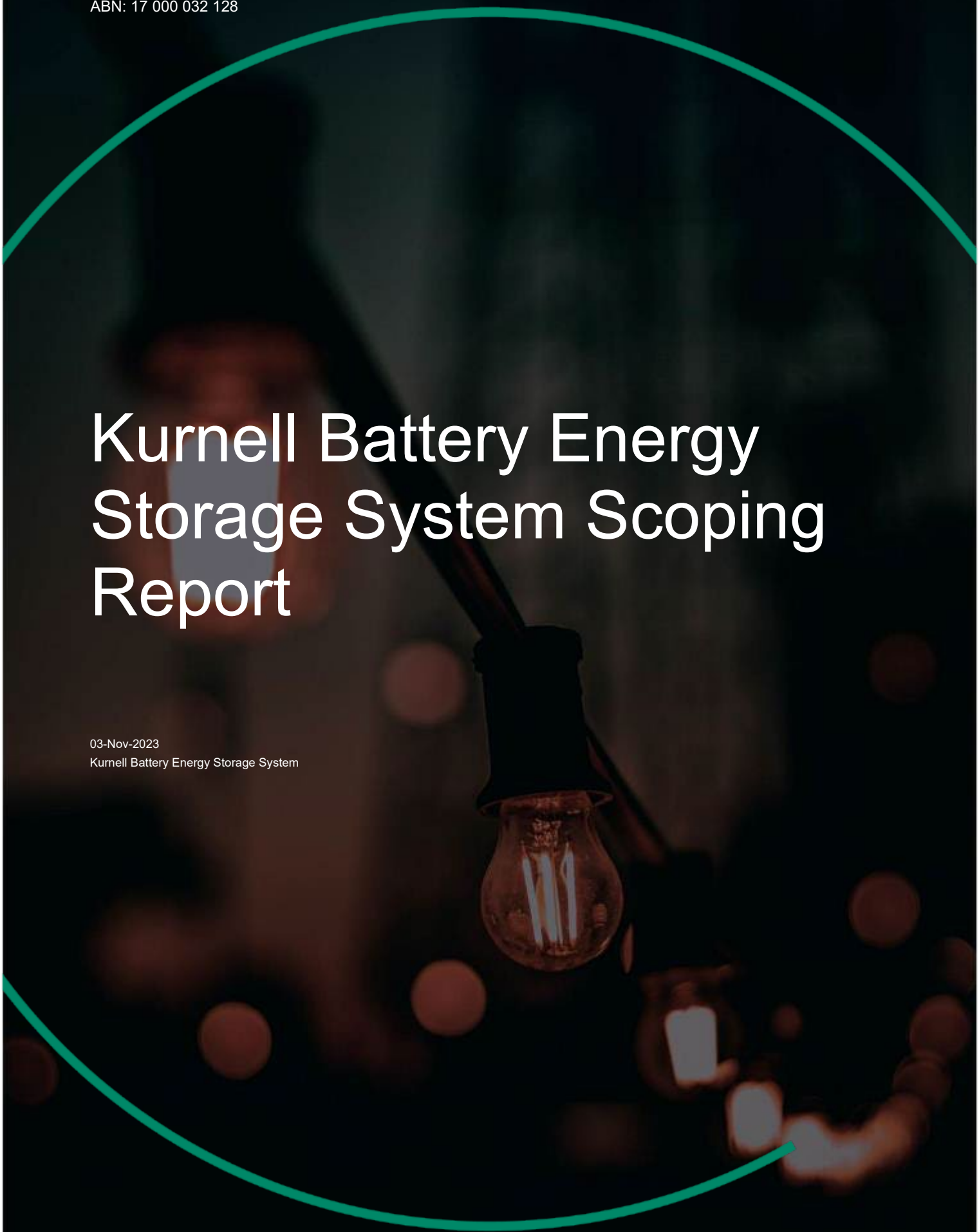
Prepared for
Ampol Australia Ltd
ABN: 17 000 032 128

AECOM

Kurnell Battery Energy Storage System Scoping Report

03-Nov-2023
Kurnell Battery Energy Storage System



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Kurnell Battery Energy Storage System Scoping Report

Client: Ampol Australia Ltd

ABN: 17 000 032 128

Prepared by

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Executive Summary

Background

Kurnell Energy Pty Ltd (Kurnell Energy) is seeking development consent to construct, operate and maintain a battery energy storage facility (BESS) with a peak capacity of up to 800 megawatts (MW) and storage of up to 3,800 megawatt-hours (MWh) (the 'Project') at the Kurnell Terminal site at 2 Solander Street, Kurnell, NSW 2231 (the 'Site'). Kurnell Energy is a subsidiary wholly owned by Ampol Australia Ltd (Ampol), who own and operate the Kurnell Terminal. The Project would deliver against Ampol's Future Energy and Decarbonisation Strategies (Ampol, 2021). to reduce its carbon footprint and find and develop new energy solutions that assist its customers in their energy transition.

The Project is classified as State Significant Development (SSD). This Scoping Report has been prepared for the Project to support a request for Secretary's Environmental Assessment Requirements (SEARs). The SEARs would guide the preparation of an Environmental Impact Statement (EIS) to support the SSD application (SSDA) for the Project as required under Division 4.7 of the *Environmental Planning and Assessment Act 1979 (NSW)* (EP&A Act).

The Site and Investigation Area

The dominant existing land use at the Site is the Kurnell Terminal, which operates in the northern, eastern, and western parts of the Site and is consented under SSD-5544. Ampol is proposing to operate the Kurnell Terminal in conjunction with the Project. Following the cessation of refining in 2014, the conversion of the Site to a fuel terminal and the removal of refinery infrastructure, the southern and central areas of the Site have been largely vacant. As such, Ampol has identified an 'Investigation Area' across these southern and central areas where the BESS facility would be located. The Investigation Area consists of part or all of the following allotments: Part Lot 25 DP 776328, Lot 1 DP 215819, Lots 1 and 2 DP 126647, Part Lot 283 DP 752064, Part Lot 2 DP 215818, and Part Lots 56 and 57 DP 908.

The Investigation Area is generally flat, with the land rising to the eastern boundary of the Site. Stormwater and wastewater are managed through the Stormwater System (SWS) and an Oily Water System (OSW). The Investigation Area is bounded by the Kurnell Terminal to the north, Sir Joseph Banks Drive and existing industrial areas to the west, and areas of mature vegetation to the south and east. The township of Kurnell is located approximately 490 metres to the north and north-west.

The Project

The Project comprises a BESS facility that would charge with electricity from the electricity network, discharge electricity during periods of high demand, and provide other market services.

Key features of the Project would include:

- Construction and operation of a BESS of up to 800 megawatts (MW) in capacity and up to 3,800 megawatt-hour (MWh) in duration
- Grid connection from the BESS to Ausgrid's 132 kilovolt (kV) Kurnell South Zone Substation on Captain Cook Drive, including connection to the substation infrastructure
- Construction of associated support buildings, fencing, stormwater controls/ connection, and utility connections, etc.

The Project is likely to be delivered in stages. The first stage is likely to consist of Lithium-ion (Li-ion) or Sodium-ion (Na-ion) battery technology (precise chemistry to be determined), and subsequent stages may include flow battery technology. This would be confirmed as part of detailed design. As such, development consent for these options would be sought.

Key components of the Project would include:

- Batteries located within battery enclosures and associated infrastructure including but not limited to medium and low voltage transformers, inverters, and ring main units
- Cabling and collector units

- High voltage substation, with associated infrastructure including but not limited to high voltage transformers, busbars, harmonic filters, and miscellaneous meters and power quality equipment
- Operation and maintenance buildings, switch rooms, control room, BESS facility access, internal roads, laydown areas and car parking
- Grid connection to the existing electrical switchyard at Kurnell South Zone Substation. This connection could consist of one or a number of cables in a single or separate trenches
- Other associated and ancillary infrastructure, including, for example, concrete structures, steel structures, lightning protection, fire suppression, spill, drainage, fire water bund, and stormwater management, security fencing, lighting, and CCTV.

Further details regarding the Project specifics are provided in the following sections. These details are subject to further review during the preparation of the EIS and the detailed design phase. Whilst the construction of the Project may be carried out in stages, the Scoping Report and EIS will consider and address the environmental impacts associated with the Project as a whole.

Assessment of impacts

The identification of issues to be addressed in the EIS has been undertaken through a risk-based approach in accordance with the *State significant development guidelines – preparing a scoping report* (DPE, 2022a). This process involved reviewing previous reports and desktop searches of proprietary environmental databases between April and August 2023 to identify key issues and sensitive areas. The matters that have been identified for further detailed assessment during the preparation of the EIS are:

- Hazards and risk
- Geology, soils, groundwater, and contamination
- Noise and vibration
- Aboriginal cultural heritage
- Non-aboriginal heritage
- Surface water and flooding
- Traffic, transport, and access
- Bushfire.

Other matters to be considered in the EIS are community and stakeholder engagement, socio-economic considerations, air quality, aviation, biodiversity, electro-magnetic fields (EMF), visual assessment, waste management. Where relevant cumulative impacts for these matters will also be assessed.

In assessing the Project, the key focus would be avoidance and minimisation of potential impacts on the environment and local communities, where practicable and feasible, when taking into consideration engineering constraints and cost implications. The EIS assessment would also develop mitigation and management measures to minimise identified potential impacts to the environment during construction and/or operation of the Project. Consultation with stakeholders and the local community would continue throughout the Project assessment, detailed design, construction, and operation phases.

Purpose of this document

This document provides a description of the Project taking into consideration its relevant strategic context. It presents a preliminary environmental risk-based assessment undertaken during scoping of the Project to identify the relevant matters to be addressed in the EIS.

This document has been prepared to request SEARs for the Project.

1.0 Introduction

1.1 Overview

The applicant, Kurnell Energy Pty Ltd (Kurnell Energy), is proposing to construct, operate, and maintain a Battery Energy Storage System (BESS) (the 'Project') within the Kurnell Terminal site at 2 Solander Street, Kurnell, NSW 2231 (the 'Site'). Kurnell Energy is a subsidiary wholly owned by Ampol Australia Ltd (Ampol), who own and operate the Kurnell Terminal.

The dominant existing land use at the Site is the Kurnell Terminal. The Kurnell Terminal predominantly operates in the northern, eastern, and western parts of the Site (refer to Figure 1-1). This terminal land use is consented under SSD-5544. The Site also operates under Environment Protection Licence (EPL) 837 and a Major Hazard Facility licence. Other development consents are also active at the Site. Ampol is proposing to operate the Kurnell Terminal in conjunction with the Project.

The southern and central parts of the Site were previously used for the refining of crude oil and related uses. Following the cessation of refining in 2014, the conversion of the Site to a fuel terminal and the removal of refinery infrastructure, these southern and central areas of the Site have been largely vacant. As such, Ampol has identified an 'Investigation Area' across these southern and central areas where the BESS facility would be located. The location of the Site and Investigation Area within the Kurnell Peninsula is presented in Figure 2-1. The Investigation Area consists of part or all of the following allotments: Part Lot 25 DP 776328, Lot 1 DP 215819, Lots 1 and 2 DP 126647, Part Lot 283 DP 752064, Part Lot 2 DP 215818, and Part Lots 56 and 57 DP 908.

Key features of the Project include:

- Construction and operation of a BESS of up to 800 megawatts (MW) in capacity and up to 3,800 megawatt-hour (MWh) in duration, and associated infrastructure
- Grid connection from the BESS facility to Ausgrid's 132 kilovolt (kV) Kurnell South Zone Substation on Captain Cook Drive including connection to the substation infrastructure
- Construction of associated support buildings, fencing, stormwater controls/ connection, and utility connections, etc.

The precise location of the BESS facility and the grid connection would be confirmed in the Environmental Impact Statement (EIS) for the Project following further design work and environmental investigations. However, the Investigation Area has been identified to minimise and avoid potential impacts to the Kurnell community, neighbouring areas of ecological sensitivity and the Kurnell Terminal. It is expected that the BESS facility could require up to 27 hectares (ha) of the Investigation Area. The Investigation Area is approximately 65 ha in area. Figure 1-1 shows the Investigation Area and the potential grid connection route options being considered.

While the BESS technology provider is yet to be determined, the BESS is likely to consist of containerised or stacked batteries with associated control systems, inverters, heating, ventilation and air conditioning units, busbars, high and low voltage transformers (including current, voltage, and capacitive voltage transformers), switchrooms, control rooms, harmonic filters, metering and power quality assets, operations building, and maintenance warehouse. The majority of the facility would be no greater that 6 metres (m) in height with the exception of the lightning masts, which could be up to 30 m tall.

The Project is likely to be delivered in stages. The first stage of around 250 MW is likely to consist of Lithium-ion (Li-ion) or Sodium-ion (Na-ion) battery technology (the precise chemistry is to be determined). Later stages of around 550 MW may be one of or a mixture of Li-ion, Na-ion, or a flow battery technology. This final approach would be confirmed as part of detailed design. Kurnell Energy will be seeking development consent to allow for any one or a combination of these three options to be developed.

BESS projects are considered electricity storage projects defined as '*electricity generating works*' under *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP) as a building or place used for the purpose of electricity storage. Clause 2.36 of Transport and Infrastructure SEPP states that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed non-residential zone. The Site is located within the E5 Heavy Industrial land use zone, which is a prescribed non-residential zone under clause 2.35 of Transport and Infrastructure SEPP. On this basis, the Project is permissible with development consent on the Site.

Division 4.7 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) defines development that is State Significant Development (SSD) and notes that development can be declared as such by an Environmental Planning Instrument (EPI). Under the State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP), '*electricity generating works'* are deemed SSD if they have a capital investment value (CIV) of more than $30 million. The Project is defined as '*electricity generating works*' and based on projects of a similar size and scale, the Project will have a CIV significantly greater than $30 million and is therefore considered SSD.

Section 4.12(8) of the EP&A Act states that a '*development application for SSD is to be accompanied by an EIS prepared by or on behalf of the applicant in the form prescribed by the regulations*.' Section 59 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) sets out the requirements of an EIS and requires that the EIS comply with the SEARs for the Project. This Scoping Report has been prepared to request SEARs for the Project.

1.2 The Applicant

Kurnell Energy (ABN 49 670 407 842) is a subsidiary wholly owned by Ampol (ABN 17 000 032 128). Ampol is the sole landowner of the Site and operates the Kurnell Terminal, associated wharf infrastructure, and connecting pipelines.

Ampol is an independent Australian company and supplies the country's largest branded petrol and convenience network, as well as refining, importing, and marketing fuels and lubricants.

In May 2021, Ampol released its Future Energy and Decarbonisation Strategies, which sets out its plans to transition to future fuels and energy solutions, in line with customer demand and technology availability. These strategies also set out their ambition to achieve net zero emissions across operations by 2040. As Australia's largest fuels provider, Ampol has an important role to play in reducing its own emissions, as well as the emissions of its customers. Ampol has committed significant funding to deliver the strategy to help ensure that the proposed low carbon solutions will meet the needs of its customers well into the future.

Kurnell Energy's corporate address is 29-33 Bourke Road, Alexandria, NSW 2015.

1.3 Purpose of this report

This document provides a description of the Project and presents the strategic context of the Project. It presents a preliminary risk-based assessment to identify key and other matters that will be addressed in the EIS. The purpose of this report is to present the findings of the risk-based assessment to NSW Department of Planning and Environment (DPE) in order to receive SEARs for the Project.

1.4 Document Structure

This Scoping Report has been prepared in accordance with *State significant development guidelines – preparing a scoping report* (DPE, 2022a), in support of an application for SEARs for the Project.

This Scoping Report provides an outline of the Project and identifies the key environmental matters that will be assessed as part of the EIS, following the issue of the SEARs. This Scoping Report includes the following chapters:

- Chapter 1.0: Introduction to the Project
- Chapter 2.0: Strategic context for the Project, identifying the key strategic issues that are likely to be relevant to the Project

- Chapter 3.0: Description of the Project
- Chapter 4.0: Overview of the statutory requirements for the Project
- Chapter 5.0: Summary of the community engagement carried out, and a description of the activities that will be carried out during the preparation of the EIS
- Chapter 6.0: Identification of the matters that will require further assessment within the EIS, and the approach to assessing each of these matters
- Chapter 7.0: Conclusion
- Chapter 8.0: References.

Figure 1-1. The Site

2.0 Strategic context

2.1 Introduction

This chapter of the Scoping Report has been prepared in accordance with section 3.2 of the *State significant development guidelines – preparing a scoping report* (DPE, 2022a). It provides a high-level analysis of the key strategic issues that are considered likely to be relevant to the Project, including:

- A summary of key government strategies and policies that provide strategic support for the Project (refer to Section 2.2)
- An analysis of the key features of the Site and Investigation Area and surrounds that could affect or be affected by the Project (refer to Section 2.3)
- Summary of land ownership and any agreements that the Applicant has entered into with other parties (refer to Section 2.3.5)
- Whether the Project is likely to generate cumulative impacts with other relevant future projects in the area (refer to Section 2.4).

The level of detail provided within this chapter of this Scoping Report is proportionate to the importance of the strategic context and tailored towards informing the setting of the SEARs for the Project.

2.2 Strategic planning

2.2.1 Australia's Long Term Emissions Reduction Plan

Australia's whole-of-economy Long-Term Emissions Reduction Plan is focussed on technology and sets out how Australia will achieve net zero emissions by 2050 (DCCEEW, 2021). One of the key principles of the plan is keeping energy prices down with affordable and reliable power. The plan outlines how government will:

- Drive down the cost of low emissions technologies (including battery storage)
- Deploy these technologies at scale
- Help regional industries and communities seize economic opportunities in new and traditional markets
- Work with other countries on the technologies needed to decarbonise the world's economy.

The Technology Investment Roadmap (TIR) is the foundation of the Long-Term Emissions Reduction Plan and sets a process to develop and deploy low emissions technologies (including battery storage). By focusing government investment, it aims to make these emerging technologies cost competitive with existing high emission technologies (DCCEEW, 2022). Importantly, the TIR includes a requirement to prepare Low Emissions Technology Statements (LETS), which review, refine, and evaluate the government's investment in low carbon emission technologies (DCCEEW, 2021).

The current LETS (DCCEEW, 2021) include energy storage as an existing priority technology for government investment. The LETS indicate that broad deployment of electrical energy storage will facilitate further integration of low-cost solar and wind electricity in the grid. The LETS states that energy storage will provide network security services and a source of reliable, dispatchable electricity. This is likely to help reduce pressure on electricity prices by meeting peaks in consumer demand.

The Project would be consistent with the principles of the high priority technologies outlined in the Long-Term Emissions Reduction Plan, as stated above.

2.2.2 Integrated System Plan

The Integrated System Plan (ISP) is a whole-of-system plan that provides a coordinated generation and transmission investment plan to transition the National Energy Market (NEM) over the next 30 years. The Australian Energy Market Operator (AEMO) updates the ISP every two years and the most recent ISP for the NEM was published in March 2022 (AEMO, 2023).

Under the 'Step Change' scenario, identified in the 2022 ISP as the most likely scenario, the NEM will need to cater for significant investment in generation capacity, storage, firming generation, and transmission augmentation as coal generation withdraws through to 2050.

The 2022 ISP predicts under the Step Change scenario that withdrawal of 23 GW of coal capacity will occur (14 GW by 2030) and 45 GW / 620 GWh of new battery and hydro storage (distributed and utility scale), able to respond to a dispatch signal, will be required to help firm the renewable energy sources entering the market. There will also be an increased need for the network to shift electricity from where it is produced to where it is needed to maximise the value of geographic diversity and efficiently share resources across the NEM.

2.2.3 Transmission Infrastructure Strategy 2018

The NSW Transmission Infrastructure Strategy (DPE, 2018) is the NSW Government's plan to unlock private sector investment in priority energy infrastructure projects, which aims to assist the delivery of least-cost energy to customers out to 2040 and beyond. The following principles are relevant:

- *Taking a technology neutral approach to new generation projects*
- *Encouraging private sector led investment*
- *Economic growth and promotion of employment opportunities*
- *Assisting in the provision of secure and reliable energy.*

The future development of the Investigation Area, and the utilisation of existing infrastructure, assets or land (refer to Section 2.4) for alternate energy generation (including renewable energy generation or battery storage) to contribute to the NEM would be aligned and support the principles and intent of the NSW Transmission Infrastructure Strategy.

2.2.4 NSW Electricity Strategy

The NSW Electricity Strategy (DPIE, 2019a) is the NSW Government's plan for a reliable, affordable, and sustainable electricity future. The strategy outlines three approaches for the NSW government to meet these objectives:

- Support the market to deliver reliable electricity at the lowest price, while protecting the environment
- Set an Energy Security Target to ensure that the State has sufficient generation capacity to cope with unexpected generator outages during periods of peak demand, such as during heat waves
- Ensure the State has sufficient powers to deal with an electricity emergency if one arises.

The strategy outlines the cheapest and most efficient way to develop a modern and complex energy system to replace coal-fired generators is to build a mix of low-cost renewables, gas-fired generators, and other storage options, such as batteries and pumped hydro. The Project, being a utility scale energy storage system, would support the transition of the NSW energy grid to a modern complex energy system with appropriate energy storage options in line with the objectives of the NSW Electricity Strategy.

2.2.5 NSW Electricity Infrastructure Roadmap

The NSW Electricity Strategy (DPE, 2019a) is to be implemented through the NSW Electricity Infrastructure Roadmap (DPE, 2020). It envisions a modern electricity system in NSW built on the following five pillars:

1. *"Driving investment in regional NSW: supporting our regions as the State's economic and energy powerhouse.*
2. *Delivering energy storage infrastructure: supporting stable, long-term energy storage in NSW.*
3. *Delivering Renewable Energy Zones: co-ordinating regional transmission and renewable generation in the right places for local communities.*
4. *Keeping the grid secure and reliable: backing the system with gas, batteries or other reliable sources as needed.*

5. *Harnessing opportunities for industry: empowering new and revitalised industries with cheap, reliable, and low emissions electricity."*

The *Electricity Infrastructure Investment Act 2020* was passed in late 2020. The Project aligns with the vision of the NSW Electricity Infrastructure Roadmap in that it represents private investment, delivers energy storage, is appropriately zoned and uses existing transmission infrastructure, provides security to the NEM, and provides cost effective and reliable electricity with negligible additional emissions.

2.2.6 State Infrastructure Strategy 2022-2042

The *NSW State Infrastructure Strategy 2022-2042* (Infrastructure NSW, 2022) builds on the NSW Government's major long-term infrastructure plans as initially outlined within NSW State Infrastructure Strategy 2012. The strategy sets out the government's priorities for the next 20 years, and combined with the Future Transport Strategy 2056, the Greater Sydney Region Plan and the Regional Development Framework, brings together infrastructure investment and land-use planning for Greater Sydney.

