
Washington Grass, Watershield,
Carolina Fanwort, Common
Cabomba [5171]

Species or species habitat likely to occur within area

[Chrysanthemoides monilifera](#)

Bitou Bush, Boneseed [18983]

Species or species habitat may occur within area

[Genista sp. X Genista monspessulana](#)

Broom [67538]

Species or species habitat may occur within area

[Lantana camara](#)

Lantana, Common Lantana,
Kamara Lantana, Large-leaf
Lantana, Pink Flowered
Lantana, Red Flowered
Lantana, Red-Flowered Sage,
White Sage, Wild Sage [10892]

Species or species habitat likely to occur within area

[Lycium ferocissimum](#)

African Boxthorn, Boxthorn
[19235]

Species or species habitat may occur within area

[Pinus radiata](#)

Radiata Pine Monterey Pine,
Insignis Pine, Wilding Pine
[20780]

Species or species habitat may occur within area

[Rubus fruticosus aggregate](#)

Blackberry, European
Blackberry [68406]

Species or species habitat likely to occur within area

[Salix spp. except S.babylonica, S.x calodendron & S.x reichardtiji](#)

Willows except Weeping
Willow, Pussy Willow and
Sterile Pussy Willow [68497]

Species or species habitat likely to occur within area

[Salvinia molesta](#)

Salvinia, Giant Salvinia,
Aquarium Watermoss, Kariba
Weed [13665]

Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-33.83854 151.18489

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Department of Environment, Climate Change and Water, New South Wales](#)
- [-Department of Sustainability and Environment, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment and Natural Resources, South Australia](#)
- [-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts](#)
- [-Environmental and Resource Management, Queensland](#)
- [-Department of Environment and Conservation, Western Australia](#)
- [-Department of the Environment, Climate Change, Energy and Water](#)
- [-Birds Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-SA Museum](#)
- [-Queensland Museum](#)
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- [-Ocean Biogeographic Information System](#)
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The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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Last updated: Thursday, 16-Sep-2010 09:13:25 EST

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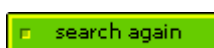
Canberra ACT 2601 Australia

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Your selection: Fauna, threatened species, Selected Area - 151.02260,-33.98123,151.34669,-33.69482 returned a total of 6375 records of 89 species.




























Report generated on 03/11/2011 - 14:15 (Data valid to 25/04/2010)






















Choose up to 3 species to map.

** Exotic (non-native) species*





























Amphibia	Map	Scientific Name	Common Name	Legal Status	Count	Info
Hylidae						
<input type="checkbox"/>		Litoria aurea	Green and Golden Bell Frog	E1	937	
Myobatrachidae						
<input type="checkbox"/>		Crinia tinnula	Wallum Froglet	V	1	
<input type="checkbox"/>		Heleioporus australiacus	Giant Burrowing Frog	V	6	
<input type="checkbox"/>		Pseudophryne australis	Red-crowned Toadlet	V	181	
Aves	Map	Scientific Name	Common Name	Legal Status	Count	Info
Accipitridae						
<input type="checkbox"/>		Erythrotriorchis radiatus	Red Goshawk	E4A	1	
<input type="checkbox"/>		Hieraetus morphnoides	Little Eagle	V	11	
<input type="checkbox"/>		Pandion haliaetus	Osprey	V	15	
Anatidae						
<input type="checkbox"/>		Nettapus coromandelianus	Cotton Pygmy-Goose	E1	4	
<input type="checkbox"/>		Stictonetta naevosa	Freckled Duck	V	1	
Anseranatidae						
<input type="checkbox"/>		Anseranas semipalmata	Magpie Goose	V	10	
Ardeidae						
<input type="checkbox"/>		Botaurus poiciloptilus	Australasian Bittern	V	6	
<input type="checkbox"/>		Ixobrychus flavicollis	Black Bittern	V	14	
Burhinidae						
<input type="checkbox"/>		Burhinus grallarius	Bush Stone-curlew	E1	9	
<input type="checkbox"/>		Esacus neglectus	Beach Stone-curlew	E4A	1	
Cacatuidae						
<input type="checkbox"/>		Callocephalon fimbriatum	Gang-gang Cockatoo population in the Hornsby and	E2	44	

		Ku-ring-gai Local Government Areas			
	<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V	46	
	<i>Calyptrorhynchus lathamii</i>	Glossy Black-Cockatoo	V	48	
Charadriidae					
	<i>Charadrius leschenaultii</i>	Greater Sand-plover	V	6	
	<i>Charadrius mongolus</i>	Lesser Sand-plover	V	12	
Ciconiidae					
	<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E1	1	
Columbidae					
	<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove	V	2	
	<i>Ptilinopus superbus</i>	Superb Fruit-Dove	V	29	
Diomedidae					
	<i>Diomedea antipodensis</i>	Antipodean Albatross	V	1	
	<i>Diomedea exulans</i>	Wandering Albatross	E1	1451	
	<i>Phoebastria fusca</i>	Sooty Albatross	V	1	
	<i>Thalassarche cauta</i>	Shy Albatross	V	3	
	<i>Thalassarche melanophris</i>	Black-browed Albatross	V	16	
Estrildidae					
	<i>Stagonopleura guttata</i>	Diamond Firetail	V	4	
Falconidae					
	<i>Falco hypoleucos</i>	Grey Falcon	V	1	
Haematopodidae					
	<i>Haematopus fuliginosus</i>	Sooty Oystercatcher	V	24	
	<i>Haematopus longirostris</i>	Pied Oystercatcher	E1	17	
Laridae					
	<i>Gygis alba</i>	White Tern	V	1	
	<i>Sterna albifrons</i>	Little Tern	E1	639	
	<i>Sterna fuscata</i>	Sooty Tern	V	5	
Meliphagidae					
	<i>Epthianura albifrons</i>	White-fronted Chat	V	24	
	<i>Epthianura albifrons</i>	White-fronted Chat Epthianura albifrons (Jardine & Selby,	E2	24	

1828) in the Sydney
Metropolitan
Catchment
Management
Authority area

	Xanthomyza phrygia	Regent Honeyeater	E1	28	
Neosittidae					
	Daphoenositta chrysoptera	Varied Sittella	V	4	
Petroicidae					
	Petroica boodang	Scarlet Robin	V	7	
	Petroica phoenicea	Flame Robin	V	1	
Procellariidae					
	Macronectes giganteus	Southern Giant Petrel	E1	363	
	Macronectes halli	Northern Giant-Petrel	V	8	
	Pterodroma leucoptera leucoptera	Gould's Petrel	V	2	
	Puffinus assimilis	Little Shearwater	V	2	
	Puffinus carneipes	Flesh-footed Shearwater	V	3	
Psittacidae					
	Glossopsitta pusilla	Little Lorikeet	V	14	
	Lathamus discolor	Swift Parrot	E1	26	
	Neophema chrysogaster	Orange-bellied Parrot	E4A	1	
	Neophema pulchella	Turquoise Parrot	V	1	
	Pezoporus wallicus wallicus	Eastern Ground Parrot	V	2	
	Polytelis swainsonii	Superb Parrot	V	1	
Scolopacidae					
	Calidris alba	Sanderling	V	11	
	Calidris tenuirostris	Great Knot	V	21	
	Limicola falcinellus	Broad-billed Sandpiper	V	4	
	Limosa limosa	Black-tailed Godwit	V	17	
	Xenus cinereus	Terek Sandpiper	V	7	
Spheniscidae					
	Eudyptula minor	Little Penguin in the Manly Point Area (being the area on and near the	E2	11	

shoreline from
Cannae Point
generally northward
to the point near
the intersection of
Stuart Street and
Oyama Cove
Avenue, and
extending 100
metres offshore
from that shoreline)

Strigidae						
	Ninox connivens	Barking Owl	V	10		
	Ninox strenua	Powerful Owl	V	203		
Tytonidae						
	Tyto capensis	Grass Owl	V	1		
	Tyto novaehollandiae	Masked Owl	V	4		
Mammalia	Map	Scientific Name	Common Name	Legal Status	Count	Info
Balaenidae						
	Eubalaena australis	Southern Right Whale	V	9		
Balaenopteridae						
	Megaptera novaeangliae	Humpback Whale	V	78		
Burramyidae						
	Cercartetus nanus	Eastern Pygmy-possum	V	4		
Dasyuridae						
	Dasyurus maculatus	Spotted-tailed Quoll	V	25		
	Dasyurus viverrinus	Eastern Quoll	E1	2		
Dugongidae						
	Dugong dugon	Dugong	E1	5		
Emballonuridae						
	Saccolaimus flaviventris	Yellow-bellied Sheath-tail-bat	V	1		
Molossidae						
	Mormopterus norfolkensis	Eastern Freetail-bat	V	6		
Otariidae						
	Arctocephalus forsteri	New Zealand Fur-seal	V	4		
	Arctocephalus pusillus doriferus	Australian Fur-seal	V	14		
Peramelidae						