The Strategy outlines infrastructure needs by district. The key geographic infrastructure responses for the Eastern Harbour City (where the Site is located) are largely focused on transport, social, access, cultural and education priorities.

No State infrastructure initiatives have been identified that apply to Kurnell or the Site by the State Infrastructure Strategy 2022-2042. As such the Project does not conflict with the aims of State Infrastructure Strategy 2022-2042.

2.2.7 Greater Sydney Region Plan – A Metropolis of Three Cities

The *Greater Sydney Region Plan, A Metropolis of Three Cities* (Greater Sydney Commission, 2022) is built on a vision of three cities where most residents live within 30 minutes of their jobs, education and health facilities, services, and great places. This is consistent with the 10 Directions in 'Directions for a Greater Sydney' which establish the aspirations for the region over the next 40 years and are a core component of the vision and a measure of the Plan's performance.

To meet the needs of a growing and changing population the vision seeks to transform Greater Sydney into a metropolis of three cities. The Investigation Area is located within the boundary of the Eastern Harbour City. The vision brings new thinking to land use and transport patterns to boost Greater Sydney's infrastructure and collaboration, liveability, productivity, and sustainability by spreading the benefits of growth in the decades to come.

Eastern Harbour City Vision

The Eastern Harbour City has Australia's global gateway and financial capital, the Harbour Central Business District (CBD), as its metropolitan centre. Well-established, well-serviced and highly accessible by its radial rail network, it has half a million jobs and the largest office market in the region.

The Project would align with the Eastern Harbour City Vision and relevant key objectives identified in the Greater Sydney Region Plan, including:

- Objective 1: Infrastructure supports the three cities
- Objective 2: Infrastructure aligns with forecast growth
- Objective 3: Infrastructure adapts to meet future needs
- Objective 4: Infrastructure is optimised
- Objective 6: Services and infrastructure meet communities' changing needs
- Objective 13: Environmental heritage is identified, conserved, and enhanced
- Objective 23: Industrial and urban services land is planned, retained, and managed
- Objective 33: A low-carbon city contributes to net-zero emissions by 2050 and mitigates climate changes
- Objective 34: Energy and water flows are captured, used and re-used.

South District Plan 2018

The *South District Plan 2018* (Greater Sydney Commission, 2018) covers the Canterbury-Bankstown, Georges River and Sutherland Local Government Areas (LGAs). The South District Plan is a 20-year plan to manage growth in the context of economic, social, and environmental matters to achieve the 40-year vision for Greater Sydney. It is a guide for implementing the *Greater Sydney Region Plan, A Metropolis of Three Cities*, at a district level and is a bridge between regional and local planning. The District Plan informs local strategic planning statements and local environmental plans (LEPs), the assessment of planning proposals as well as community strategic plans and policies. The District Plan also assists councils to plan for and support growth and change and align their local planning strategies to place-based outcomes.

The Project would align with the relevant Planning Priorities (PP) identified in the Plan, including:

- PPS1: Planning for a city supported by infrastructure
- PPS6: Creating and renewing great places and local centres, and respecting the District's heritage
- PPS9: Growing investment, business opportunities and jobs in strategic centres
- PPS10: Retaining and managing industrial and urban services land
- PPS11: Supporting growth of targeted industry sectors.

2.2.8 Sutherland Shire Local Strategic Planning Statement 2020

The *Sutherland Shire Local Strategic Planning Statement (LSPS)* (2020) identifies the key outcomes Sutherland Shire Council (Council) aims to achieve when developing policies and making land use decisions, and in advocating to other levels of government regarding decisions that involve the LGA.

The LSPS expresses the vision and planning principles to guide land use decisions for the next 20 years. It identifies priorities to deliver specific land use outcomes for infrastructure, housing, town centres, employment, transport, recreation, and the environment. It sets short, medium, and long-term actions to achieve these outcomes and an implementation and monitoring framework. The LSPS for Sutherland Shire shapes how the planning framework, comprising the LEP, development control plan (DCP) and development contributions plans evolve over time. It provides local context to other Council strategies and priorities and is consistent with the strategic direction set by the *Greater Sydney Region Plan* and the *South District Plan*. It informs Sutherland Shire Council's consideration of planning proposals and may support the Council's consideration and determination of development applications. Further developments undertaken at the Kurnell site would be expected to align with the planning priorities of the LSPS, including:

- PP1: Align planning to existing infrastructure
- PP15: Grow industrial and urban services jobs
- PP23: Manage risks from hazards.

2.2.9 Kamay Botany Bay National Park Master Plan

The Site is located adjacent to the Kamay Botany Bay National Park. A Master Plan for the Kamay Botany Bay National Park has been prepared on behalf of DPE (2019b). The Master Plan sets out three stages of upgrades proposed to be carried out within the National Park adjacent to the Site. These upgrades are predominantly focussed around improving the existing buildings and facilities, providing additional amenities, and improving walking trails and access arrangements. The Project will not conflict with any of the plans for the Kamay Botany Bay National Park.

2.3 Site setting

2.3.1 Regional context

The Site is located in the Sutherland Shire LGA, on the Kurnell Peninsula in Sydney, NSW. The Sutherland Shire LGA has an area of 333.6 hectares, with a population of about 230,200 (Australian Bureau of Statistics, 2022). The closest residential area to the Investigation Area is Kurnell, which is located approximately 490 metres to the north and north-west. The Site is located approximately 17 km from Sydney Central Business District (CBD), and Cronulla residential areas are located approximately 5 km to the south-west.

The Ausgrid 132 kV Kurnell South Zone Substation is located on the north western side of Captain Cook Drive opposite the Site. It connects to the underground 132 kV distribution line to the north and overhead 132 kV distribution line to the south, which in turn connect to the transmission network at Sydney South Bulk Supply Point (BSP) and Beaconsfield BSP.

The Kurnell Peninsula is serviced by Captain Cook Drive, which is only route of access and egress from the peninsula. For the majority of its length, Captain Cook Drive has one lane and hard shoulders travelling in each direction.

The regional context of the Site is shown in Figure 2-1. Surrounding land uses are discussed in Section 2.3.4.

2.3.2 The Site

The Site consists of a largely developed and fenced area encompassing the Kurnell Terminal and the fenced Rights of Way that pass through the Kurnell Township. Ampol also owns land to the south of the Site and a part of Marton Park along the northern boundary (refer to Figure 1-1). The Site is typically accessed off Solander Street which is accessed from Captain Cook Drive. Access is also available from Sir Joseph Banks Drive, but this access point is typically closed for security reasons unless required. The Site consists of a large number of allotments.

Under the Sutherland Shire Local Environmental Plan 2015, the whole Site is zoned as E5 Heavy Industrial. The dominant existing land use at the Site is the Kurnell Terminal. This use is consented under SSD-5544. The Site also operates under EPL 837 and a Major Hazard Facility licence. Other development consents are also active at the Site. In additional to the terminal, small parts of the Site have been leased or are used for other land uses (e.g. CBOX Containers).

Between 1956 and 2014, the Site was used as both an oil refinery and a fuel terminal. Since refining ceased in 2014, the Site has been primarily used as a finished fuel import terminal. The former refinery uses at the Site means that an ongoing program of targeted remediation activities, in line with the NSW Environment Protection Authority (EPA) approved Kurnell Remediation Strategy, are being completed.

When the Site operated as a refinery, around 900 people were employed at the Site. Currently around 45 people work at the Kurnell Terminal. The operations at the Site do not create significant noise or air quality impacts for the local community. Noise from the Site is controlled by SSD-5544 and EPL 837.

Stormwater and wastewater from the Site are managed through a Stormwater System (SWS) and an Oily Water System (OWS). The purpose of the SWS is to capture and manage stormwater from areas of the Site prior to discharging to Botany Bay, Quibray Bay or Marton Park. The purpose of the OWS is to capture, manage, and treat potentially contaminated stormwater and wastewater from the terminal before directing it to the onsite Waste Water Treatment Plant (WWTP) for discharge under EPL 837.

Most of the Site is listed as an ‘archaeological site’ under Part 2 of Schedule 5 of the *Sutherland Shire Local Environment Plan 2015 as* The Australian Oil Refinery (Listing A2524). The majority of the Investigation Area is also within the curtilage of the archaeological site designation.

Ampol has undertaken a strategic land use review to understand how best to repurpose unused land that was formerly used for refinery operations. Ampol and Kurnell Energy are currently identifying an appropriate location for the Project within the Investigation Area and routes for the grid connection that are not in conflict with operational terminal assets.

2.3.3 Investigation Area

The Investigation Area consists of the majority of the former refining and storage areas at the Site. These areas have been significantly disturbed over the years, meaning that there is little to no areas of ecological value. The disturbance associated with previously developed parts of the Site, and the historic process of levelling and filling the land means that it is unlikely that Aboriginal heritage items will be present in surface layers of these areas.

The Investigation Area consists of part or all of the following allotments: Part Lot 25 DP 776328, Lot 1 DP 215819, Lots 1 and 2 DP 126647, Part Lot 283 DP 752064, Part Lot 2 DP 215818, and Lots 56, 57, and 62 DP 908. Similar to the rest of the Site, the whole Investigation Area is zoned as E5 Heavy Industrial under the Sutherland Shire Local Environmental Plan 2015.

Topography within the Investigation Area is generally flat, with the land rising to the eastern boundary of the Site. Stormwater and wastewater are managed through the SWS and OWS. The Investigation Area is bounded by the Kurnell Terminal to the north, Sir Joseph Banks Drive and existing industrial areas to the west, and areas of mature vegetation to the south and east.

2.3.4 Surrounding land use

Land uses surrounding the Site are as follows and are shown on Figure 2-2:

- To the east and south of the Site is the southern portion of the Kamay Botany Bay National Park
- To the north and north-west of the Site, is the township of Kurnell and Marton Park and beyond that, the Kurnell Wharf and Botany Bay
- To the west of the Site is industrial land, the Kurnell South Zone 132 kV Substation, Sydney Desalination Plant, and Quibray Bay
- Land to the south-west has the following land use zonings:
    - General Industrial
    - Environmental Conservation
    - National Parks and Nature Reserve.

Residential

The closest residential dwellings are located in the Kurnell township, approximately 490 metres north of the Investigation Area at its closest point. The closest residential properties are located along Tasman Street (to the north-west), Cook Street (to the north), and Reserve Road (to the north-east).

Industrial land and infrastructure

The Site is adjacent to industrial and commercial land uses to the west and north. The Kurnell South Zone Substation is located to the west of the Site adjacent to Captain Cook Drive. Various industrial uses are located to the south-west of the Site including the Sydney Desalination Plant. Other commercial activities are located on Cook Street between the Site and residential areas in Kurnell.

Recreational and environmental land

To the south of the Investigation Area are large areas of vegetated land owned by Ampol. These areas are not open to the public. Along the eastern boundary of the Site and Investigation Area is Kamay Botany Bay National Park.

There are a number of other reserves within proximity of the Investigation Area. Marton Park, comprising a developed recreational park area and an undeveloped wetland area, is located on the northern side of Solander Road. Captain Cook's Landing Place Park is located approximately 1.2 km to the north of the Investigation Area, and Bonna Point Reserve is located approximately 1.8 km to the north-west.

Towra Point Nature Reserve (on Towra Point Peninsula) is a Ramsar site and is predominately located on the opposite side of Quibray Bay and Weeney Bay, which are located west of the Investigation Area. Some of the Towra Point Nature Reserve extends as a vegetated fringe around the edge of Quibray Bay to an area close to the Kurnell South Zone Substation, adjacent to Captain Cook Drive. Quibray Bay also includes Towra Point Aquatic Reserve which, whilst not part of Towra Point Nature Reserve and the Ramsar site, forms a wider ecosystem with it. To the north of Kurnell is Botany Bay, a large bay with a diverse number of uses and habitats and where the Georges and Cooks Rivers meet before joining the Pacific Ocean.

2.3.5 Land ownership and agreements

Ampol is the sole landowner of the Site and Investigation Area and has not entered into any agreements with other parties to mitigate or offset the impacts of the Project at this time.

2.4 Description of related development

The dominant existing land use at the Site is the Kurnell Terminal. This use is consented under SSD-5544. A large number of previous development consents were surrendered as part of the application for SSD-5544; however, other planning approvals are also active at the Site, including the major project approval for the Kurnell Jet Fuel B Pipeline Upgrade Project (MP11_0004) and a number of local development consents for small, targeted remediation activities or leaseholder activities (e.g. CBOX storage).

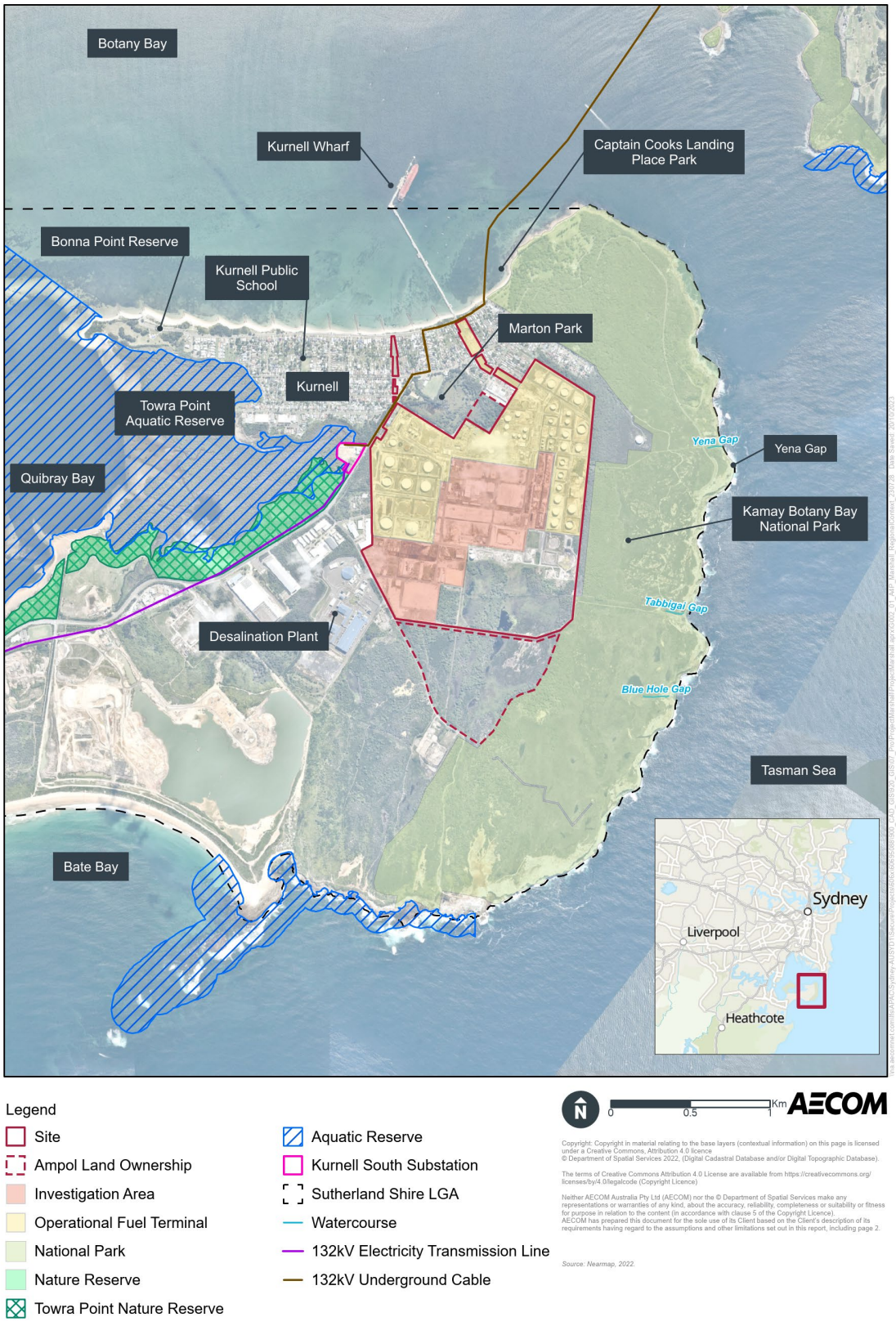

Figure 2-1. Regional context

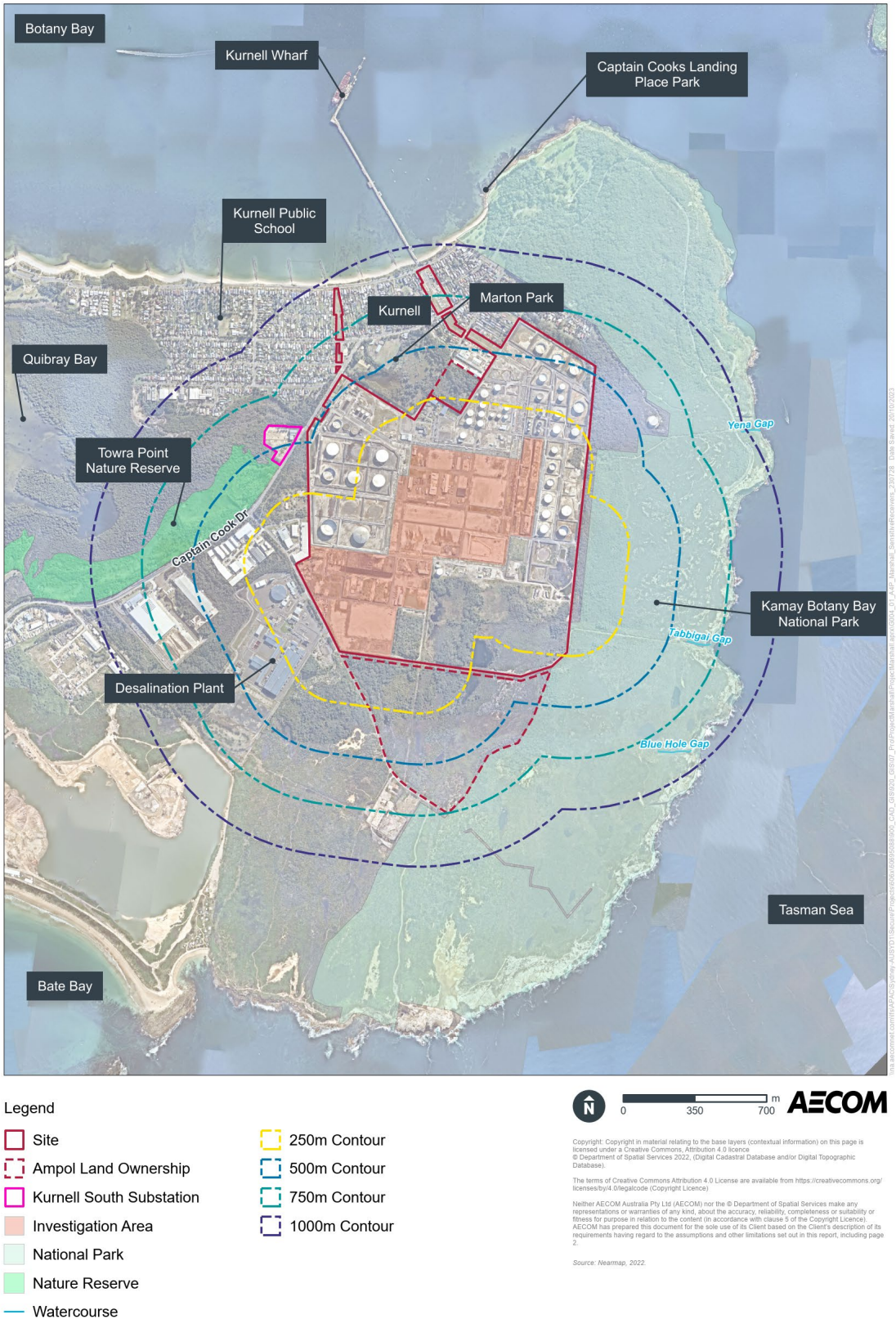

Figure 2-2. Surrounding sensitive receivers

3.0 The Project

3.1 Project overview

The Project comprises a BESS facility that would store electricity from the electricity network, release electricity during periods of high demand and provide other ancillary services.

Key features of the Project would include:

- Construction and operation of a BESS of up to 800 megawatts (MW) in capacity and up to 3,800 megawatt-hour (MWh) in duration
- Grid connection from the BESS to Ausgrid's 132 kilovolt (kV) Kurnell South Zone Substation on Captain Cook Drive including connection to the substation infrastructure
- Construction of associated support buildings, fencing, stormwater controls/ connection, utility connections, etc.

The Project is likely to be delivered in stages. The first stage of around 250 MW is likely to consist of Li-ion or Na-ion battery technology (the precise chemistry is to be determined). Later stages of around 550 MW may be one of or a mixture of Li-ion, Na-ion, or a flow battery technology. This final approach would be confirmed as part of detailed design. Kurnell Energy will be seeking development consent to allow for any one or a combination of these three options to be developed.

3.2 Project objectives

The objectives of the Project are as follows:

- Deliver against Ampol's Future Energy and Decarbonisation Strategies (Ampol, 2021) to reduce its carbon footprint and find and develop new energy solutions that assist its customers in their energy transition.
- Ensure future proposals are considerate of, and do not conflict with, the operational requirements of the Kurnell Terminal
- Provide firming capability and other market services to support the distribution network in southern Sydney and throughout the NEM
- Support and maintain economic development and social licence for renewable energy within NSW by providing reliable and dispatchable electricity during periods of peak demand
- Work to avoid, eliminate, mitigate, or minimise significant adverse impacts on the nearby community and environment.

3.3 Project description

Key components of the Project would include:

- Batteries located within battery enclosures and associated infrastructure including but not limited to medium and low voltage transformers, inverters, and ring main units
- Cabling and collector units
- High voltage substation, with associated infrastructure including but not limited to high voltage transformers, busbars, harmonic filters, and miscellaneous meters and power quality equipment
- Operation and maintenance buildings, switch rooms, control room, BESS facility access, internal roads, laydown areas and car parking
- Grid connection to the existing electrical switchyard at Kurnell South Zone Substation. This connection could consist of one or a number of cables in a single or separate trenches
- Other associated and ancillary infrastructure, including, for example, concrete structures, steel structures, lightning protection, fire suppression, spill, drainage, fire water bund, and stormwater management, security fencing, lighting, and CCTV.

Further details regarding the Project specifics are provided in the following sections. These details are subject to further review during the preparation of the EIS and the detailed design phase. Whilst the construction of the Project may be carried out in stages, the Scoping Report and EIS will consider and address the environmental impacts associated with the Project as a whole.

3.3.1 Battery storage technology and plant

While the BESS technology provider is yet to be determined, the BESS facility is likely to consist of containerised or stacked batteries[1] (Plate 3-1) with associated control systems, inverters, heating, ventilation and air conditioning units, transformers, and control equipment.