	<i>Isoodon obesulus obesulus</i>	Southern Brown Bandicoot (eastern)	E1	18		
	<i>Perameles nasuta</i>	Long-nosed Bandicoot population in inner western Sydney	E2	19		
	<i>Perameles nasuta</i>	Long-nosed Bandicoot, North Head	E2	45		
Petauridae						
	<i>Petaurus australis</i>	Yellow-bellied Glider	V	1		
Phascolarctidae						
	<i>Phascolarctos cinereus</i>	Koala	V	9		
	<i>Phascolarctos cinereus</i>	Koala in the Pittwater Local Government Area	E2	2		
Physeteridae						
	<i>Physeter macrocephalus</i>	Sperm Whale	V	2		
Potoroidae						
	<i>Aepyprymnus rufescens</i>	Rufous Bettong	V	1		
Pteropodidae						
	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	1450		
Vespertilionidae						
	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	1		
	<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V	1		
	<i>Miniopterus australis</i>	Little Bentwing-bat	V	1		
	<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V	76		
	<i>Myotis macropus</i>	Southern Myotis	V	201		
	<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	1		
Reptilia						
	Map	Scientific Name	Common Name	Legal Status	Count	Info
Cheloniidae						
		<i>Chelonia mydas</i>	Green Turtle	V	12	
Dermochelyidae						
		<i>Dermochelys coriacea</i>	Leathery Turtle	V	1	
Varanidae						

* Exotic (non-native) species

Choose up to 3 species to map.

Your selection: Flora, threatened species, Selected Area - 151.07489,-33.92980,151.29475,-33.74633 returned a total of 764 records of 61 species.
Report generated on 03/11/2011 - 14:17 (Data valid to 25/04/2010)










view map

search again
























clear selection

Choose up to 3 species to map.

* Exotic (non-native) species

Plants	Map	Scientific Name	Common Name	Legal Status	Count	Info
Campanulaceae						
<input type="checkbox"/>		Wahlenbergia multicaulis	Tadgell's Bluebell in the local government areas of Auburn, Bankstown, Baulkham Hills, Canterbury, Hornsby, Parramatta and Strathfield	E2	1	
Casuarinaceae						
<input type="checkbox"/>		Allocasuarina portuensis	Nielsen Park She-oak	E1	70	
Convolvulaceae						
<input type="checkbox"/>		Wilsonia backhousei	Narrow-leafed Wilsonia	V	31	
Dilleniaceae						
<input type="checkbox"/>		Hibbertia puberula		E1	2	
<input type="checkbox"/>		Hibbertia superans		E1	1	
Elaeocarpaceae						
<input type="checkbox"/>		Tetradlea glandulosa		V	58	
<input type="checkbox"/>		Tetradlea juncea	Black-eyed Susan	V	16	
Ericaceae						
<input type="checkbox"/>		Epacris purpurascens var. purpurascens		V	20	
Euphorbiaceae						
<input type="checkbox"/>		Amperea xiphoclada var. pedicellata		E4	1	
<input type="checkbox"/>		Chamaesyce psammogeton	Sand Spurge	E1	3	

Fabaceae (Faboideae)					
<input type="checkbox"/>	Dillwynia tenuifolia		V	1	
<input type="checkbox"/>	Pultenaea parviflora		E1	1	
Fabaceae (Mimosoideae)					
<input type="checkbox"/>	Acacia bynoeana	Bynoe's Wattle	E1	17	
<input type="checkbox"/>	Acacia gordonii		E1	1	
<input type="checkbox"/>	Acacia prominens	Gosford Wattle, Hurstville and Kogarah Local Government Areas	E2	1	
<input type="checkbox"/>	Acacia pubescens	Downy Wattle	V	5	
<input type="checkbox"/>	Acacia terminalis subsp. terminalis	Sunshine Wattle	E1	208	
Grammitidaceae					
<input type="checkbox"/>	Grammitis stenophylla	Narrow-leaf Finger Fern	E1	2	
Haloragaceae					
<input type="checkbox"/>	Haloragodendron lucasii		E1	6	
Hygrophoraceae					
<input type="checkbox"/>	Camarophylloopsis kearneyi		E1	1	
<input type="checkbox"/>	Hygrocybe anomala var. ianthinomarginata		V	1	
<input type="checkbox"/>	Hygrocybe aurantipes		V	1	
<input type="checkbox"/>	Hygrocybe austropratensis		E1	1	
<input type="checkbox"/>	Hygrocybe collucera		E1	1	
<input type="checkbox"/>	Hygrocybe griseoramosa		E1	1	
<input type="checkbox"/>	Hygrocybe lanecovensensis		E1	1	
<input type="checkbox"/>	Hygrocybe reesiaae		V	1	
<input type="checkbox"/>	Hygrocybe rubronivea		V	1	
Lamiaceae					
<input type="checkbox"/>	Prostanthera junonis	Somersby Mintbush	E1	3	
<input type="checkbox"/>	Prostanthera marifolia	Seaforth Mintbush	E4A	23	
Myrtaceae					
<input type="checkbox"/>	Callistemon linearifolius	Netted Bottle Brush	V	8	