Three types of battery technology are being considered for the Project: Li-ion, Na-ion (Plate 3-2) and flow batteries (Plate 3-3). Li-ion and Na-ion batteries are electrochemical batteries comprising a number of cells brought together in battery units. Flow batteries involve passing liquids over a membrane to exchange ions and either charge or discharge the cell. Both battery technologies contain a number of associated components including various safety and regulation systems.

The majority of the facility is anticipated to no greater than 6 m in height, with the exception of lightning masts, which could be up to 30 m in height. The expected massing and scale of the Project would be confirmed during design development of the Project and will be discussed in the EIS. Battery units are expected to be mounted on footings and be containerised or similarly otherwise enclosed. Environment and safety controls for management of hazardous substances suitable for the selected technology would be provided in accordance with applicable regulatory guidelines.

The BESS is intended to have an operational life of up to 30 years and, depending on the selected technology components, may be replaced and/ or upgraded to extend this timeframe. Following the end of economic life, above ground components would be removed and re-purposed or recycled, where possible and land rehabilitated as required.

A control and office building with separate amenities, switch rooms, workshop, and storage building to support operation and maintenance activities would also be included as part of the Project. These structures would either be composed of existing buildings left *in situ*, constructed onsite, or prefabricated structures. The workshop would most likely be used to perform maintenance and repairs on equipment and components relating to the BESS. The store would most likely be used to store spare items and items ancillary to the operation and maintenance of the Project such as equipment and materials.

Telecommunications as well as potable and wastewater connections would be required, and may be integrated with existing or future shared facilities at the Site. The management approach for stormwater runoff from the BESS facility is yet to be confirmed. Stormwater runoff could be managed either:

- Through the existing Kurnell Terminal OWS and, if necessary, treated at the onsite WWTP prior to being discharged in line with the EPL; or
- Stormwater runoff may be treated at the BESS facility through a Project specific stormwater management system prior to discharge to the receiving environment possibly via the onsite SWS.

Spills, such as from transformers, would be contained by transformer bunds and decanted via oil-water separator to tanks for safe removal from site.

No water would be required for cooling; however, potable water would likely be required for cleaning, operations and maintenance buildings, and firefighting purposes. Integrated fans are likely to be used to assist in the cooling of the battery units, and pumps would be required for the redox flow batteries.

[1] Li-ion and Na-ion batteries are more likely to be containerised, whilst flow batteries are more likely to be stacked.

Plate 3-1a. Containerised battery example

Source: PV Magazine, 2019

Plate 3-1b. Stacked battery example

Source: C&EN, 2023

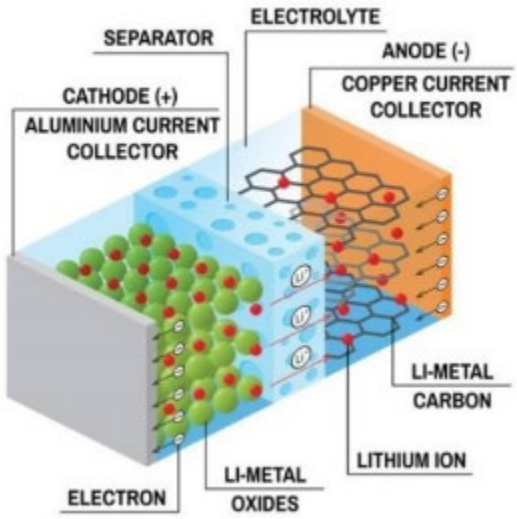

Plate 3-2a. Li-ion batteries

Source: Hybris, 2022

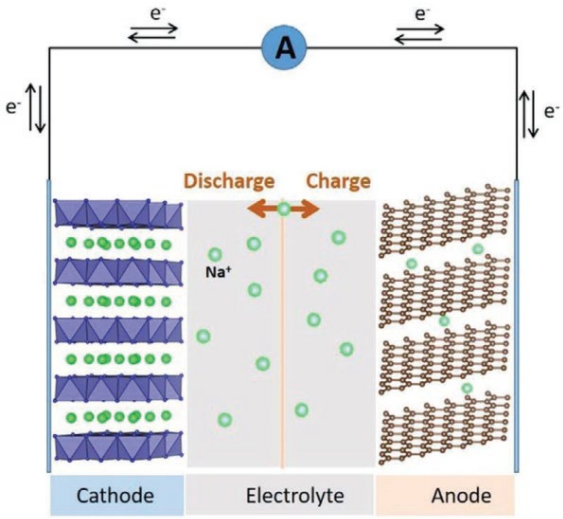

Plate 3-2b. Na-ion batteries

Source: Durmuset al., 2020

Plate 3-2c. Li-ion batteries (generally containerised)

Source: Battery Storage and Grid Integration Program, 2020

Note: No example images of Na-ion batteries but is expected to appear similar to Li-ion.

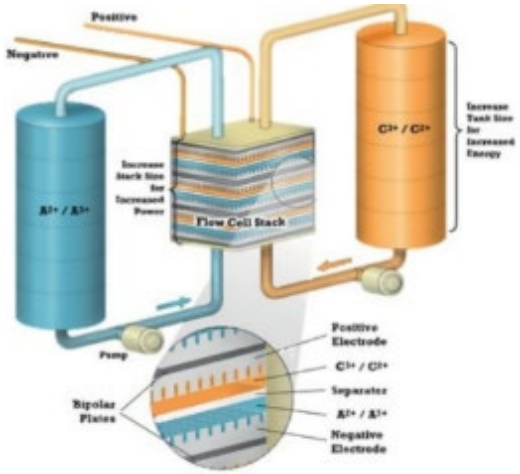

Plate 3-3a. Flow batteries

Source: Hybris, 2022

Plate 3-3b. Flow batteries (generally stacked)

Source: Energy Storage News, 2017

3.3.2 Grid connection

A high voltage electricity grid connection is proposed to connect the BESS to the NEM. The grid connection would be installed from the BESS facility to the 132 kV Kurnell South Zone Substation on Captain Cook Drive. Figure 1-1 shows the grid connection pathways being considered.

This connection could consist of one or a number of cables, expected to be in a single trench per stage. The connection would run within the Site from the BESS facility to a location opposite the Kurnell South Zone Substation on the south-eastern side of Captain Cook Drive. The grid connection would likely be installed under Captain Cook Drive using horizontal directional drilling (HDD) techniques before entering the substation site and being connected to Ausgrid's asset.

3.3.3 Vehicular access

The main road connecting Kurnell to the rest of Sydney is Captain Cook Drive. This road was designed and sized to accommodate traffic arriving and departing the Kurnell Refinery when it was operation and is still an approved B-double route. Both Solander Street and Sir Joseph Banks Drive are also approved B-double routes.

The main access to the Kurnell Terminal is off Solander Street. The preferred access point for construction is via Sir Joseph Banks Drive as vehicles for construction could be separated from the existing Kurnell Terminal operational traffic. Both access points could be used to support the operation of the BESS.

3.3.4 Operational workforce and hours

Once constructed, the Project would operate 24 hours a day, seven days a week. The BESS would typically be controlled remotely and staffed as required during both planned and unplanned maintenance periods. It is anticipated that the Project would require up to approximately six staff during routine operational maintenance or inspection works, supported by more workers in relation to discrete packages of routine and unplanned works over the life of the Project.

3.4 Project Construction

3.4.1 Construction overview

It is currently anticipated that construction of the first stage of the Project would take up to 12 months, starting in March 2026 and being completed in February 2027. Construction of later stages would follow the first stage.

It is anticipated that a peak of up to 250 construction staff would be required to complete construction of the Project. This peak would not be required throughout the whole construction program, but potentially only during the overlap of civil, structural, mechanical, and electrical works.

Construction of the Project would fall under the following stages:

- Enabling works
- Construction works including:
  - Civil, structural, , mechanical, and electrical works for the BESS, including internal substation
  - Grid connection installation to connect the BESS to the Kurnell South Zone Substation
- Commissioning (pre-energisation)
- Demobilisation.

Enabling works would likely involve:

- Site establishment activities such as delineation of work areas, laydown areas, exclusion areas, security fencing (temporary and/or permanent), etc.
- Installation of erosion and sediment controls
- Delivery and installation of temporary enmities such as offices, sanitary, WHS related structures
- Waste sorting and removal etc.

Construction works would be likely to involve:

- Civil works to form the BESS pad, substation, and related areas
- Concrete works associated with equipment and building foundations/ footings
- Trenching and installation of cables at the BESS facility and associated substation
- Connections to onsite utilities and stormwater systems as required
- Structural works to support BESS facilities
- Construction of supporting structures, e.g., office building, workshop, switch rooms, control room, and warehouse
- Delivery, installation, electrical fit-out, and terminations of BESS, inverters, and transformers, and ring main units
- Installation of the grid connection between BESS and Kurnell South Zone Substation including HDD under Captain Cook Drive
- Removal of construction equipment and rehabilitation of construction areas.

Commissioning would involve the testing of the BESS infrastructure in line with Ausgrid and AEMO requirements to ensure that it operates as intended.

Following commissioning activities construction equipment and materials would be demobilised from Site and the Project prepared for operation.

3.4.2 Construction plant and equipment

Table 3-1 provides an indicative list of the plant and equipment that would be used to construct the Project. The equipment list would be further refined during detailed design.

Table 3-1. Indicative plant and equipment for construction

Equipment to be used during construction	
Enabling works and prefabrication	
Front end loaders	Excavators
Dump trucks	Graders
Water trucks	Compactors
Light vehicles	Heavy vehicles
Diesel generators	Flood lights
Telehandlers	Cranes (20 to 40 tonnes)
Drilling rigs/ augers	
Structural, civil, mechanical, and electrical works	
Front end loaders	Dump trucks
Graders	Excavators
Concrete trucks and pumps	Scrapers
Elevated work platforms	Compactors and rollers
Cranes (20 to 500 tonnes; either an All-Terrain Crane, or Crawler Crane)	Backhoe
Concrete saws and grinders	Diesel generators
Mobile gantry	Telehandlers
Water trucks	Light vehicles
Heavy vehicles	Flood lights
Grid connection	
Excavators	Chainsaws
Backhoe	Woodchippers/ mulchers
Compactors	Horizontal directional drilling rig
Non-destructive trenchers/ potholers	Trenching and cable laying machines
Water truck	Flood lights
Light vehicles	Diesel generators
Telehandlers	
Commissioning	
Elevated work platforms	Diesel generators
Flood lights	Light vehicles
Finishes and demobilisation	
Road trucks	Backhoe
Water trucks	Compactors
Light vehicles	

3.4.3 Construction working hours

Noting the current operating requirements of the Kurnell Terminal and in line with development consent SSD-5544, enabling, construction, and decommissioning activities would occur Monday to Sunday between 7am and 10pm. High noise generating enabling, construction, and decommissioning activities would be confined to less sensitive times of the day, and would not be undertaken outside of the hours of 7am and 6pm Monday to Saturday.

Commissioning activities would occur 24 hours a day, Monday to Sunday to comply with Ausgrid and AEMO requirements.

3.5 Decommissioning

At the end of the Project's design life or agreed timetable, the batteries would either be disposed of and recycled at a suitably approved disposal facility, or subject to confirmation, be returned to the original equipment manufacturer for refurbishment and recycling. The BESS facility would be rehabilitated as required.

3.6 Estimated Capital Investment Value

Based on similar projects, the CIV for the Project will be greater than $30 million. The CIV would be confirmed prior to lodgement of the EIS.

3.7 Alternatives considered

3.7.1 Do nothing

The 'do nothing' approach would involve not constructing and operating a BESS at the Kurnell Terminal. Without the Project, the projected future increase in demand for energy throughout the Sutherland Shire LGA (and broader Sydney Region) are unlikely be adequately addressed. The 'do nothing' option would not meet the objectives of the Project (refer to Section 3.2) or the demands on the NEM (refer to Section 2.2) and is therefore not considered a feasible option.

3.7.2 Alternative solutions

Ampol is considering the long-term future of the Site, including the potential for other projects, including power generation, none of which are being proposed at this time.

3.7.3 Alternative locations

Alternative Ampol sites were considered to site the Project. The Kurnell Terminal was selected as the most appropriate for new development, due to the available land ready for development, the proximity to grid, and the load centre (i.e. customer electricity demand).

Alternative locations within the Investigation Area are being considered, and a preferred location will be confirmed prior to preparation of the EIS.

Development within the Operational Fuel Terminal was not progressed, as Ampol does not have plans to cease current terminal operations at this time, therefore using this land would conflict with its strategy.

Development has also been considered in the undeveloped land owned by Ampol to the south of the Investigation Area. However, this area is constrained from a biodiversity perspective, containing high value flora species (including Eastern Suburbs Banksia Scrub, which is an endangered ecology community) and supporting threatened species (including the Green and Gold Bell Frog). As such, these areas of mature native vegetation were not considered appropriate for the Project. Instead, the Project is being proposed on land that was already cleared and appropriately zoned, to avoid unnecessary vegetation clearing and biodiversity impacts.

3.7.4 Alternative design and technologies

As described in Section 3.3.1, three types of battery technology are being considered for the Project: Li-ion, Na-ion, and flow batteries. Li-ion is the preferred choice for the first stage. Other technologies have not been considered at this stage as they are less proven commercially and operationally.

Solar photovoltaic (PV) was considered as an alternative electricity generating technology, with potential to include solar panels on top of the batteries. It was decided that solar PV would be a commercially suboptimal use of the Site.

Natural hydrogen energy was also considered as a land use for the Site. However, Ampol's Hydrogen Strategy is currently focused on establishing refuelling infrastructure, commencing with smaller capacity mobile hydrogen refuellers to allow customers to test and learn as they convert their fleets. Green hydrogen plants are currently in pilot stages, including at Lytton refinery in Queensland. Whilst renewable hydrogen uses may be considered for the Site in the future, plans are not yet advanced enough, and it was selected that battery energy storage would be more appropriate for the short term.

To connect the Project the Kurnell South Zone Substation, both overground and below ground high-voltage grid connections were considered. Due to the Project's location within a major hazard facility and the associated safety concerns, an underground connection was selected. Ampol's Power Cables Standards (reference CD5408) states that, "*All high voltage cables must be installed underground, whether they are direct buried, in conduit or in a formed cable pit/ trench*." The cables will be designed to meet AS/NZS 60079 *Explosive Atmospheres* series of standards. The final route of this grid connection would be confirmed in the EIS.

3.8 Project benefits

The Project is expected to significantly benefit the State and the local community. Key benefits associated with the Project include:

- Improved network security and diversified energy generation and storage offering within NSW
- Alignment with Commonwealth and NSW policy positions (discussed in Section 2.2)
- Support for increased renewable power generation during daytime peak periods, placing downward pressure on wholesale electricity prices in accordance with the ISP (discussed in Section 2.2.2)
- Permissible new land use on the Kurnell Terminal site that aligns with Ampol's Future Energy and Decarbonisation Strategies (Ampol, 2021) and is unlikely to result in significant adverse impacts for the neighbouring community or environment.
- Creation of up to approximately 250 direct jobs during Project construction phase, and up to approximately six jobs during operation.

Batteries are becoming an integral part of the electricity market's response to the withdrawal of coal fired power stations from the market and as such are playing an increasingly important role by providing firming capacity to support intermittent renewable generation, whilst improving the strength of the network.

4.0 Statutory context

4.1 Environmental Planning and Assessment Act 1979

4.1.1 Overview

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2021* (the EP&A Regulation) provide the framework for land use planning and development control in NSW. The EP&A Act and the Regulation are supported by a number of Environmental Planning Instruments (EPIs), which include State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs).

Part 4 of the EP&A Act establishes a framework for assessing development that requires consent and categorises development as either '*exempt development'*, *'complying development*', '*development that requires consent'*, or '*prohibited development'*. The term '*development*' is defined under section 1.5 of the EP&A Act.

4.1.2 Planning approval pathway

The Project is considered development under section 1.5 of the EP&A Act as it involves the use of land, the carrying out of a work, and the erection of a building. The Project is not considered exempt development or complying development under any EPI.

BESS projects are considered electricity storage projects defined as '*electricity generating works*' under State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport and Infrastructure SEPP) as a building or place used for the purpose of electricity storage. Clause 2.36 of the Transport and Infrastructure SEPP states that development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed non-residential zone. The Site is located within the E5 Heavy Industrial land use zone, which is a prescribed non-residential zone under clause 2.35 of the Transport and Infrastructure SEPP. On this basis, the Project is permissible with development consent on the Site.

Division 4.7 of the EP&A Act defines development that is SSD and notes that development can be declared as such by an EPI. Pursuant to the State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP), '*electricity generating works'* are deemed to be SSD they are permissible with consent under Part 4 of the EP&A Act and if they have a CIV of more than $30 million. As discussed above the Project is permissible with development consent on the Site. In addition, the Project will have a CIV in excess of $30 million. On this basis the Project is SSD.

Section 4.12(8) of the EP&A Act states that a "*development application for State significant development is to be accompanied by an environmental impact statement prepared by or on behalf of the applicant in the form prescribed by the regulations.".* Part 8, Division 2 of the EP&A Regulation sets out the requirements of an EIS and requires that the content of an EIS is '*subject to the environmental assessment requirements that relate to the EIS'*. Environmental assessment requirements are typically sought through a request for SEARs submitted to the DPE.

In line with section 4.5 of the EP&A Act, the consent authority for the Project would be the NSW Minister for Planning or the Independent Planning Commission (in the case of greater than 50 public objections to the application, local council objection, and/or reportable political donations made by the proponent in the two years prior to lodgement). As noted in section 4.40 of the EP&A Act, SSD applications are evaluated and determined in line with the requirements of section 4.15 of the EP&A Act. Matters for consideration include relevant EPIs, likely impacts to the built and natural environment and social and economic impacts, submissions made on the application, site suitability and the public interest.

Sections 4.41 and 4.42 of the EP&A Act identify authorisations that are not required for a SSD, and authorisations that cannot be refused, if necessary, for carrying out a SSD, respectively.

Table 4-1 outlines each of the approvals referred to in section 4.42 of the EP&A Act and their applicability to the Project. These approvals, if required, cannot be refused if they are necessary for carrying out the SSD.

Table 4-1. Relevant approvals required under section 4.42

Approval	Comment
An aquaculture permit under section 144 of the *Fisheries Management Act 1994*	The Project would not involve aquaculture. Therefore, no aquaculture permit would be required.
An approval under section 15 of the *Mine Subsidence Compensation Act 1961*	The Project is not located within a mine subsidence district. An approval under section 15 of the *Mine Subsidence Compensation Act 1961* would not be required.
A mining lease under the *Mining Act 1992*	The Project does not include any mining activities. A mining lease would not be required.
A production lease under the *Petroleum (Onshore) Act 1991*	The Project would not involve petroleum production.
An Environment Protection Licence (EPL) under Chapter 3 of the *Protection of the Environment Operations Act 1997* (for any of the purposes referred to in Section 43 of that Act)	A review of Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act) was conducted, and the Project would not include any scheduled activities. A EPL for the Project would not be required. No decision has been made as to whether the Project would connect to the OWS or SWS at the Site. Connection to the OWS would been that discharges from the Project would be via a discharge point managed under EPL 837, however given the nature of the likely discharge it is unlikely that this addition would result in any change to the operation of the OWS or WWTP.
Consent under Section 138 of the *Roads Act 1993*	The Site is access would be via Captain Cook Drive to either Solander Street or Sir Joseph Banks Drive. It is not expected that upgrades to these roads or Site access points would be required.
A licence under the *Pipelines Act 1967*	No pipelines would be required for the Project and therefore a licence would not be required.

The need for other approvals or authorisations, in addition to those referred to in section 4.42 of the EP&A Act, would be addressed in the EIS.

4.2 State Environmental Planning Policies

The following SEPPs are considered relevant to the Project:

- *State Environmental Planning Policy (Planning Systems) 2021*
- *State Environmental Planning Policy (Transport and Infrastructure) 2021.*
- *State Environmental Planning Policy (Biodiversity and Conservation) 2021*
- *State Environmental Planning Policy (Resilience and Hazards) 2021.*

Each relevant SEPP is discussed in further detail below.

4.2.1 State Environmental Planning Policy (Planning Systems) 2021

The State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) applies to the whole of NSW.

Chapter 2 of the Planning Systems SEPP relates to State and Regional development with the aim to identify development that is significant to the State. Part 2.2 of the Planning Systems SEPP relates to development that is declared SSD. Pursuant to section 2.6(1) of the Planning System SEPP, development is declared to be SSD for the purposes of the EP&A Act if:

a. The development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the [EP&A] Act, and

b. The development is specified in Schedule 1 or 2 [of the Planning Systems SEPP]

As discussed in Section 4.1.2, the Project is declared as SSD under section 2.6 of the Planning Systems SEPP. Furthermore, section 2.10 of this SEPP states that Development Control Plans (DCPs) do not apply to SSDs.

4.2.2 State Environmental Planning Policy (Transport and Infrastructure) 2021

The aim of Chapter 2 of the Transport and Infrastructure SEPP is to facilitate the effective delivery of infrastructure across the State. The application of this Chapter is discussed in further detail below.

Chapter 2 Infrastructure

The Site is zoned *E5 Heavy Industrial* under the Sutherland Shire LEP. This land use zone is defined as a '*prescribed non-residential zone'* for the purpose of electricity generating works. Under clause 2.36 of the Transport and Infrastructure SEPP, the Project is considered permissible with consent at the Site.

Section 2.48 of the Transport and Infrastructure SEPP relates to determination of development applications that are likely to affect an electricity transmission or distribution network. Specifically, section 2.48(1) states that "*this section applies to a development application… for development comprising or involving any of the following:*

(a) The penetration of ground within 2m of an underground electricity power line or an electricity distribution pole or within 10m of any part of an electricity tower,

(b) Development carried out-

a. *Within or immediately adjacent to an easement for electricity purposes (whether or not the electricity infrastructure exists), or*

b. *Immediately adjacent to an electricity substation, or*

c. *Within 5m of an exposed overhead electricity power line.*

(c) [not relevant]

(d) Development involving or requiring the placement of power lines underground, unless an agreement with respect to the placement underground of power lines is in force between the electricity supply authority and the council for the land concerned."

Before determining an application to which clause 2.48 relates, the consent authority must:

(a) Give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and

(b) Take into consideration any response to the notice that is received within 21 days after the notice is given.

The Project would involve the development partially within an existing electricity easement, as well as connection to an existing substation (Ausgrid's 132 kV Kurnell South Zone Substation). Throughout the preparation of the EIS, consultation with the electricity supply authority (Ausgrid), pursuant to the Community and Stakeholder Engagement Plan (discussed in Chapter 5.0), would continue. Furthermore, it is noted that following lodgement of the EIS, DPE will refer the application to Ausgrid to invite comments which would be responded to as part of the Submissions Report.

Subdivision 2, Division 17 of Chapter 2 of the Transport and Infrastructure SEPP discusses development in or adjacent to road corridors and road reservations. Section 2.122 relates to traffic-generating development. This section applies to new development that meets the requirements of this section and the supporting table in Schedule 3 of the Transport and Infrastructure SEPP. Whilst the Project would be considered an addition to the existing premises, it would still result in less vehicles accessing the Site than when the Site operated as a refinery. Nevertheless, a review of the table in Schedule 3 confirms that the Project would not be considered 'traffic generating development' as defined by section 2.122 as the purpose of the development is 'energy generating works' and therefore it would be considered 'any other purpose' and that during operation up to six workers may access the Project on an intermittent basis.

4.2.3 State Environmental Planning Policy (Biodiversity and Conservation) 2021

Chapter 2 of SEPP (Biodiversity and Conservation) is potentially relevant to the Project. Chapter 2 of the Biodiversity and Conservation SEPP relates to vegetation in non-rural areas. The aims of Chapter 2 are the protection of the biodiversity values of trees and other vegetation in non-rural areas of the State and the preservation of the amenity of non-rural areas of the State through preserving trees and other vegetation.

The Biodiversity and Conservation SEPP applies to Sutherland Shire LGA, and land use zones contained under clause 2.3, which includes land zoned E5 Heavy Industrial.

Clause 2.6(1) of this SEPP states that "*a person must not clear vegetation in any non-rural area of the State to which Part 3* (now Part 2.3) *applies without the authority conferred by a permit granted by the council.*"

Part 2.3 of the Biodiversity and Conservation SEPP applies to vegetation in any non-rural area of the State that is declared by a development control plan to be vegetation to which [Part 2.3] applies. As detailed in the presiding section related to the Planning Systems SEPP, the Project constitutes SSD and as such the development control plan does not apply. As such, the provisions of this Chapter of the SEPP do not apply to SSD.

For completeness however, Ampol and Kurnell Energy are currently identifying an appropriate location for the Project within the Investigation Area and routes for the connection to Ausgrid's 132 kV Kurnell South Zone Substation. The Investigation Area has been identified to avoid areas of significant biodiversity value and contains limited to no biodiversity value. It is expected that a Biodiversity Development Assessment Report (BDAR) Waiver will be provided as part of the SSD application (refer to Section 6.9 (Biodiversity)).

4.2.4 State Environmental Planning Policy (Resilience and Hazards) 2021

The objective of the State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) is to provide state-wide planning approach to resilience and hazards. The chapters in the Resilience and Hazard SEPP relevant to the Project, include:

- Chapter 2 Coastal management
- Chapter 3 Hazardous and offensive development
- Chapter 4 Remediation of Land.

The application of each chapter is discussed in further detail below.

Chapter 2 Coastal management

The aim of this chapter is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objectives of the *Coastal Management Act 2016 (NSW)*. Portions of the Investigation Area and potential grid connection corridors are located within:

- The Coastal Wetland proximity area
- The Coastal Environment Area
- The Coastal Use Area.

Figure 4-1 shows the land within the Investigation Area that is designated by Chapter 2 of the Resilience and Hazards SEPP.

Coastal Wetlands

Part 2.2, Division 1 under the Resilience and Hazards SEPP must be addressed for land that is identified as Coastal Wetlands. Land to the south, south-east, west, and north are designated as coastal wetlands, with land within the Site designated as proximity areas to coastal wetlands. Pursuant to section 2.8(1) *Development consent must not be granted to development on land identified as "proximity area for coastal wetlands" or "proximity area for littoral rainforest" on the "Coastal Wetlands and Littoral Rainforests Area Map" unless the consent authority is satisfied that the proposed development will not significantly impact on—*

> *(a) the biophysical, hydrological, or ecological integrity of the adjacent coastal wetland or littoral rainforest, or*
>
> *(b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.*

As relevant, the EIS will include as assessment of the Project against these requirements.

Coastal Environment Area

As shown in Figure 4-1, there are small portions of land on the western boundary of the Site are mapped as land within the Coastal Environment Area. Section 2.10(1) of the Resilience and Hazards SEPP outlines matters of consideration for the consent authority that include as relevant to the Project, but are not limited to, biophysical integrity, hydrology, geohydrology, ecology, water quality, and Aboriginal cultural heritage. Section 2.10(2) notes that development consent must not be granted unless the development is designed to avoid, minimise and/or mitigate adverse impacts on the relevant matters of consideration.

Coastal Use Area

Similar to the Coastal Environment Area, portions of land on the western boundary of the Site are mapped as land within the Coastal Use Area (refer to Figure 4-1). Section 2.11(1) provides relevant matters of consideration for the consent authority. Particularly relevant matters for this Project include Aboriginal cultural heritage and cultural and built heritage. Development consent must not be granted unless the development is designed to avoid, minimise and/or mitigate adverse impacts on the relevant matters of consideration.

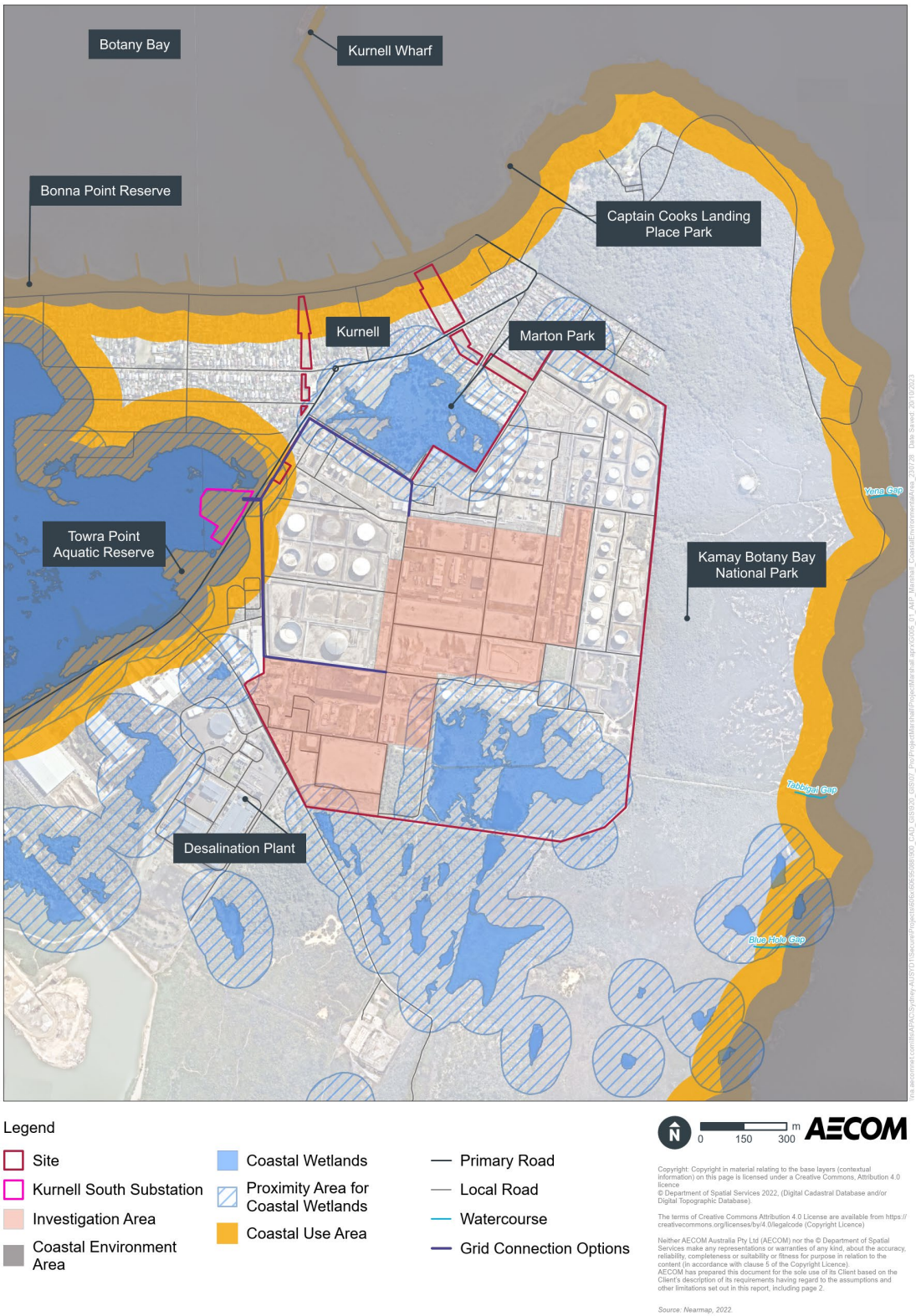

Figure 4-1. Chapter 2 Resilience and Hazards SEPP mapping

Chapter 3 Hazardous and offensive development

The aim of this chapter is to ensure that in considering any development application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact (among others).

Part 3 under Chapter 3 of the Resilience and Hazards SEPP applies to industrial developments that are considered "*potentially hazardous or offensive industry.*" The definition of a potentially hazardous industry and potentially offensive industry is provided in section 3.2 of the Resilience and Hazards SEPP. Development that constitutes a potentially hazardous industry must be accompanied by a Preliminary Hazard Analysis (PHA)

For development proposals classified as '*potentially hazardous industry'* the SEPP (and DPE's *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* (January 2011)) establish a test by way of a preliminary screening assessment and PHA to determine the risk to people, property and the environment. The EIS would include an assessment of the potential hazards and risk of the Project in accordance with the requirements of the Resilience and Hazards SEPP.

Chapter 4 Remediation of Land

The objective of Chapter 4 is to provide a state-wide planning approach to the remediation of contaminated land, where the purpose of remediation of contaminated land is to reduce the risk of harm to human health or other aspect of the environment. Pursuant to section 4.6(1), a consent authority must not consent to a development unless it has considered whether the land where the development is proposed is contaminated, whether if it is contaminated, whether it will be suitable in its current state or whether it requires remediation.

The EIS would consider contamination risks (based on historic land use and other relevant matters) and appropriate mitigation measures for managing and dealing with potential ground contamination that may be encountered during construction works.

4.3 Sutherland Shire Local Environmental Plan 2013

The Investigation Area is located in the Sutherland LGA and is subject to the *Sutherland Local Environmental Plan 2015* (LEP). The LEP aims to make local environmental planning provisions for land in Sutherland Shire in accordance with the relevant standard environmental planning instrument under section 3.20 of the EP&A Act.

The Site is located on land that is zoned is zoned *E5 Heavy Industrial*. The objectives of the *E5 Heavy Industrial* land use zone under the LEP are:

- *To provide suitable areas for those industries that need to be separated from other land uses.*
- *To encourage employment opportunities.*
- *To minimise any adverse effect of heavy industry on other land uses.*
- *To support and protect industrial land for industrial uses.*

As stated in Section 4.1.2, the Project is characterised as "*electricity generating works*", which is not listed as a type of development that is permissible with consent under the LEP. However, permissibility for the Project is achieved through the application of section 2.36 of the Transport and Infrastructure SEPP (refer to Section 4.2.4).

A number of principal development standards and local provisions under the LEP have been considered. A discussion of these provisions and the relevance to the Project has been provided in Table 4-2.

Table 4-2. LEP provisions

LEP provision	Compliance
Clause 4.1 – Minimum subdivision lot size	The Site has a minimum lot size of 40 hectares (ha) under the LEP (refer to Figure 4-3). The Project does not involve subdivision. As such, the matters of consideration contained under clause 4.1 of the LEP will not apply to the Project.
Clause 4.3 – Height of buildings	The majority of the Site does not have a maximum building height under the LEP; relatively small areas in western and southern parts of the Site have a maximum building height of 15-16.9 metres (Figure 4-3).
Clause 4.4 – Floor space ratio	The Site has a floor space ratio of 1:1 under the LEP.
Clause 5.10 – Heritage conservation	One item of local importance listed within the LEP is located within the Site: Australian Oil Refinery (#A2524). No sites, objects, or items of Aboriginal heritage importance have been recorded within the Site, but a number can be found within 500 metres. The EIS will be supported by an Aboriginal Cultural Heritage Assessment Report (ACHAR) (discussed further in Section 6.5) and a Historic Heritage Impact Assessment (discussed further in Section 6.5.3).
Clause 5.21 – Flood planning	The Kurnell Terminal is considered to be flood prone land with medium risk, however the Council flood modelling did not include the Site and this layer has been provided in a precautionary manner as the higher parts of the Site have no history of flooding. Section 6.4 provides further discussion regarding the flood risks at the Site. The EIS will consider the relevant matters of consideration contained under clause 5.21 of the LEP.
Clause 6.1 – Acid sulphate soils	The majority of the Site is mapped as containing Class 4 acid sulfate soils, with a small patch in the centre unlisted (Figure 4-4). Whilst the Site is mapped as potentially containing acid sulfate soils, they were not encountered during the recent conversion and demolition works at the Site. The EIS will consider the relevant matters of consideration contained under clause 6.1 of the LEP.
Clause 6.5, 6.6 and 6.7 – Environmentally sensitive land	The Investigation Area is mapped to reside within the following areas: • Terrestrial biodiversity values map • Groundwater vulnerability map • Riparian Lands and Watercourses Map. All of these clauses provide considerations for the consent authority.
Clause 6.19 – Kurnell peninsula	The Site is located within the Kurnell Peninsula and the Refinery Risk Area. This clause limited certain land uses within the Refinery Risk Area and requires the consent authority to consider certain matters prior determining a development application including risk assessment, transportation, and dangerous goods.

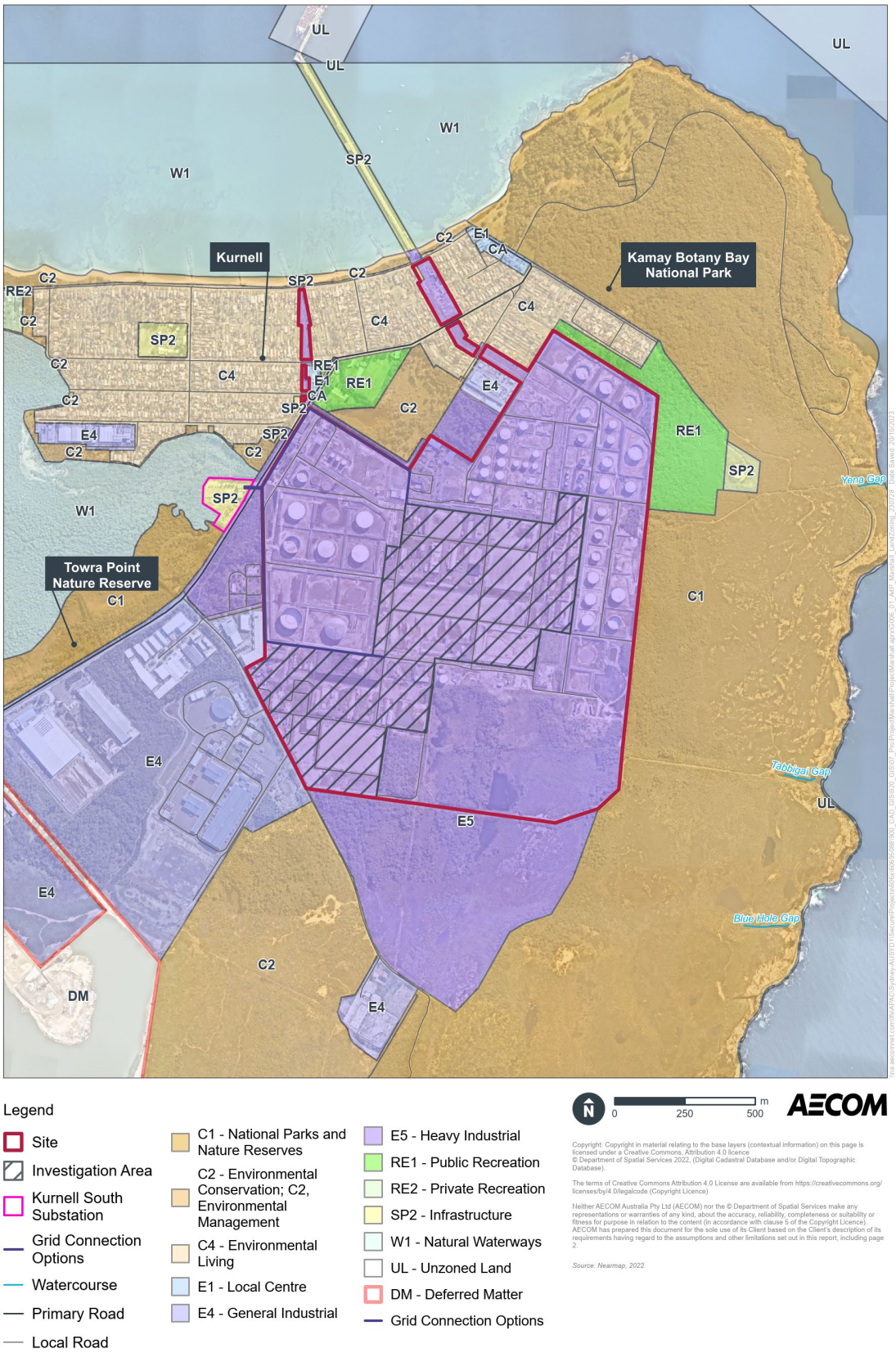

Figure 4-2. Land zoning map

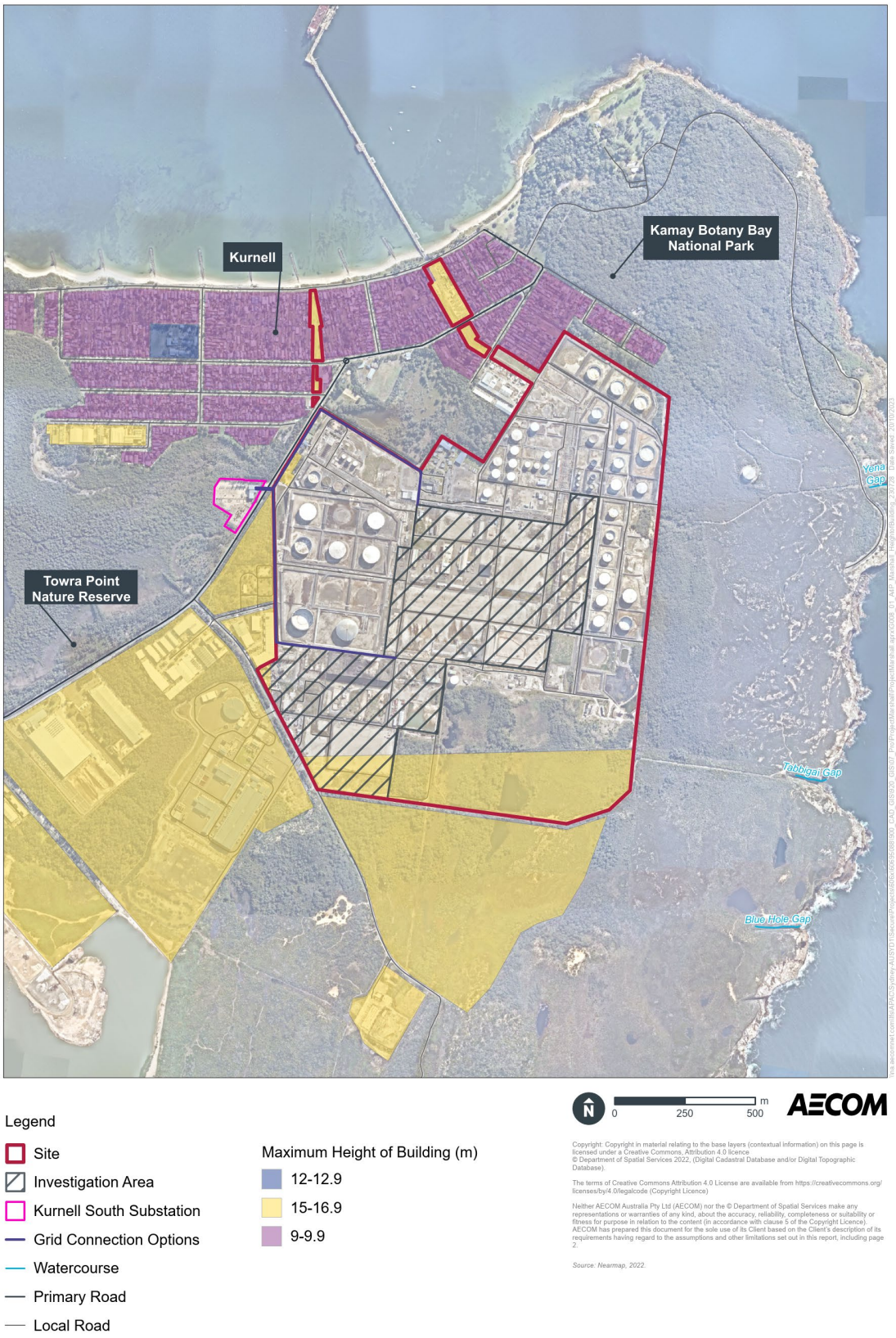

Figure 4-3. Maximum building height

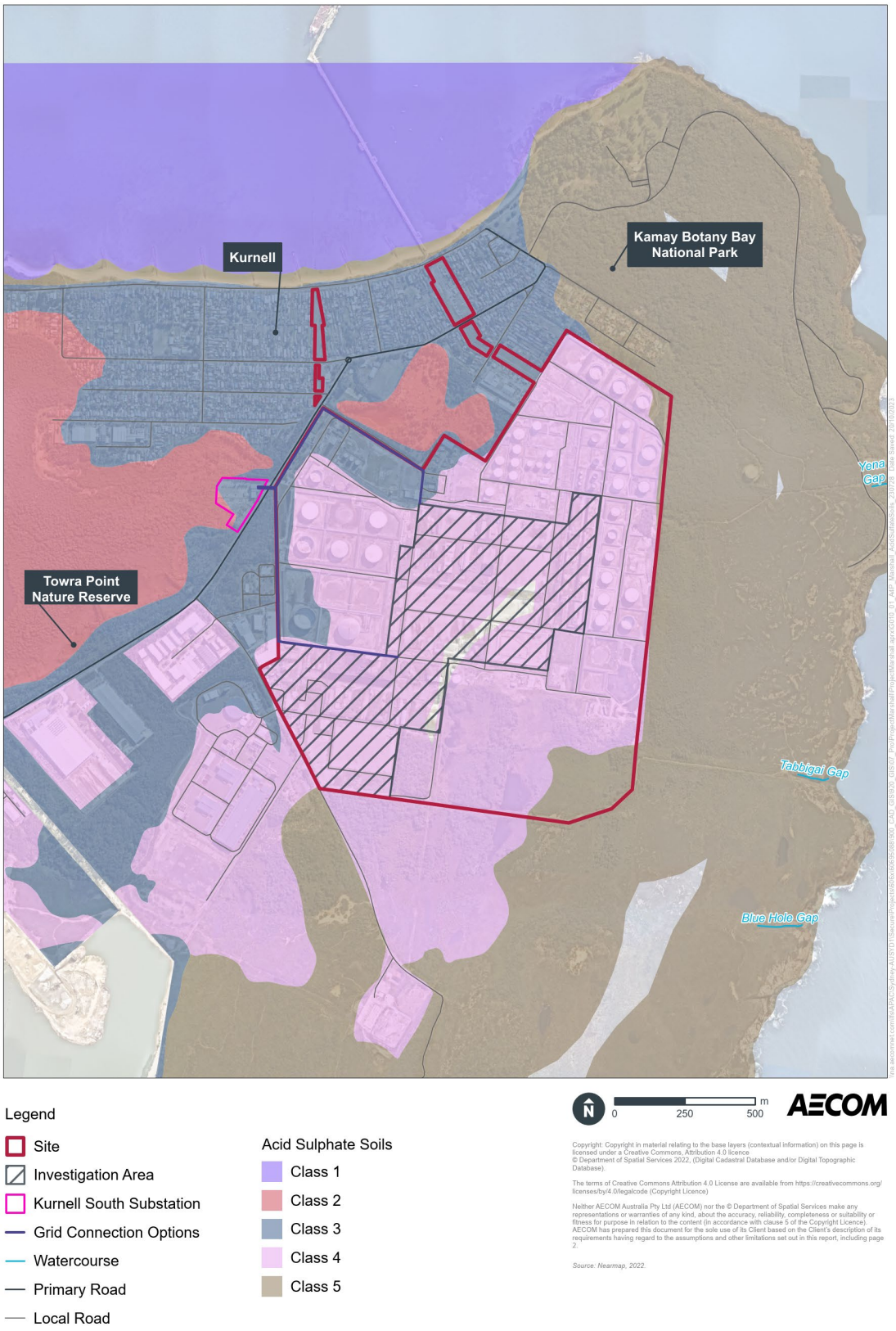

Figure 4-4. Acid sulfate soils

4.4 Other relevant NSW legislation

4.4.1 Australian Oil Refining Agreements Act 1954

The *Australian Oil Refining Agreements Act 1954* (AORA Act) was gazetted to facilitate the construction and operation of the Kurnell Refinery. The Act also allows for Ampol to maintain its asset (i.e. the Kurnell Terminal) at the Site.