<input type="checkbox"/>	Darwinia biflora		V	70	
<input type="checkbox"/>	Darwinia peduncularis		V	1	
<input type="checkbox"/>	Eucalyptus camfieldii	Heart-leaved Stringybark	V	34	
<input type="checkbox"/>	Eucalyptus fracta	Broken Back Ironbark	V	1	
<input type="checkbox"/>	Eucalyptus nicholii	Narrow-leaved Black Peppermint	V	13	
<input type="checkbox"/>	Eucalyptus pulverulenta	Silver-leafed Gum	V	1	
<input type="checkbox"/>	Eucalyptus scoparia	Wallangarra White Gum	E1	1	
<input type="checkbox"/>	Leptospermum deanei		V	15	
<input type="checkbox"/>	Melaleuca biconvexa	Biconvex Paperbark	V	1	
<input type="checkbox"/>	Melaleuca deanei	Deane's Paperbark	V	29	
<input type="checkbox"/>	Syzygium paniculatum	Magenta Lilly Pilly	E1	26	
<input type="checkbox"/>	Triplarina imbricata	Creek Triplarina	E1	1	
Orchidaceae					
<input type="checkbox"/>	Caladenia tessellata	Thick Lip Spider Orchid	E1	8	
<input type="checkbox"/>	Diuris arenaria	Sand Doubletail	E1	1	
<input type="checkbox"/>	Genoplesium baueri	Bauer's Midge Orchid	V	12	
<input type="checkbox"/>	Microtis angusii	Angus's Onion Orchid	E1	1	
<input type="checkbox"/>	Prasophyllum fuscum	Slaty Leek Orchid	E4A	1	
<input type="checkbox"/>	Sarcochilus hartmannii	Hartman's Sarcochilus	V	1	
Poaceae					
<input type="checkbox"/>	Deyeuxia appressa		E1	3	
<input type="checkbox"/>	Dichanthium setosum	Bluegrass	V	1	
Proteaceae					
<input type="checkbox"/>	Grevillea caleyi	Caley's Grevillea	E1	11	
<input type="checkbox"/>	Grevillea parviflora		V	1	
<input type="checkbox"/>	Persoonia hirsuta	Hairy Geebung	E1	13	
<input type="checkbox"/>	Persoonia laxa		E4	1	
<input type="checkbox"/>	Persoonia nutans	Nodding Geebung	E1	1	
Rutaceae					

<input type="checkbox"/>	Asterolasia buxifolia		E1	1	
Santalaceae					
<input type="checkbox"/>	Thesium australe	Austral Toadflax	V	1	
Sterculiaceae					
<input type="checkbox"/>	Lasiopetalum joyceae		V	1	
Thymelaeaceae					
<input type="checkbox"/>	Pimelea curviflora var. curviflora		V	23	
<input type="checkbox"/>	Pimelea spicata	Spiked Rice-flower	E1	2	

** Exotic (non-native) species*

Choose up to 3 species to map.

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Appendix B

Previous Site Investigations

Appendix B Previous Site Investigations

Year of Investigation	Description
1998	Woodward - Clyde conducted Soil and Groundwater Investigation - Drilling of two soil bores and one monitoring well (MW98/02).
2002	Woodward - Clyde Sediment and Subsurface Water Investigation - Sediment cores from 10 locations along the sea wall.
2004	IT Environmental - Desktop review of all historical data - Sediment cores from 10 locations along the sea wall.
2005	CMJA - Gauging and sampling of all wells. Assess the likely sources for Sheen 2 and 3. Two intrusive drilling programs were undertaken by A.D. Envirotech to determine the source of hydrocarbon sheen observed on Gore Bay within the vicinity of tanks T1 and T13. Five soil borings were installed in May 2003 (BH1 – BH5) and a further five soil borings (BH6 – BH10) installed in September 2003.
2005	Advitech - audit and assess the progress to the pollution reduction program.
2006	Coffey environmental conducted a GME prior to the development of a contaminant control and remediation plan.
2006	CMJA - Historical data review, development of an enhanced groundwater monitoring system and risk assessment.
2006	CMJA - Prepare CCRP
2006	CMJA - review all data and assess current and historical sources of groundwater pollution.
2007	HLA-ENSR conducted a GME
2007	ERM conducted a GME for CCRP
2008	ERM conducted a non intrusive assessment.
2008-2009	ERM conducted a preliminary site assessment - Drilling of two soil bores and nine monitoring wells. Development of new wells and two GMEs of all wells.
2010	ERM - Prepare Soil and Groundwater Management Plan
2010	ERM - 2010 Groundwater Monitoring Event
2011	ERM - Q1 (2011) Groundwater Monitoring Event (Gauging Only)
2011	ERM - Q2 (2011) Groundwater Monitoring Event
2011	ERM - Q3 (2011) Groundwater Monitoring Event (Gauging Only)
2011	ERM - Q3 (2011) Groundwater Monitoring Event (Gauging Only)
Source of Information:	ERM 2008, Non Intrusive Assessment, Gore Bay Terminal