4.4.2 Protection of the Environment Operations Act 1997

The objects of the POEO Act contained in section 3 include to rationalise, simplify, and strengthen the regulatory framework for environment protection. Chapter 3 of the POEO Act outlines the specific circumstances under which an environment protection licence (EPL) must be obtained. The Site is currently licenced under EPL 837[2] for chemical storage and shipping in bulk. The EPL provides a number of limits on the operations from the Site including regarding the pollution of waters, noise limits, odour controls etc.

Schedule 1 of the POEO Act provides a list of activities for which an EPL would be required. Clause 17 of Schedule 1 lists general electricity works as a scheduled activity where they exceed the capacity to generate 30 MW. The Project does not involve the generation of electricity. Instead, the Project stores and releases electricity that has already been generated elsewhere. Accordingly, an EPL is not required for the Project.

4.4.3 Work Health and Safety Act 2011

The *Work Health and Safety Act 2011* (WH&S Act) and its supporting Regulation 2011 (WH&S Regulation) defines major hazard facilities (MHFs), regulates their operation and includes measures to prevent accidents occurring at MHFs. They also include specific provisions regarding the management of asbestos and asbestos containing materials. The Site is classified as an MHF. Any works to or modifications of a MHF need to be discussed with SafeWork NSW as the administrators of the WH&S Act.

4.4.4 Contaminated Land Management Act 1997

The general object of the *Contaminated Land Management Act 1997* (CLM Act) is to establish a process for investigating and (where appropriate) remediating land that the EPA considers to be contaminated enough to require regulation under Division 2 of Part 3 of the CLM Act. The Kurnell Terminal is designated as a significantly contaminated land (ID 20141108) under the CLM Act. Ground investigations have been completed across the Site to identify specific areas of the Site where ground contamination requires passive or active management. The EIS will include a soils, groundwater and contamination assessment, based on existing ground investigation data.

4.4.5 Aboriginal Land Rights Act 1983

The *Aboriginal Land Rights Act 1983* (ALR Act) was established to provide land rights to Aboriginal persons, as well as provide for representative Aboriginal Land Councils to vest land in those Councils. The ALR Act, is administered by the NSW Department of Aboriginal Affairs and establishes a compensatory regime, which recognises that land is of spiritual, social, cultural, and economic importance to Aboriginal people. The ALR Act established the NSW Aboriginal Land Council (NSWALC) and a network of over 120 Local Aboriginal Land Councils (LALCs) and requires these bodies to:

- *Take action to protect the culture and heritage of Aboriginal persons in the LALC's area, subject to any other law*
- *Promote awareness in the community of the culture and heritage of Aboriginal persons in the LALC's area.*

[2] Found at: https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=243212&SYSUID=1&LICID=837

The closest LALC office to the Site is in La Perouse. LALCs constituted under the ALR Act can make claims in respect of '*claimable Crown land*.' The Registrar of the ALR Act must maintain the Register of Aboriginal Land Claims under section 166 of the ALR Act. All land claims that have been made under the ALR Act are recorded in the Register. LALCs will have the opportunity to inform and review the ACHAR that will support the EIS for the Project.

4.4.6 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act), administered by the Environment, Energy and Science (EES) Group of the DPE, is the primary legislation for the protection of Aboriginal cultural heritage in NSW. The NPW Act gives the Chief Executive responsibility for the proper care, preservation and protection of 'Aboriginal objects' and 'Aboriginal places'.

An Aboriginal Heritage Impact Permit (AHIP) is required under section 90 of the NPW Act before harming or desecrating an Aboriginal object, otherwise, such action is an offence under the NPW Act. Despite this, under section 4.41 of the EP&A Act, an AHIP is not required for SSD. Instead, potential impacts to Aboriginal heritage are typically managed under Aboriginal Cultural Heritage Management Plans (ACHMPs), required under relevant conditions of consent.

4.4.7 Water Management Act 2000

The *Water Management Act 2000* (WM Act) establishes a framework for managing water in NSW. Section 91 of the WM Act discusses activity approvals and notes that there are two types of approvals, namely controlled activity approvals and aquifer interference approvals.

A controlled activity approval for this Project would not be required by virtue of Section 4.41 of the EP&A Act. This section of the EP&A Act specifies certain approvals that are not required for SSD, including an activity approval under section 91 of the WM Act. Despite this provision, this section of the EP&A Act does not remove the requirement for obtaining an aquifer interference approval. Separate exemptions under the *Water Management (General) Regulation 2018* may apply to the requirement for an aquifer interference approval or water access licence.

4.4.8 Biodiversity Conservation Act 2016

The purpose of the BC Act is to maintain a healthy, productive, and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development (described in section 6(2) of the *Protection of the Environment Administration Act 1991*).

Section 7.9(2) of the BC Act states that a development application for SSD is to be accompanied by a Biodiversity Development Assessment Report (BDAR) (as defined under section 7.1 of the BC Act), unless both the Planning Secretary and the EPA determine that the proposed development is not likely to have any significant impact on biodiversity values. Further guidance is provided under section 7.9(3) of the BC Act, which denotes that the EIS, which accompanies any such application, is to include the biodiversity assessment required by the environmental assessment requirements (i.e. SEARs).

The Project has been located to avoid impacts to mature native vegetation and sensitive biota. As such it is likely that the Project would result in significant impacts on biodiversity and a BDAR Waiver will be prepared to support the Project, with the outcomes of this assessment summarised in the EIS.

4.4.9 Roads Act 1993

An objective of the *Roads Act 1993* (Roads Act) is to confer certain functions (in particular, the function of carrying out road work) on Transport for NSW and on other roads authorities, among others. Section 7 of the Roads Act defines the respective road authorities depending on the classification of the road. Sutherland Shire Council is the roads authority for the eastern section of Captain Cook Drive, Solander Street and Sir Joseph Banks Drive.

Section 138 of the Roads Act relates to works and structures, whereby *a person must not erect a structure or carry out a work in, on or over a public road… otherwise than with the consent of the appropriate road's authority*. It is not envisaged that the Project would require upgrades to the local road network or to intersections from this network to the Site. The Project would require works within road corridor to install the grid connection between the Site and the Kurnell South Zone Substation. This activity would require a Section 138 approval. Consultation with Sutherland Shire Council will continue throughout the development assessment process and during construction.

4.4.10 Heritage Act 1977

The *Heritage Act 1977* (NSW) aims, among other things, to promote an understanding of heritage, encourage conservation and provide for protection of NSW State heritage. State and/or local heritage significance can relate to historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values of a place, building, work, relic, moveable object or precinct. The Site is designated as the 'Australian Oil Refinery' (#A2524) under the Sutherland Shire LEP.

The locally significant 'four wheel drive track' is closely associated with the north-west section of the Site. It is in part present in the cadastral plan for the Site (Lot 1 DP 132055 and Lot 1 DP 652262), however there is no physical evidence of the track today. As part of the EIS, a Historic Heritage Impact Assessment will be prepared.

4.5 Commonwealth legislation

4.5.1 Airports Act 1996 and Airports (Protection of Airspace) Regulations 1996

The *Airports (Protection of Airspace) Regulations 1996* applies to activities that could penetrate the protected airspace of leased federal airports (i.e. airports regulated under the *Airports Act 1996*). The regulation requires the Department of Infrastructure, Transport, Regional Development Communications and the Arts (DITRDCA) to assess applications to carry out controlled activities and to impose conditions on the approval, if granted. The Investigation Area is within the vicinity of Sydney Airport.

The Project would involve the potential use of cranes during construction. Guidance related to the operation of cranes and tall structures in the vicinity of Sydney Airport is provided by the Civil Aviation Safety Authority (CASA), pursuant to *AC 139-07(2) – CASA Advisory Circular – Reporting of Tall Structures* (Advisory Circular). The Advisory Circular provides instructions to seek approval from the Air Base Command Post (ABCP) to erect a crane or tall structure (exceeding 30 m above ground level) within 15 km of Sydney Airport. The Investigation Area is located approximately 5 km south of Sydney Airport. As such, the requirements of the Advisory Circular will be considered.

Ampol (and Kurnell Energy) will consult with CASA and ABCP with respect to the use of cranes at the Site to develop the Project.

4.5.2 Environment Protection and Biodiversity Conservation Act 1999

Section 18 of the *Environment Protection and Biodiversity Act 1999* (EPBC Act) requires a proponent of a development or activity to obtain approval from the Commonwealth Minister for the Environment when undertaking an activity which is likely to cause a significant impact to a Matter of National Environmental Significance (MNES). MNES include threatened species or ecological communities listed under the EPBC Act.

If the Project is likely to significantly impact on a MNES, a referral to the Commonwealth Minister for the Environment and Water would be required to determine whether the Project is a controlled action or can be undertaken in a particular manner to adequately mitigate potential impacts. If the Project constitutes a controlled action the activity will be subject to further assessment before a determination is made by the Commonwealth Minister for the Environment and Water regarding whether the activity can be carried out, generally subject to conditions.

A search of the EPBC Act Protected matters Search Tool was undertaken for a 10 km buffer around the Investigation Area. The search identified one Wetland of International Importance, seven threatened ecological communities, 95 threatened flora and fauna species, and 77 listed migratory species with potential to occur within 10 km of the Investigation Area.

The results of the Protected Matters search for MNES within 10 km of the Investigation Area is provided in Table 4-3. The Protected Maters search report can be viewed in Appendix B.

Table 4-3. MNES within 10 km of the Investigation Area

MNES	MNES within 10km of the Investigation Area
World Heritage Properties	None
National Heritage Place	2
Wetlands of International Importance	1
Great Barrier Reef Marine Park	None
Commonwealth Marine Area	None
Listed Threatened Ecological Communities	7
Listed Threatened Species	93
Listed Migratory Species	82

A review of the potential impacts of the Project on nearby MNES has been undertaken. It is unlikely that the construction or operation of the Project would result in a significant adverse impact on MNES.

4.5.3 Native Title Act 1993

The *Native Title Act* 1993 (NT Act) provides for the recognition and protection of native title for Aboriginal peoples and Torres Strait Islanders. The NT Act recognises native title for land over which native title has not been extinguished and where persons are able to establish continuous use, occupation or other classes of behaviour and actions consistent with a traditional cultural possession of those lands. The NT Act also makes provision for Indigenous Land Use Agreements (ILUA) to be formed, as well as a framework for notifying native title stakeholders for certain future acts on land where native title has not been extinguished.

A search of the *National Native Title Tribunal Register* was undertaken using the National Native Title Tribunal online system. The search returned no active or historic claims associated with the Investigation Area. As all land within the Investigation Area is either freehold or the subject of a ‘previous exclusive possession act,’ native title rights will not be impacted by the Project.

Figure 4-5. Matters of National Environmental Significance

5.0 Engagement

5.1 Introduction

Ampol is focused on ensuring they have a positive impact on the communities and economies in which they operate, including playing a leading role in Australia's energy transition. Ampol will consider the local community needs, as well as the value of the unique environment and cultural significance of Kurnell during the design, assessment and development of the Project.

Ampol has proudly been a part of the Kurnell community for 70 years and it values and respects the local community. As the Project progresses, Ampol will engage and share information with the Kurnell community about the Project through various forums and provide opportunities for the community to submit feedback and ask questions to help inform Ampol's decisions.

This section outlines Ampol's Community and Stakeholder Engagement Plan (CSEP) for the Site (Section 5.2), the consultation that has been completed to date (Section 5.3), and the proposed consultation that would take place as part of the preparation of the EIS (Section 5.4). The outcomes of consultation provided in Section 5.4 will be included in the EIS and relevant technical studies.

5.2 Project Community and Stakeholder Engagement Plan

A CSEP is in place to support Ampol and Kurnell Energy through the planning approval and environmental assessment process for the Project. The CSEP outlines the engagement approach with the community and stakeholders while considering relevant statutory requirements, government guidelines, and industry practice.

Objectives

The engagement objectives include:

1. To inform the community and stakeholders about the Project and the opportunities for them to provide input
2. To educate community and stakeholders about grid-size batteries and the potential benefits
3. To provide opportunities for the community to provide feedback on Project elements that matter to them
4. To further amplify Ampol's relationship with the Kurnell community through genuine engagement.

Approach

The approach detailed in the CSEP provides a structured process to enable consistent, targeted, and meaningful engagement. The engagement approach will focus on the following guiding principles:

- **Early engagement** to establish and build relationships; initially with key stakeholders, including elected officials, council, surrounding landholders, and Aboriginal groups, to identify support, key risks, and concerns
- **Genuine engagement** by providing clear and concise information about the Project, including the positive and negative impacts, and providing opportunities for consultation relative to the level of impact and interest in the Project to optimise project outcomes
- **Local engagement** to proactively develop two-way communication channels to understand, and be considerate of, the needs and interests of the community.

Ampol has in place a community email (community@ampol.com.au) and a community phone line to allow for regular communications with local stakeholders and community members.

5.3 Engagement carried out to date

In accordance with the CSEP, engagement with the community and stakeholders started in mid-August 2023, with a positive sentiment towards the Project expressed. Key themes raised included:

- The location of the BESS on the Site
- Ownership and operation model of the Project
- Management of fire and noise.

Engagement activities were carried out in line with the CSEP, including:

- Two project updates in the Ampol local Kurnell Community Newsletter
- An online feedback survey issued to the local community
- One project notification delivered via letterbox to the local Kurnell community
- A project factsheet
- Community pop-in information session
- Project phone line and email address set up
- Meetings with local key stakeholders
- Direct emails to key community groups
- Phone calls to neighbouring properties on Sir Joseph Banks Drive.

Table 5-1 provides an overview of the consultation activities undertaken to date to support the preparation of this Scoping Report.

Table 5-1. Scoping Report consultation activities

Stakeholder	Engagement mechanism	Date	Comments
Ausgrid	Letter (via email)	13 June 2022	Enquiry and information exchange in relation to the proposed grid connection. A response was received on the 1 July 2022, detailing the process by which Ampol would need to apply for a connection.
Federal Member of Parliament	Meeting	18 August 2023	Ampol hosted a pre-community consultation meeting with the Member, to provide an overview of Ampol's activities at Kurnell and the Project. The Member was broadly receptive to Ampol's ongoing use of the Site, and provided advice regarding engagement with the community.
Ausgrid	Letter (via email)	22 August 2023	Letter to Ampol following the 2022 initial discussions, to provide a summary of the review undertaken by Ausgrid's System Planning Group of the connection options and related network requirements. Ausgrid stated that the Project was in the 'Formal Enquiry' stage, under the National Electricity Rules (NER), applicable legislation, regulations, and business policies, and that they will enter the next phase upon the receipt of a formal selection of a supply option for the proposed connection.

Stakeholder	Engagement mechanism	Date	Comments
Community Working Group	Email	29 August 2023	Direct email to notify the working group of the Project. CWG members were interested in the Project and requested to be kept updated.
Kurnell Progress and Precinct Residents Association (KPPRA)	Email	29 August 2023	Direct email to notify KPPRA about the Project. The update was noted and generated interest to attend the pop-up session.
Broader Kurnell community	Community newsletter	29 August 2023	As part of the monthly Ampol Kurnell community update newsletter, distributed via email and letterbox to 950 residential and commercial properties, updates were provided regarding Ampol's activities at the Site and the surrounding area. The August edition introduced the Project to the community and alert them to upcoming information to be distributed. No specific responses were received.
Project phone line and email	Project phone line and email	29 August 2023	Included on all Project information and serviced during business hours. One enquiry was received, with interest raised about locating new energy solutions on the Site, including local power generation, sharing, storage, and providing backup if the larger power grid does not work.
State Member of Parliament	Meeting	31 August 2023	Ampol hosted a pre-community consultation meeting with the Member, to provide an overview of Ampol's activities at Kurnell and the Project. The Member was broadly receptive to Ampol's ongoing use of the Site and provided advice regarding recent community enquiries.
Department of Planning and Environment (DPE)	Online Meeting	1 September 2023	Ampol hosted a pre-SSD application meeting with DPE and Ampol's lead planning and environmental consultant, AECOM, to provide an overview of the Project and the environmental assessment. DPE welcomed the update and set out their expectations of the Scoping Report and subsequent EIS.
Broader Kurnell community	Project notification	1 September 2023	Notification was issued to 963 properties in Kurnell to advise the community of the Project, pop-in session, and survey. The notification led to attendance at pop-in session and survey response.
	Online survey	1 to 30 September 2023	Available online for 28 days. The survey asked community members about connections and usage of community spaces in the local Kurnell area, perception of impacts arising from the Kurnell Terminal operations,, their thoughts on

Stakeholder	Engagement mechanism	Date	Comments
			a BESS, their preferred engagement methods, and offer to join the Project update email list. Six responses were received. Of these, four advised they did not notice impacts from the Site, while two advised of visual and odour impacts from the Site. Regarding their thoughts on a BESS, one respondent advised they thought it was a good idea, two wanted to know more about the potential impact to the community, and the remaining three had no comments on a potential BESS. All responses advised letterbox drop as the preferred method of communication with the community, followed by email, information sessions, and community working groups. Five requested to receive project updates.
	Community newsletter	13 September 2023	The September edition included a reminder of the upcoming pop-in session and the opportunity for community to participate in the project survey. This was distributed to 950 residential and commercial properties in the Kurnell community via letterbox. Delivery raised community awareness and promoted engagement activities.
	Pop-in session	16 September 2023	Community information pop-in session held at a local venue Marton Community Hall, 92 Captain Cook Drive, Kurnell, between 10am – 12pm. Information was displayed, feedback invited, and project team members were on hand to provide information and respond to community queries. Ten people attended the pop-in session. Key feedback included: • Not many attendees had heard of a BESS, how it worked, or what it did • All attendees showed general support for Ampol's Future Energy and Decarbonisation Strategies • Some attendees asked questions about noise, and whether the BESS could be heard from residential properties • Some attendees raised questions about fire, and what would occur in the event of a fire • All attendees sought clarification on the location of the BESS and confirmation that it was not on community land. A question was also raised about what would happen to the remediated land that would not be used by the Project.

Stakeholder	Engagement mechanism	Date	Comments
			• Some attendees questioned why there wasn't consideration for other renewable energy sources such as solar or wind farms • Some attendees asked about ownership of the BESS, if it would provide cheaper energy, particularly for the community of Kurnell, and what the benefit to the Kurnell community would be. The community displayed a strong connection to the Site, with most attendees having either worked or known people that worked at the Site.
	Fact sheet	16 September 2023	Printed fact sheet available at pop-in session. The factsheet explained the project and SSD process, and continues to be available to community via email requests.
Sutherland Shire Council (SSC)	Letter (via email)	20 September 2023	Letter issued to SSC to provide an overview of the Project, the SSD application, environmental assessment, and request a Pre-Application Discussion. A Site visit and discussion between Ampol, AECOM, and SSC has been scheduled.
Ausgrid	Letter (via email)	20 October 2023	A Detailed Enquiry Request was issued to Ausgrid on the 5 September 2023. In response, Ausgrid provided updated information to assist in the planning of the grid connection.

5.4 Engagement to be carried out

5.4.1 Community and stakeholder engagement

The following future community and stakeholder engagement activities will be carried out, in line with the CSEP and expected to be requested as part of the SEARs:

- Community newsletters
- Community engagement sessions/ pop in sessions
- 1800 number and community email
- Community post card
- Facilitated meetings and one-on-one meetings
- Fact sheets including a guide to the SSD process and EIS
- Frequently asked questions document
- Image library
- Letterbox drops
- Poster or notice
- Stakeholder briefings
- Stakeholder contact database

- Surveys.

The outcomes of this consultation will be included in the EIS and relevant technical studies.

5.4.2 Agency consultation

Agency consultation will be undertaken with relevant stakeholder groups identified within the CSEP, including DPE, SSC, Environment Protection Authority (EPA), Ausgrid, Safework NSW, Transport for NSW, and other relevant organisations. Details of the engagement carried out, and the outcomes of the consultation, will be included in the EIS.

6.0 Proposed assessment of impacts

6.1 Introduction

The identification of issues to be addressed in the EIS has been undertaken through a risk-based approach in accordance with the *State significant development guidelines – preparing a scoping report* (DPE, 2022a). This process involved reviewing previous reports, undertaking limited investigations (such as site inspections), and desktop searches of proprietary environmental databases between April to August 2023 to identify key issues and sensitive areas. A summary of the key environmental matters identified during the risk assessment is provided in Section 6.2, through to Section 6.11. Other matters for consideration are identified in Section 6.10. A Scoping Summary Table is provided in Appendix A. The intent of the discussion is to demonstrate an understanding of the relevant environmental matters and the need for further assessment, as well as the requirement for the implementation of mitigation measures for these matters.

6.2 Geology, soils, groundwater, and contamination

6.2.1 Existing environment

The Kurnell Peninsula is located in the Botany Basin, a subregion of the Sydney Basin. The western side of the peninsular is characterised by Quaternary gravels, sands, silts, and clays, whilst the east is characterised by Hawkesbury Sandstone of the Triassic period (Figure 6-1). The Hawkesbury Sandstone geology rises from west to east from below sea level to a height of approximately 40 metres above sea level (masl) along the eastern boundary of the Kurnell peninsula where it forms steep near vertical cliffs. Hawkesbury Sandstone geology is characterised by fine to coarse grained quartzose sandstone with minor interbeds of siltstone/ sandstone laminate, siltstone, and claystone. The Investigation Area lies on the aeolian Kurnell landscape unit, composed of gently undulating to rolling coastal dune field and relict dunes (Hazelton, P.A. and Tille, P.J., 1990). The topography of the Site is high in the east and reduces progressively towards the west, with the lowest point on Site in the north-west corner close to the WWTP.

Online mapping (NSW Government, 2015) and the LEP shows that the majority of the Investigation Area is considered to be Class 4 land for acid sulfate soils (i.e. land where acid sulfate soils are likely to be found beyond 2 m below the natural ground surface); however, during the recent conversion and demolition works, no acid sulfate soils were encountered. Therefore, there is a low probability of Acid Sulfate Soil (ASS) risk (Figure 4-4). A small strip through the centre of the Investigation Area is unclassed and the land towards the Kurnell South Zone Substation are designated class 3 for acid sulfate soils.

The soils at the Site are located on sands and gravels and have high infiltration rates even when thoroughly wetted. Coffey (2003) indicated that groundwater at the Site is contained within an unconfined aquifer in the Quaternary sands. The depth to groundwater ranges from 1 metre below ground level (mbgl) in the north-western part of the Site to 15 mbgl along the eastern boundary. Groundwater flow direction at the Site is influenced by an east-west groundwater divide that runs through the northern portion of the former Caltex Lubricating Oil Refinery (CLOR) area (shown in Figure 6-1). To the north of the divide, groundwater flow direction generally to the northwest. To the south of the divide, groundwater flow direction is generally to the south-west. The entirety of the Site is considered to have groundwater vulnerability according to the Sutherland Shire LEP.

There are no Groundwater Dependent Ecosystems (GDEs) within the Investigation Area. However, Marton Park wetland on the northern boundary of the Site is a GDE as identified by the Groundwater Dependent Ecosystem Atlas. Other GDEs are likely to be present in the vegetated areas to the south of the Investigation Area.

The Investigation Area lies on highly disturbed terrain (i.e. by human activity and to a depth of at least one metre) previously used for industry activities. Certain areas of the Site, but not all, have been found to have elevated levels of contamination. Contamination is associated with former refinery operations and to a lesser extent other activities at the Site.

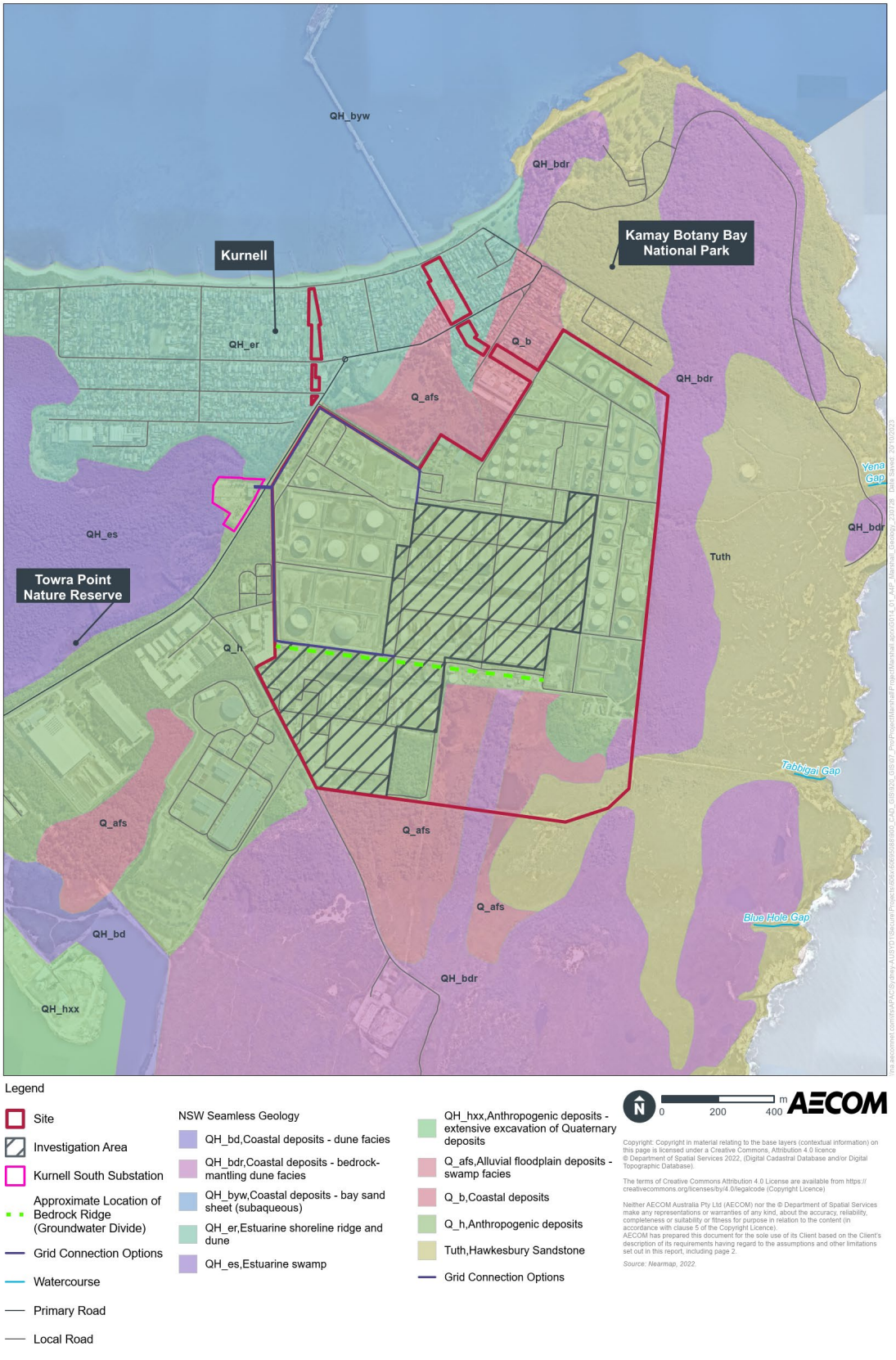

Figure 6-1. Geology

The most recent reviews (GHD, 2018; Caltex Refineries, 2019) identified contaminants in soil, groundwater, and surface water within certain parts of the Investigation Area. Contaminants of potential concern (CoPC) identified in quantities greater than the human health assessment criteria included:

- Asbestos containing material (ACM)
- Light Non-Aqueous Phase Liquid (LNAPL)
- Benzene
- Metals, including chromium, lead, and nickel
- PFAS, including per-fluoro-octane-sulphonic acid (PFOS), per-fluoro-hexane-sulphonic acid (PFHxS), and per-fluoro-octanoic acid (PFOA)
- Various fractions of total recoverable hydrocarbons (TRH), including:
  - C6-C10 less benzene, toluene, ethylbenzene, and xylenes (BTEX) (F1)
  - >C10-C16 less naphthalene (F2)
  - >C16-C34 (F3)
  - >C34-C40 (F4)
  - Spent phosphoric acid catalyst with limestone.

Remediation activities are underway in line with a remediation strategy for the Site.

6.2.2 Potential impacts

The following impacts upon geology, soils, groundwater, and contamination have been considered as having potential to occur during the construction and operation of the Project:

- Excavations, earth movement, and vegetation removal may cause soil erosion and sedimentation (including the potential for sediment laden run-off)
- Excavations and earth movement may encounter and mobilise contaminated soils and groundwater reducing in impacts to workers and the environment
- Vehicle movement may cause disturbance and dispersion of soil, including dust generation
- Potential for chemical and fuel spills during construction and/ or operation, which may result in localised contamination of soils and groundwater.

6.2.3 Assessment approach

The previous detailed site investigation (DSI) (GHD, 2018; Caltex Refineries, 2019) would be used to understand the ground conditions for the Project and to complete the soil, groundwater, and contamination assessment in the EIS. The work completed in 2019 by Caltex Refineries collated and reviewed available ground investigations completed at the Site to provide a detailed understanding of ground conditions to be used as a basis for the Site's remediation strategy.

This DSI provides existing ground condition data for the Investigation Area. The assessment in the EIS would be prepared in accordance with the *Contaminated Land Guidelines: Consultants Reporting on Contaminated Land* (NSW EPA, 2020), and the *National Environment Protection Measure* (Assessment of Site Contamination) (NEPC, 2013) where relevant. Relevant details of the investigations and reliance on previous contamination assessments for the Investigation Area, which relate to the existing environmental conditions or have the potential to affect receivers will be qualitatively documented in the EIS. Measures to manage potential contamination risks will be identified, if required.

A qualitative assessment of potential erosion and sedimentation impacts would also be completed. This assessment would discuss key potential impacts and outline management approaches. In line with the Blue Book (Landcom, 2004).

6.3 Surface water and flooding

6.3.1 Existing environment

Surface water

The Investigation Area is located within the Botany Bay catchment, on the Kurnell Peninsula surrounded by marine and estuarine surface water bodies, which in addition to land, constitute the receiving environments for surface water discharges from the Site. The main water bodies in proximity to the Investigation Area include the Tasman Sea, Botany Bay, Quibray Bay, Weeney Bay, and the Marton Park Wetland. These areas are shown in Figure 6-2.

The Botany Bay Catchment has four main sub-catchments, based on the major river systems and other areas which drain to it. The Investigation Area is located in the catchment area that drains directly to Botany Bay. A substantial part of the catchment is highly developed with almost 40% of its area being used for urban, industrial, or commercial purposes.

The topography of the Investigation Area is generally flat and low-lying in the north-west and central parts with the land at heights of about 4 m above Australian Height Datum (AHD). From here the land steadily increases in height to about 20 m above AHD in the east. Stormwater runoff generally flows from the eastern boundary through pipes and open channels towards the northwest into the Quibray Bay, Botany Bay, and Marton Park Wetland. Some stormwater flows onto the Investigation Area across the eastern Site boundary from the Kamay Botany Bay National Park.

There are no watercourses in the Investigation Area. Stormwater generated on the Site is collected in the SWS. The purpose of the SWS is to collect runoff from areas of the Site that have been designated low risk with respect to interaction with petroleum products, including primarily the ‘non-process’ areas of the Site, such as roadways and building roofs. Stormwater is discharged offsite into three receiving water bodies, Quibray Bay and Botany Bay, or Marton Park Wetland.

The Site has a separate OWS to handle water that is or may be impacted by petroleum products, including a proportion of stormwater runoff collected from areas where there is or may be interaction with petroleum products such as tanks, bunds, and former refinery process areas. This water is treated at the WWTP prior to being discharged to the Tasman Sea under EPL 837.

Flood risk

According to the Kurnell Township Flood Study Final Report (WMAwater, 2009), prepared on behalf of Sutherland Shire Council, Kurnell is susceptible to flooding from both rainfall and tidal inundation. Its localised depression and low-lying topography can make it vulnerable to extensive flooding (WMAwater, 2009).

Flooding within the Kurnell Catchment may occur as a result of the following factors, which can occur in combination or in isolation:

- High tide or storm surge which causes water levels to elevate in Botany Bay and Quibray Bay;
- Intense rainfall which causes water levels to elevate within the open channel that runs beside Captain Cook Drive and along roads and through private property. The rise in water level may also be affected by constrictions, e.g. culverts, blockages, fences and buildings;
- Local runoff ponding in low lying areas that has limited potential for drainage. Flooding may be exacerbated by inadequate or blocked local drainage provisions and restricted overland flow paths; and
- Tsunami impact on the east coast of Australia from a tsunami arising from subduction zone earthquakes in the Pacific.

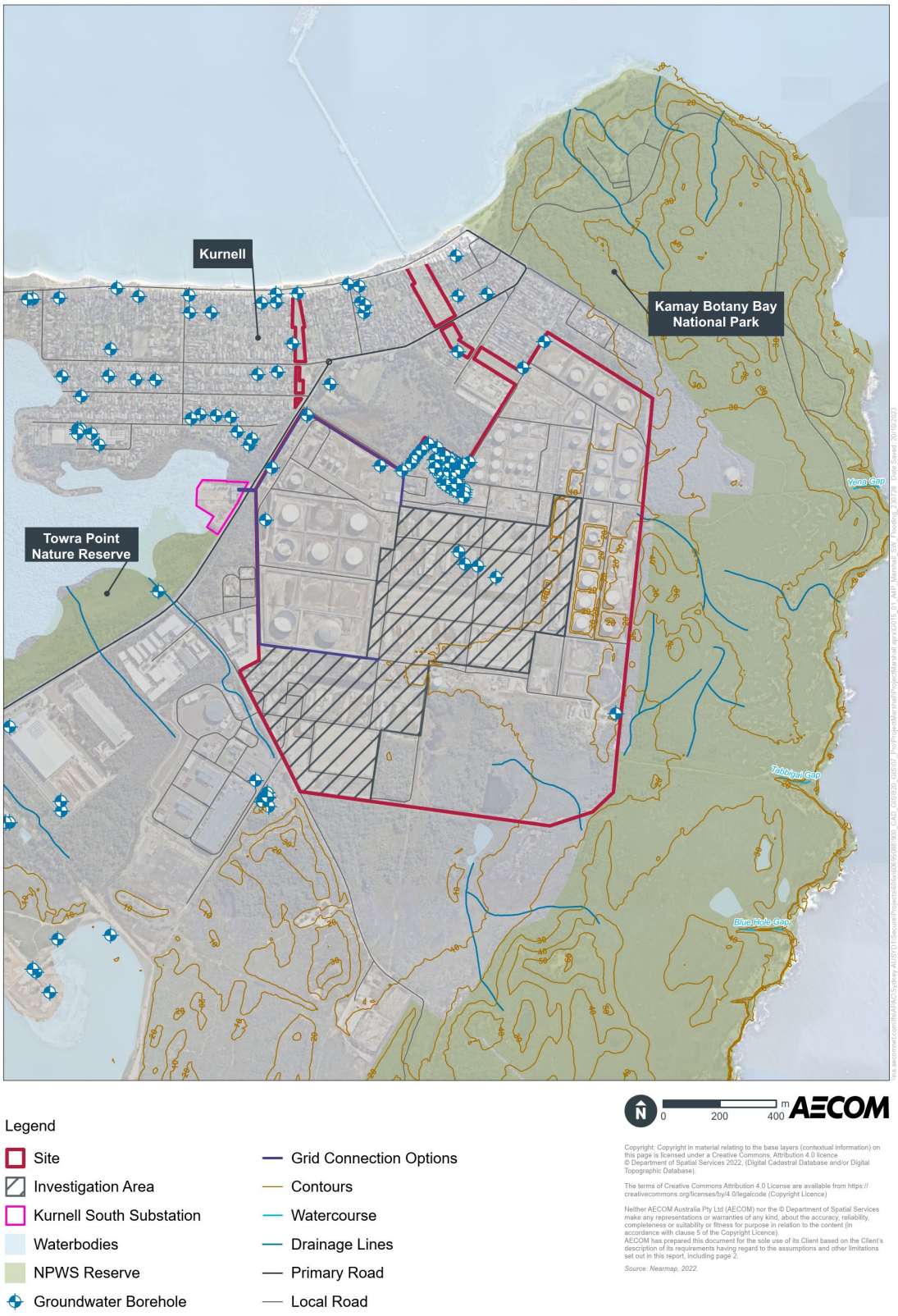

Figure 6-2. Surface water resources

The proximity of the Site to Quibray Bay means flood behaviour for the Site is influenced by storm tide effects. Flooding of the Site can be caused by:

- High rainfall over the catchment;
- Elevated tidal levels at the drainage outfalls; or
- A combination of both.

The Investigation Area is generally elevated above the surrounding low-lying areas on the western and northern boundaries reducing flood risk. Modelling undertaken by BPM Projects (2022) has shown that flows move from east to west in the Site and terminate at the culvert under Captain Cook Drive.

The Investigation Area is identified as having a Medium Flood Risk rating (areas below the flood planning level, which is defined as the 1:100 Annual recurrence Interval flood level + 0.5 m) in the LEP with no significant evacuation difficulties. However, this flood risk rating is not based on any flood modelling for the Site and has likely been applied in the absence of more detailed information.

The most recent flood event occurred on the 6 and 7 April 2022, where, during a significant storm event on the 6 and 7 April 2022, stormwater runoff from Kurnell Terminal, inundated the area of the existing WWTP and flooded the separators and associated sumps. When flooded, the lower density hydrocarbons present in the separators and sumps were pushed up through minor gaps in their lids and coverings and mixed with the stormwater runoff. It is estimated that 9,200 litres of hydrocarbon escaped from the separators and associated sumps towards downstream receivers, including residences in the township of Kurnell and sensitive ecological values in Towra Point Nature and Ramsar.

Ampol's investigation into the incident concluded that the incident was triggered by three concurrent extreme environmental factors:

- Rainfall intensity of >128 millimetres (mm) in the four hours from 9:00 pm on 6 April to 1:00 am on 7 April 2022 (exceeding a 1 in 100-year rainfall event)
- Zero, or minimal, ground absorption of stormwater due to well above average rainfall during January, February, and March 2022
- High tide of approximately 1.6 m occurring at 11:46 pm on 6 April 2022 coinciding with the period of peak rainfall on the same evening (which would have reduced the hydraulic gradient available for the quitting of stormwater to Quibray Bay and therefore reduced stormwater exit flowrates from the Site).

Following this event, Ampol has identified a number of flood improvement mitigation measures. Where required, these measures are subject to their own development application process with Sutherland Shire Council and would not form part of the Project.

6.3.2 Potential impacts

The Project has the potential to impact upon surface water. The following surface water impacts have been considered as having potential to occur during construction and/ or operation of the Project:

- Accidental spill or discharge of chemicals or hydrocarbons, such as fuels and oils in vehicles and/ or equipment with the potential to contaminate surface water
- Erosion of soil and sedimentation through run off and transport of eroded sediments to waterways particularly during high rainfall events
- Mobilisation of contaminated soils, waste or groundwater into stormwater flows impacting surface water quality
- Flooding during construction, particularly of the grid connection corridor during these works, has the potential to result in erosion and associated water quality impacts.

6.3.3 Assessment approach

Potential impacts to surface water quality and impacts related to flooding relevant to the Project will be assessed within the EIS. The impact assessment would include a surface water impact assessment and flood risk assessment to identify potential water quality impacts and stormwater retention requirements.

The assessment will outline the preferred approach to managing the stormwater flows from the BESS facility, specifically whether these flows will be managed by the onsite OWS and WWTP or whether they will be discharged via the SWS. The EIS would also identify recommendations for management and/or mitigation of potential impacts.

6.4 Noise and vibration

6.4.1 Existing environment

The existing ambient noise sources are from vehicles on Captain Cook Drive, aircraft departing or arriving at Sydney International Airport, operations within the Kurnell Terminal, and from local community activity in Kurnell. The majority of the land uses surrounding the Investigation Area include industrial or road infrastructure. The sensitive receivers to the construction and operation of the Project are:

- Residential receivers in the township of Kurnell, located 490 m to the north-west of the Investigation Area
- Places of worship in the township of Kurnell, where the closest church is St James' Kurnell, located 870 m north-west of the Investigation Area
- Educational receivers in the township of Kurnell, where the closest school is Kurnell Public School, located 930 m to the north-west of the Investigation Area
- Industrial receivers to the south-west, west, and north of the Investigation Area.

As described in Section 2.3.2, the Site operates 24 hours a day, seven days a week under EPL 837, whereby Ampol must ensure that the operational noise generated by the terminal does not exceed the noise limits to residential receivers outlined in Table 6-1.

Table 6-1. EPL 837 Operational Noise Limits dB(A)

Location	Day	Evening	Night	
	$L_{Aeq\ (15\ min)}$	$L_{Aeq\ (15\ min)}$	$L_{Aeq\ (15\ min)}$	L_{Amax}
At any private residential receiver	60	50	50	55

6.4.2 Potential impacts

The following noise and vibration impacts have been identified as having potential to impact nearby receivers during construction and operation of the Project:

- Noise associated with activities to construct and commission the BESS facility and grid connection
- Traffic noise associated with construction vehicles
- Operational noise from the BESS facility
- Cumulative operational noise impacts with existing Kurnell Terminal operations.

6.4.3 Assessment approach

A noise impact assessment (NIA) would be undertaken and provided as part of the EIS. The NIA would confirm the existing acoustic baseline around the Site and would identify potential noise impacts and appropriate mitigation measures for nearby receivers if required. The NIA will include an assessment of the potential noise and vibration impacts of the Project with reference to the *Noise Policy for Industry* (EPA, 2017), *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009), and *NSW Road Noise Policy* (DECCW, 2011).

6.5 Aboriginal heritage

6.5.1 Existing environment

Aboriginal occupation of the Sydney region is likely to have spanned at least 20,000 years. The Kurnell Peninsula was inhabited by the Gweagal people at the time of European contact. Early European accounts of the area indicate that small groups of Aboriginal people camped near the water. There is extensive recorded evidence of fishing and shell fishing activity in the area. Radiocarbon dating has been obtained for a number of Aboriginal occupation sites on the Kurnell Peninsula, the majority of which date to within the last 3,000 to 5,000 years.

The entirety of the peninsula is part of the Sydney Cultural Crescent Rock Art, which is under assessment for being part of the National Heritage List; rock engravings are present in areas with suitable sandstone outcrops, although they are more common on the headland at La Perouse Point, on the northern shore of Botany Bay, than in Kurnell. There are no Indigenous Land Use Agreements or Native Title Claims within the Investigation Area.

Three AHIMS items have previously been recorded within about 100 m of the Investigation Area (Figure 6-3):

- *Captain Cook Drive PAD 1 (52-3-2061)* – Potential Archaeological Deposit (PAD) located within a dune field overlooking the Towra Point Nature Reserve, and likely to retain potential for deeper archaeological deposit.
- *Kurnell Lot 101 Captain Cook Drive #1 (52-3-1232)* – Artefact scatter, consisting of four stone flakes and three waste flakes of mudstone/ chert, basalt, fine grained siliceous material (possibly fossilised wood), silcrete, and quartz.
- *Joseph Banks 1 Shell Midden (52-3-0370)* – Artefact scatter consisting of two quartz flakes, two chert flakes, one chert flaked piece and a core of banded material which were identified over an area measuring 12 metres by 10 metres. Shell midden material was identified across an area measuring 2 metres wide and 2 metres long and consisted of cockle and mud whelk shells.

No AHIMS records have been identified within the Investigation Area during the investigations for the Kurnell Refinery Conversion and Demolition projects (Australian Museum Business Services, 2013 and Australian Museum Consulting, 2014 respectively), or more recently during the Aboriginal Heritage Due Diligence completed for the southern half of the Investigation Area (Kelleher Nightingale Consulting, 2018).

The Investigation Area has been subjected to high levels of historic ground disturbance involved in the construction and operation of the oil refinery and lubricating oil refinery, and no undisturbed natural landforms remain. As part of the Refinery Conversion project, a site survey was undertaken by Australian Museum Business Services (2013), and no Aboriginal heritage sites, objects, places, or areas of archaeological potential were identified within the Site. The surveyor noted that, according to oral tradition, an ochre quarry is thought to have been located in this general area. It is considered unlikely that there are any further buried items of Aboriginal heritage importance in these disturbed areas.

6.5.2 Potential impacts

The construction of the Project is unlikely to impact the Aboriginal cultural heritage of the Kurnell Peninsula. The Site is highly disturbed and previous investigations have confirmed that no Aboriginal items and areas are likely to be present.

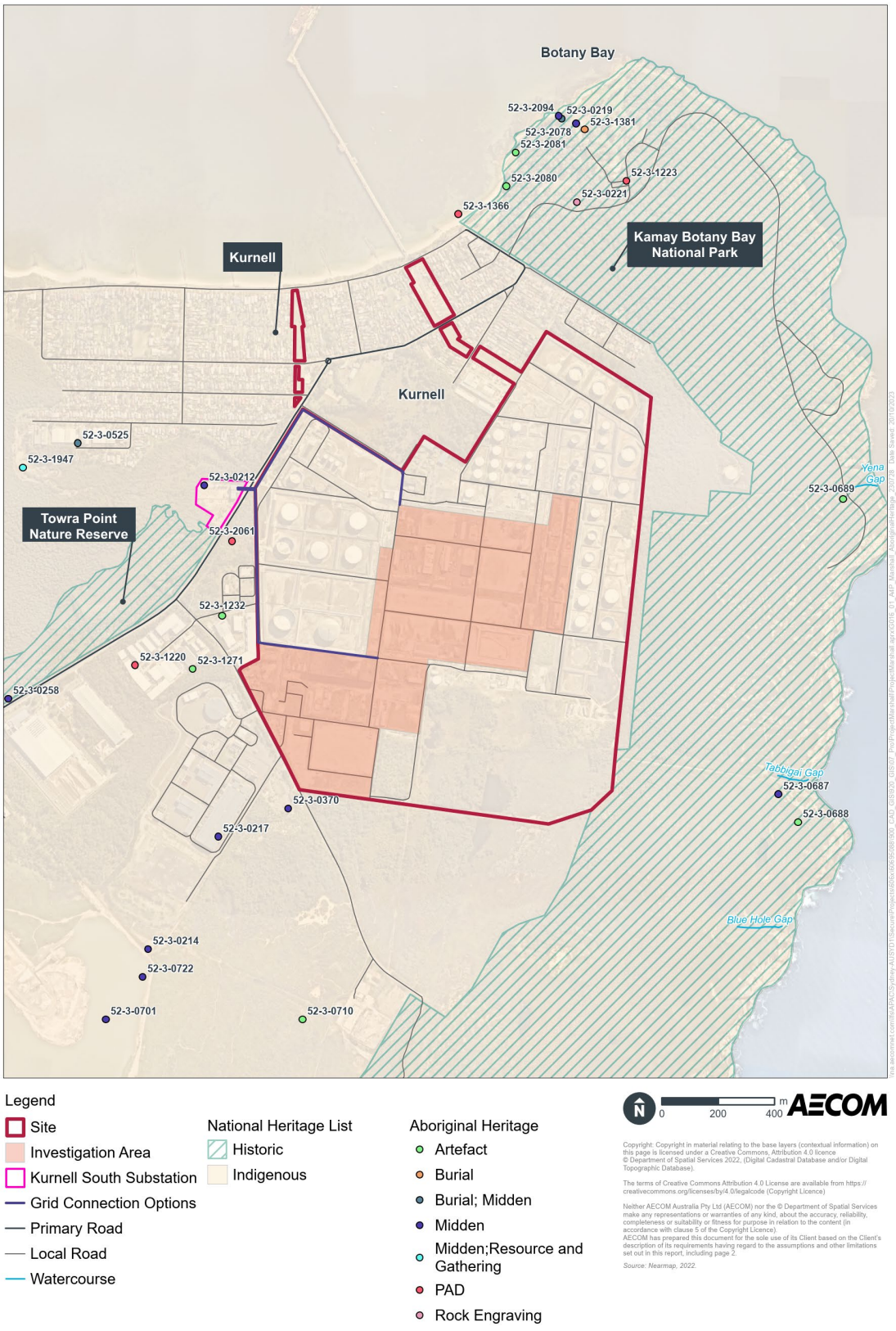

Figure 6-3. Aboriginal heritage

6.5.3 Assessment approach

From available data, including previous assessments and AHIMS records, the Investigation Area has limited known Aboriginal heritage. URS (2013) provided a study on Aboriginal heritage in the northern half of the Investigation Area. The report stated that the previous demolition works were unlikely to "*result in impacts on Aboriginal Heritage given the disturbed nature of the Site and surroundings."* There is a remaining risk that unexpected finds may be discovered during construction activities associated with any future development.

The Aboriginal Cultural Heritage Assessment Report (ACHAR) would be prepared to meet the likely requirements of the SEARs. The SEARs are expected to require an assessment of the Aboriginal heritage values of the Investigation Area in accordance with Heritage NSW's *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* and *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*. Accordingly, archaeological survey of the Investigation Area and an assessment of cultural values would be undertaken, with the outcomes of the ACHAR summarised in the EIS.

6.6 Non-Aboriginal heritage

6.6.1 Existing environment

Following the initial visit of Captain Cook in 1770 and the subsequent visit of the First Fleet in 1788, the Kurnell Peninsula was only formally settled by Europeans in 1815. The peninsula was used for farming and timber in the 1800s and for sand extraction in the early 1900s. Fishing was also an important source of income. Around these various industries, a small community started to develop.

In the 1950s, the Kurnell Refinery was constructed. The work to build the refinery involved draining swamps, clearing scrub, and installing roads, water supplies, and sewerage facilities. This activity led to the further development of the peninsula including the development of the village of Kurnell.

Items of non-Aboriginal importance are shown in Figure 6-4. One item of local importance listed within the LEP is located within the Investigation Area:

- Australian Oil Refinery (#A2524).

The curtilage for the Australian Oil Refinery (#A2524) was not defined in the Sutherland Shire Council Heritage Inventory; however, a curtilage was defined in the Caltex Kurnell Refinery Heritage Management Strategy (Australian Museum Consulting, 2014). The curtilage includes the cadastral boundaries that best align with the former oil refinery and oil lubrication refinery operational areas as well as the Rights of Way and the Kurnell Wharf. The curtilage excludes the areas of mature vegetation in the southern part of the Site.

The Australian Oil Refinery (#A2524) site is considered important in "*demonstrating the principal characteristics of an Australian oil refinery. The site contains a rare and a representative collection of oil refining technology of the mid- twentieth century in NSW, as well as supporting infrastructure associated with the original operation of the refinery,*" (Australian Museum Consulting, 2014:113-114).

It is also noted that "*administrative and amenities buildings … were designed by notable post-WWII architectural firm Bunning and Madden, while a group of six staff houses … were designed by renowned post- WWII architect Harry Seidler. Together these buildings have aesthetic significance as important examples of mid-twentieth century modernist architectural design and construction in an industrial setting in NSW. The ALOR* ['Australian Lubricating Oil Refinery,' later known as the CLOR] *cafeteria and amenities buildings also incorporate sculptural panels with significant aesthetic value, representative of a desire to introduce a human element to the otherwise austere, machine-age character of the modernist buildings,*" (Australian Museum Consulting, 2014:113-114).

The significance of the Australian Oil Refinery (#A2524) had previously been identified as having local and potentially State heritage value; however, the demolition works at the Site impacted this significance and as a result much of the infrastructure that contributed to this significance has since been demolished. Nevertheless, the Site as a whole retains local significance and certain individual elements are still present at the Site and are considered to have high significance (i.e. they fulfil criteria for local or state listing.

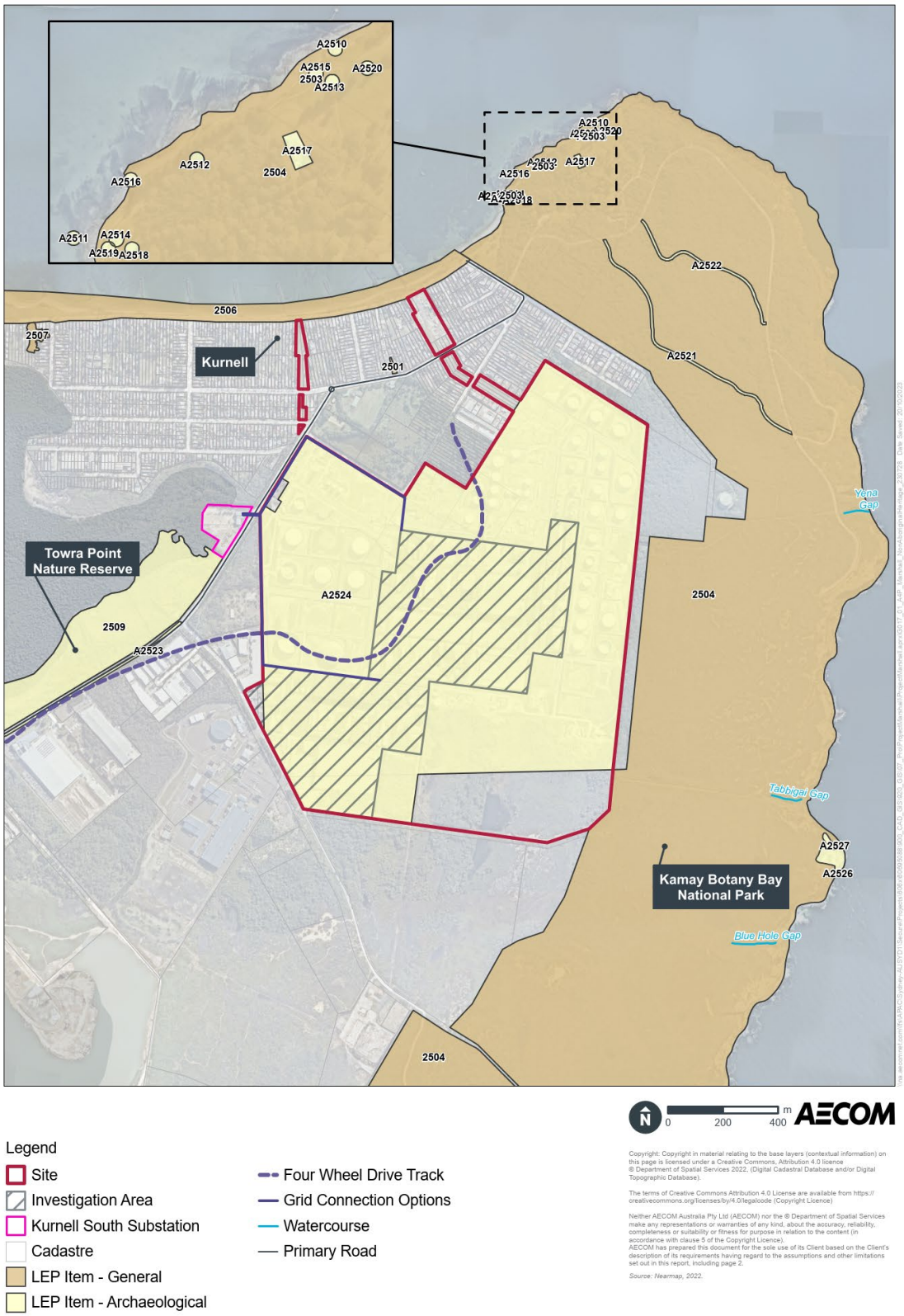

Figure 6-4. Non-Aboriginal heritage

Individual elements present at or connected to the Site considered to have heritage significance include:

- Eastern tank farm
- Western tank farm
- WWTP
- Pipelines
- Kurnell Wharf and buildings
- Main office building
- Group of six houses
- Main change rooms
- Firehouse
- Oil movements centre
- Storehouse
- Main workshop

In addition, the sculptural panels noted above were removed from the CLOR prior to demolition and remain close to the gatehouse and car parks near Solander Street.

The locally significant 'four wheel drive track' is closely associated with the north-west section of the Investigation Area and is in part present in the cadastral plan for the Site (Lot 1 DP 132055 and Lot 1 DP 652262). However, there is no physical evidence of the track within the Site today.

A 'Group Housing (6 houses) now offices, designed by Harry Seidler (4703431),' located in the northern part of the Site, are listed on the non-statutory Australian Institute of Architects Register of Significant Architecture in NSW.

The nationally significant Kurnell Peninsula Headland is close to the eastern boundary of the Investigation Area.

6.6.2 Potential impacts

The construction of the Project is unlikely to impact historic heritage values. The Project is located on the Australian Oil Refinery (#A2524) local archaeological site, however it would not impact or involve the removal of existing terminal infrastructure. Indeed, the introduction of a new form of energy storage at the Site could be seen as complementary to the heritage value of the Australian Oil Refinery (#A2524).

No other non-Aboriginal heritage items would be impacted by the Project.

6.6.3 Assessment approach

As the Project is located on a local archaeological site, a Historic Heritage Impact Assessment would be prepared as per the NSW Heritage Manual (Heritage Office, 2001). The impact assessment would take into consideration and provide a summary of the relevant heritage work completed for the Site to date and complete an assessment to identify potential impacts appropriate management recommendations.

6.7 Hazards and risk

6.7.1 Existing environment

Existing process hazards within the Site are associated with the operation of the Kurnell Terminal and the storage and distribution of bulk petroleum products, including unleaded petrol (ULP), premium unleaded petrol (PULP), super premium unleaded petrol (SPULP), jet fuel, and diesel. The Site is a 'Major Hazards Facility.' The hazards related to the operation of the terminal have been previously assessed and are well understood.

6.7.2 Potential impacts

Installation, commissioning, and operation of battery energy storage can present hazards associated with overheating, fire, hazardous chemicals, and gas emissions.

An incident at the Kurnell Terminal (e.g. the failure of a storage tank, overfilling of a storage tank or a pipeline failure) could lead to a major fire or a vapour cloud explosion (VCE). A number of studies have been undertaken to support existing and previous onsite activities. R4 Risk (2023) found that within the Site, the individual risk of fatality from the terminal operations does not exceed one in a million per year. The impact of radiant heat from pool fires would affect areas close to the tanks, bunds, and pipeways.

The risk contour associated with this hazard does not extend far into the Site. In contrast, the risk contours of VCEs can extend further across the Investigation Area. Such an event could cause harm to personnel or equipment related to the Project.

6.7.3 Assessment approach

Relevant controls to reduce the likelihood and/ or consequence of these hazards would be identified to ensure risks are acceptable, including the best placement of the BESS within the Investigation Area. The Project's design will minimise risk from hazards through spacing and buffers as appropriate including for fire-fighting access as appropriate and in accordance with guidance for BESS developments.

A Preliminary Hazard Assessment (PHA), in line with DPE's *Hazardous Industry Advisory Paper (HIPAP) No 6, Guidelines for Hazard Analysis and their Multilevel Risk Assessment guideline* (2011), would examine the following:

- The potential risk impacts from the construction and operation of the Project onto the existing terminal operations
- The potential for identified Project-related risks to alter, individually or through interaction with existing terminal operations, the offsite risk profile of the Kurnell Terminal.

The PHA for the Project would be provided as part of the EIS.

6.8 Traffic, transport, and access

6.8.1 Existing environment

Captain Cook Drive is the major access road to the Kurnell Peninsula on the southern shore of Botany Bay from the wider Sydney road network. It is classed as a Regional road under the Roads Act and controlled by Sutherland Shire Council. It connects Taren Point Road to the west (and further to the Princes Highway via The Boulevard) with Prince Charles Parade and the suburb of Kurnell to the east. It has three lanes in each direction west of Gannons Road with a median strip separating each carriageway, reducing to two lanes in each direction and divided carriageways between Gannons Road and Elouera Road. It further decreases to an undivided carriageway with one lane in each direction east of Elouera Road to Kurnell. A location plan showing the surrounding road network can be found in Figure 6-5.

The Site is accessed predominantly from Solander Street; however, a secondary, unused access point is available from Sir Joseph Bank Drive. Both Solander Street and Sir Joseph Bank Drive connect to Captain Cook Drive and are local roads.

When the Site was a refinery, it used to have around 900 workers regularly driving to Site with up to 1,100 workers during maintenance periods. The Site currently has around 45 workers. As such the access and parking provisions at the Site will be suitable for any future workforce related to the Project.

The Investigation Area is serviced by the Route Number 987 bus service that is operated by Veolia. This service connects Kurnell to Cronulla train station, and operates on weekdays between 6am-6pm and during peak time it operates with a frequency of one service every 40 minutes. On weekends, this service operates between 8am-6pm and during peak time it operates with a frequency of one service every 60 minutes. The closest rail connection is Cronulla Station, located approximately 6 km south-west of the Investigation Area.

In terms of future development, there are no plans to upgrade Captain Cook Drive. The proposed Kamay Ferry Wharves, which will connect Kurnell and La Perouse, was approved in July 2022 and is due for construction in 2023-24. This project is part of the NSW Government's plans to improve visitor amenity and access, as part of the Kamay Botany Bay National Park Kurnell Master Plan, being implemented by the National Parks and Wildlife Service (DPE, 2019b). Further proposed transport links include a cruise ship terminal, which has been under investigation since 2004.

The Future Transport Strategy 2056 (Transport for NSW, 2022) includes provisions for improvements to the transport network in the wider Sydney area, on longer term timeframes. However, the proposed actions that are in closest proximity to the Investigation Area are improvements to the road, rail, and bus services between Kogarah and Miranda, with rail improvements extending to Cronulla.

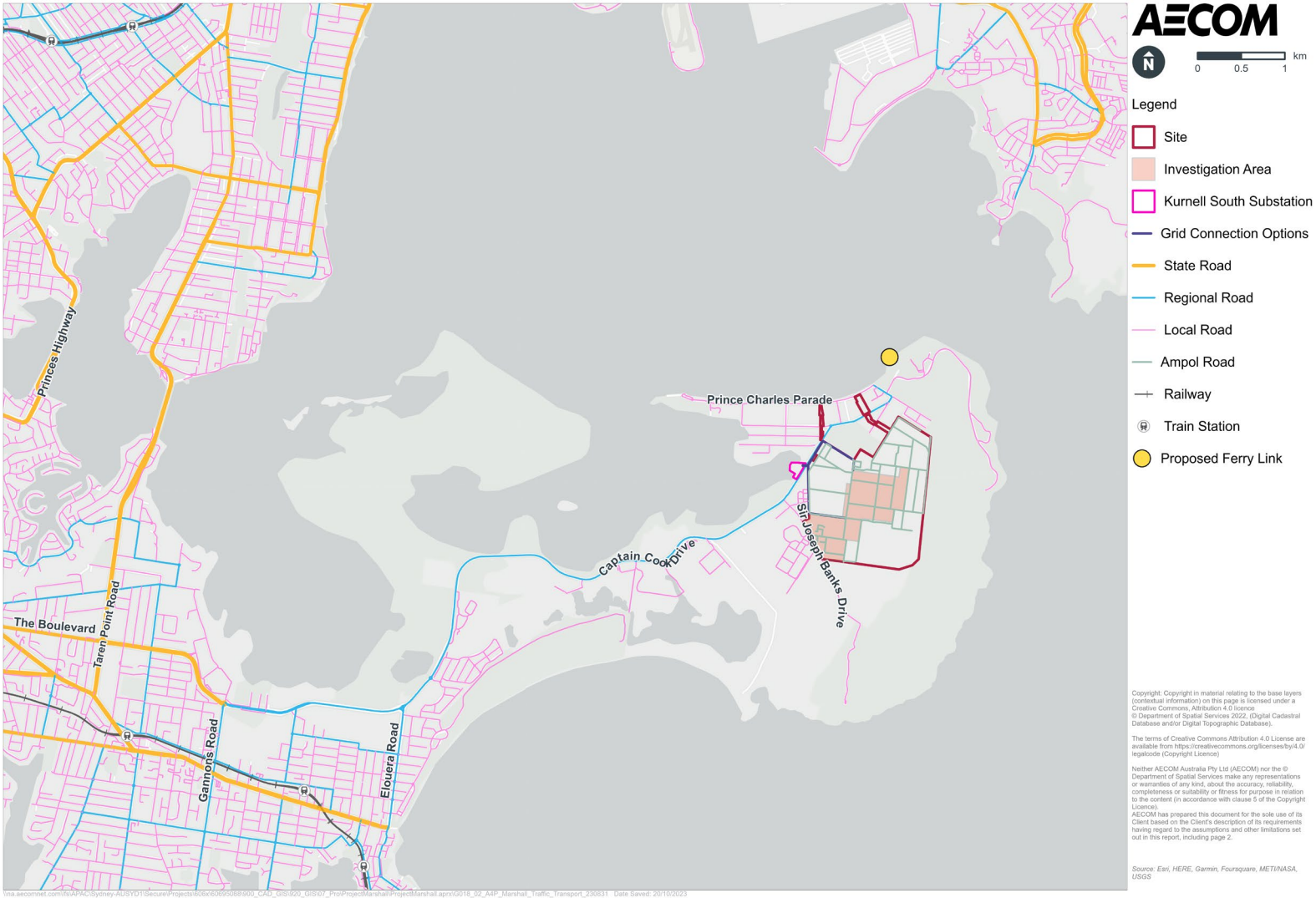

Figure 6-5. Traffic, transport, and access

6.8.2 Potential impacts

It is expected that construction of the Project would require:

- 500 light vehicles (LVs) movements per day
- 60 heavy vehicles (HVs) movements per day
- 20 escorted vehicles during the construction period.

The Project has the potential to impact upon traffic to and from the Kurnell Peninsula during construction. The following traffic and access impacts during construction of the Project have been identified:

- Increased traffic generation and congestion during construction
- Increased traffic congestion resulting from escorted vehicles.

No road upgrades are proposed as part of the Project. The grid connection may require works on the edge of road corridor but is likely to be horizontally directional drilled between the Site and the substation, resulting in no impact to Captain Cook Drive.

Operation of the Project (operational and maintenance aspects) would not result in large numbers of workers accessing the BESS facility (up to six on an intermittent basis). As such no significant impacts on the local road network during operation are likely.

6.8.3 Assessment approach

A traffic and transport assessment would be undertaken for the EIS to identify and understand traffic impacts and appropriate mitigation measures. This assessment would provide an assessment of construction traffic and the requirement for escorted vehicles. Few or no road upgrades are expected to be required, however this would be confirmed in the traffic and transport assessment.

6.9 Biodiversity

6.9.1 Existing environment

The original vegetation found on the Kurnell Peninsula has been extensively cleared. Only remnant patches of vegetation remain in some of the areas of more significant ecological value, including:

- Botany Bay
- Marton Park Woodland and Wetlands (a Groundwater Dependent Ecosystem which includes fringing Swamp Oak Floodplain Forest)
- Towra Point Nature Reserve (Ramsar wetland)
- Towra Point Aquatic Reserve
- Kamay Botany Bay National Park.

These areas are shown on Figure 6-6.

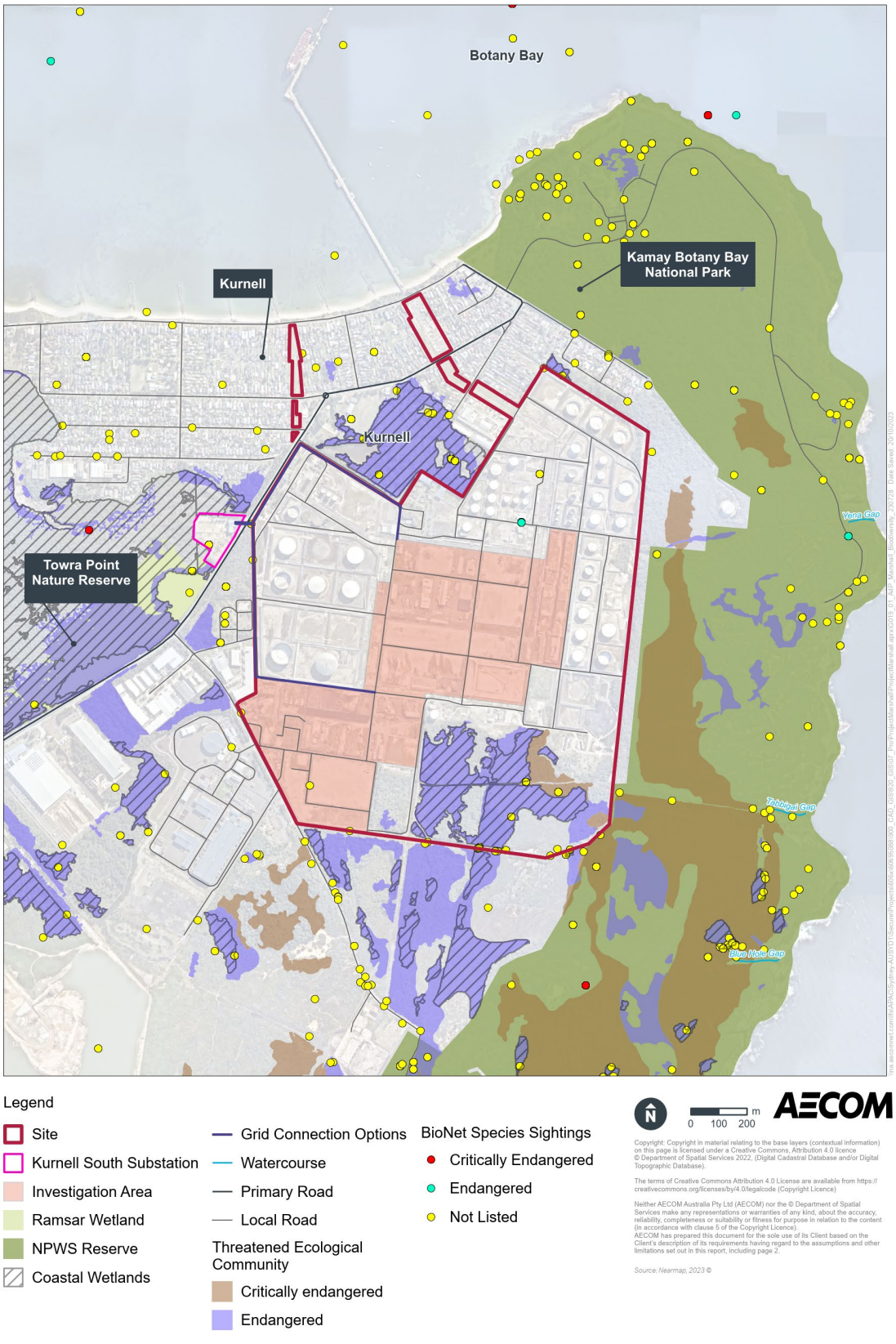

Figure 6-6. Biodiversity

The Towra Point Nature Reserve is a Ramsar site. The Ramsar Convention on Wetlands of International Importance is an international treaty for the conservation and sustainable use of Ramsar sites (wetlands). The Towra Point Nature Reserve site contains approximately half of the mangrove communities remaining in the Sydney region; these wetland communities are important as they provide habitat for over thirty species of migratory birds listed on the Japan-Australia Migratory Bird Agreement. The site is also a significant roosting and feeding site for wading and wetland birds in the Sydney region, with regular occurrence of: Eastern Curlew (*Numenius madagascariensis*) (Critically endangered under the EPBC Act), Pied Oystercatcher (*Haematopus ostralegus*) (Endangered under BC Act), and Little Tern (*Sterna albifrons*) (Endangered under BC Act), with the site also being a significant nesting site for the Little Tern.

The Investigation Area itself is devoid of vegetation and fauna habitat, and the Site has been highly modified by past and current disturbance related to the development and operation of the Kurnell Refinery since 1953 and the Kurnell Terminal since 2014. Much of the Site has been levelled using imported fill and other materials. Small areas of Plant Community Types (PCTs) are located on the boundary of the Investigation Area (Figure 6-7), though there are no Threatened Ecological Communities (TECs) associated with these.

Disturbed and developed areas within the Site contain ‘Cleared land and non-native vegetation’ and ‘Undifferentiated Regrowth,’ dominated by exotic plants and non-indigenous native plants. These areas do not contain any habitat resources of particular value for threatened or migratory species or other native flora and fauna. The Site may occasionally be occupied by mobile and generalist native species that are tolerant of human disturbance.

Small areas around the south-eastern and western boundaries of the Investigation Area are located within land designated as proximity areas for coastal wetlands (Figure 4-1). However, there is no habitat inside these areas that would contain vegetation and threatened species habitat that would have substantial value in maintaining the function of coastal wetlands.

6.9.2 Potential impacts

There is little to no potential for impact on biodiversity values within the Investigation Area during construction or operation. Any exotic or non-indigenous native plants that are present would be cleared prior to construction.

Indirect impacts related to noise or light are likely to be limited to construction activities, would be temporary and would occur close to the BESS facility. Works to install the grid connection would occur closer to more sensitive ecological areas but these would be minor and temporary in scale. Operational noise impacts would be assessed to understand whether indirect impacts are likely.

Ampol and Kurnell Energy are currently identifying an appropriate location for the Project within the Investigation Area and routes for the underground connection to Ausgrid’s 132 kV Kurnell South Zone Substation. Whilst direct construction and operational impacts are unlikely, indirect impacts may occur depending on the final location of the Project.

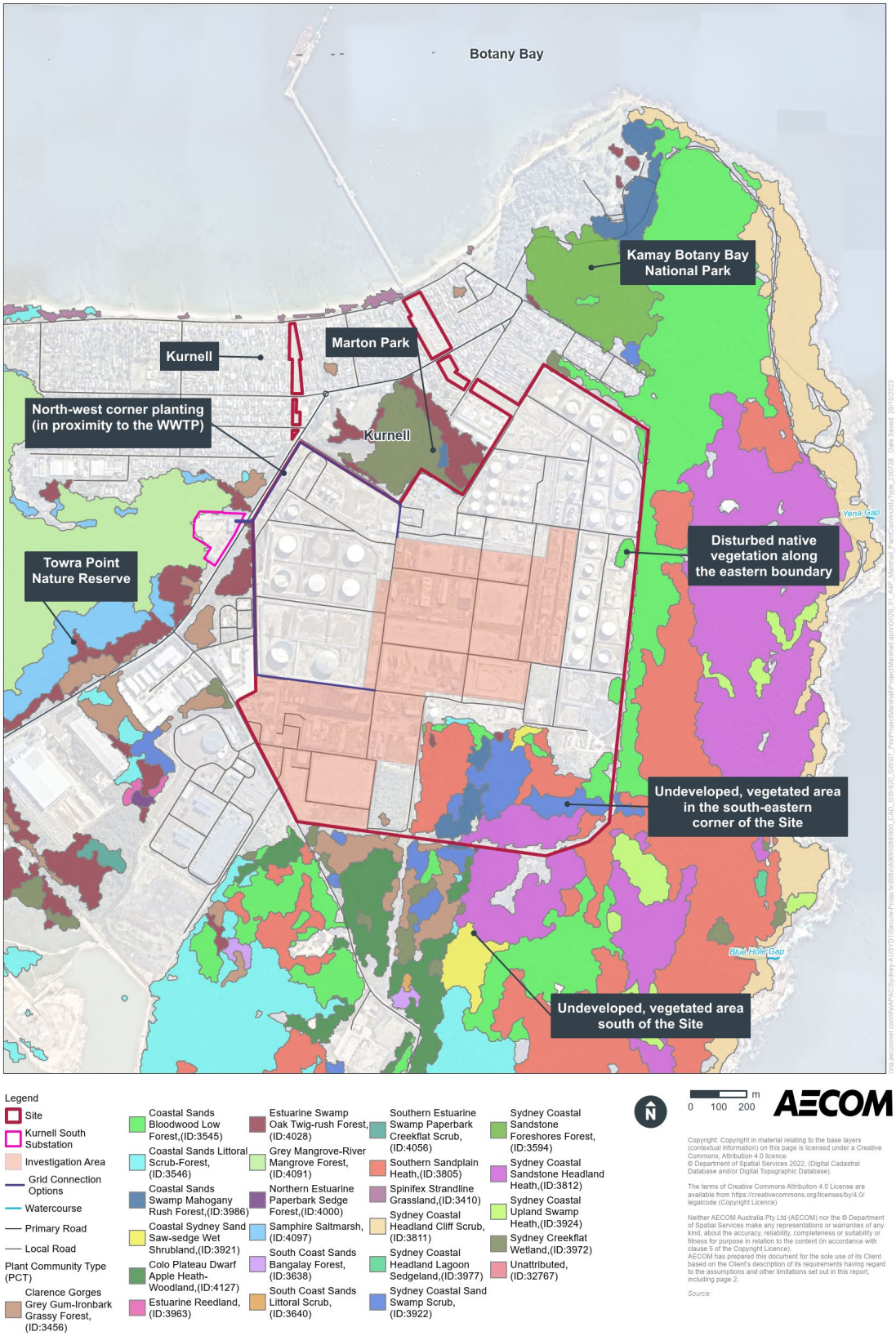

Figure 6-7. Plant community types

6.9.3 Assessment approach

There are two options for the biodiversity assessment approach. Given the limited biodiversity impacts expected, it is likely that a BDAR Waiver would be produced to support the SSD application and EIS. This is the most likely approach given that the Investigation Area has been identified to avoid significant impacts on biodiversity values.

If following confirmation of the BESS facility location and grid connection, the Project has the potential to significantly impact biodiversity values, then a BDAR would be produced to support the SSD application and EIS. The assessment of the potential impacts of the Project on ecological values would be completed in line with the Biodiversity Assessment Method (BAM) and would be documented within a BDAR as required by the BC Act.

6.10 Other matters

This section provides an overview of other environmental matters that, based on existing information and description of the Project, would require limited or no further assessment in the EIS.

Table 6-2. Summary of relevant information for other environmental matters

Environmental matter	Existing environment	Potential impacts	Level of assessment / Assessment approach
Socio-economic impacts	The Project is located within Sutherland Shire LGA, which has a population of about 230,000 (ABS, 2021) and is part of the Greater Sydney Area. The suburb of Kurnell was originally developed alongside and following construction of the refinery. As of 2021 (ABS, 2021), there were 1,242 workers in the suburb of Kurnell (accounting for about 65% of the population); of these, the most common careers were “Technicians and Trades Workers” (20%) and “Professionals” (17%). As a combined number of 2.5% of respondents said they either walked or cycled to work, it is assumed that very few people living in the suburb of Kurnell currently work in the Investigation Area. The suburb of Kurnell predominantly consists of residential properties with small areas of commercial enterprise, industrial uses and land used for parks and recreation. A total 45 of people are employed at the Site, in various operation, construction, and administration roles. As the work is shift-based, there may only be five people at the	A preliminary social impact scoping exercise has been undertaken to identify the likely social impacts and benefits of the Project. This involved an initial desktop assessment in the form of a Social Impact Assessment Scoping Worksheet, as provided by the *Social Impact Assessment Guideline for State Significant Development Projects* (DPE, 2023). The complete worksheet can be viewed at Appendix C. The following social and economic impacts have been considered as having potential to occur during the construction and operation of the Project: *Positive* • The employment of a construction workforce of up to 250 jobs. • Some job creation during the operation of the Project. • Benefits to nearby businesses, such as increased passing trade from construction workers and business trade opportunities during operation and maintenance activities.	A ‘minor’ social impact assessment (commensurate with the nature and location of the Project) would be prepared in accordance with the *Social Impact Assessment Guideline for State Significant Development Projects* (DPE, 2023).

Environmental matter	Existing environment	Potential impacts	Level of assessment / Assessment approach
	facility at one time, with others working from home.	*Negative* • Temporary disruptions to road users and potential changes to access for businesses. • Visual impact on the surrounding area (albeit industrial). • Impacts to nearby residents and businesses from construction activity such as increased noise and vibration, dust, and construction traffic. Construction workers are likely to commute to the Site, rather than staying in Kurnell, and therefore the impact of the influx of construction workers to the Kurnell community will not be considered further.	
Air quality and odour	A search of the National Pollutant Inventory (NPI), maintained by DCCEEW, undertaken on the 18 May 2023 using a 5 km radius from the Investigation Area, identified eight sources emitting 34 air pollutants within the 2021/ 2022 reporting period. These existing sources included the Kurnell Terminal, located adjacent to the Investigation Area, within the Site; and the desalination plant, located to the south-west of the Investigation Area boundary. The Kurnell Terminal specifically emitted the following substances: • Total Volatile Organic Compounds (VOCs) – 220,000 kg	There is potential for air quality to be impacted during construction of the Project. These would be short term and localised impacts involving fugitive emissions mainly during construction. These emissions would include: • Combustion emissions from construction machinery and vehicles • Dust emissions from earthworks and material / soil handling activities • VOC and other air quality or odour emissions resulting from excavation of contaminated material.	A qualitative consideration of construction phase air quality impacts would be completed, and mitigation measures would be recommended. These measures would be based on measures previously employed at the Site to manage construction activities.

Environmental matter	Existing environment	Potential impacts	Level of assessment / Assessment approach
	• Toluene (methylbenzene) – 1,200 kg • Xylenes (individual or mixed isomers) – 290 kg • Benzene – 380 kg • Cyclohexane – 250 kg. There may be remnant VOCs and hydrocarbons within the ground in the Investigation Area, though this risk has been minimised with ongoing remediation work following cessation of refining operations at the Site.	The potential air quality and odour impacts during construction can be managed using proven and accepted mitigation measures. Operational emissions would be limited in nature and relate to occasional maintenance activities. With appropriate mitigation air quality and odour impacts are expected to be negligible.	
Aviation	The Investigation Area is located 5 km south of Sydney Airport, with the airport's southern flight contour lying along the western boundary (Figure 6-8). The southern flight path is the only flight path around from Sydney Airport that does not have a night curfew; when the curfew is in place for all other flight paths (between 11pm and 6am), all aircraft must use the southern flight path. This forces flights to enter the Sydney airspace over Botany Bay and nonpopulated parts of the Kurnell Peninsula. The majority of the Investigation Area is affected by height restrictions due to the presence of the airport to the north, with restrictions being at their greatest in the western portion of the Investigation Area. The southern half of the Site is restricted to the following:	Flight craft using Sydney Airport have potential to be impacted if the height of construction equipment penetrates the PANS-OPS and OLS. Impacts would be related to hazards to air navigation. During construction, cranes would be required to install the prefabricated transformers. These transformers could be around 180 tonnes (T). As such, they would require a large crane to move into position. The crane could be up to 500 T and reach a maximum height of around 180 m. The maximum height of a built component of the Project would be the lightning rods at around 30 m above ground level (Section 3.3.1).	As discussed in Section 4.5.1, Ampol (and Kurnell Energy) will consult with CASA and the ABCP regarding the use of cranes and construction activities that may penetrate the PANS-OPS and OLS. Previous construction projects at the Site have required cranes that needed to penetrate the PANS-OPS and OLS. Mitigation measures are available to manage this risk. A qualitative consideration of aviation impacts would be completed and mitigation measures would be identified in consultation with CASA.

Environmental matter	Existing environment	Potential impacts	Level of assessment / Assessment approach
	• Procedures for air navigation services – aircraft operations (PANS-OPS): 68-85 m above ground level • Obstacle Limitation Surface (OLS): 115-119 m above ground level. The tallest existing structures in the Site are not expected to be this height. Former tall structures, such as the flare and CLOR, that were located on the Site had heights of about 60 m above ground level.		
Bushfire	A review of bushfire prone land indicates that the Investigation Area is not located on bushfire prone land, although land along the southern boundaries are part of the 100 m vegetation buffer for bushfire prone land (NSW Rural Fire Service, 2015) (Figure 6-9).	Potential bushfire hazards may occur during construction and operation of the Project; either from bushfire starting in adjacent vegetated areas and affecting the operation of the Project, or from fires starting in the BESS and increasing bushfire risk in adjacent vegetated areas. Appropriate fire identification and plant segregation would be incorporated into the design.	The risk of bushfire would be dependent on the location of the BESS site within the Investigation Area: • If the BESS is located on land within or adjacent to the 100 m vegetation buffer, a Bushfire Hazard Assessment will be prepared that meets the requirements of the NSW Rural Fire Service (RFS) document, *Planning for Bushfire Protection* (2019). This will include a review of bushfire risks and identify suitable management approaches, including infrastructure protection and Asset Protection Zones (APZ) with reference to relevant Australian guidelines, standards, and building codes (including AS 3959 and Fire engineering for temporary and permanent structures). • If the BESS is located on land outside of the 100 m vegetation buffer, a

Environmental matter	Existing environment	Potential impacts	Level of assessment / Assessment approach
			qualitative consideration of bushfire risks and impacts would be completed, and mitigation measures would be recommended.
Electro-magnetic fields (EMF)	Electricity powerlines, substations, transformers, and other electrical sources, such as common electrical appliances and wiring, all emit electric and magnetic fields (EMF). The Australian Radiation Protection and Nuclear Safety Agency (ARPNSA) considers that for substations and transformers, the magnetic fields at distances of 5-10 m away are generally indistinguishable from typical background levels in the home.	The Project will be design in line with AS/NZS 61000 *Electromagnetic Compatibility* standards. Transformers would be constructed within the BESS site and would generate EMF. However, as the Site is a controlled site and entry would be limited to authorised personnel trained in these hazards and hazard avoidance, human health risks from EMF are unlikely. The grid connection from the Project to Ausgrid's 132 kV Kurnell South Zone Substation would generate EMF. However, this would be constructed underground, and be located at least 130 m from residential receivers. As such, there are no risks from EMF.	As there are no risks expected from EMF. A consideration of EMF impacts from the Project is not required.
Visual amenity	The Investigation Area is located within the vacant land on the former Kurnell Refinery, and adjacent to existing operations of the Kurnell Terminal, with the whole Site comprising heavy industrial land uses. The Investigation Area is close to the Kamay Botany Bay National Park to the east and south. The section of the National Park closest to the fenced boundary of the Site is primarily native scrub, criss-crossed by walking paths and tracks. Along much of the	The Investigation Area is located within an industrial setting adjacent to the Kurnell Terminal, Sydney Desalination Plant, and other industrial uses. The Investigation Area is located away from residential areas. The existing Kurnell Terminal and Marton Park are located between the Investigation Area and the Kurnell township. Limited views of the Investigation area available from the National Park.	The EIS will include a qualitative discussion of visual impacts that may result from the Project, including a description of existing landscape character and sensitive visual receivers.

Environmental matter	Existing environment	Potential impacts	Level of assessment / Assessment approach
	boundary fence, the terminal infrastructure is set into a depression below the level of the surrounding parkland; as such, there are minimal views of the Site seen from the National Park. Former taller structures that were part of the refinery operations were seen from the coastal path in the National Park (Australian Museum Consulting, 2014).	Views to the Investigation Area are limited and would only be possible from motorists driving along Sir Joseph Banks Drive or down Solander Street, both of which are infrequent. On this basis no significant visual impacts are expected as a result of the Project. It is an industrial project in an industrial setting with limited visual receivers.	
Waste management	The Kurnell Terminal Operational Environmental Management Plan (OEMP) (as approved by DPE) is the primary document that informs how the Site identifies and provides management solutions for waste, among other potential environmental impacts arising from Terminal operations. Wastes generated from Ampol's existing Terminal operations in Kurnell are sorted and recycled where possible. Wastes designated as 'regulated or trackable' by NSW EPA are sent by licenced transport to a lawfully licensed waste facility for appropriate treatment and/or disposal, in accordance with the Terminal's Waste Management Sub-Plan of the OEMP.	Waste would be generated by the Project during both construction and operation, including: • Construction waste (including recyclable and non-recyclable materials) • Contaminated waste (by previous land uses) • General rubbish during construction and operation.	A high-level waste management assessment focusing on likely waste types would be provided as part of the EIS.

Figure 6-8. Aviation

Figure 6-9. Bushfire

6.11 Cumulative impacts

Cumulative impacts of the Project would be assessed in the EIS. The assessment would focus on residual impacts from the Project that have the potential to generate cumulative impacts with other proposed but not yet operational projects in the vicinity.

Searches of the DPE Major Projects database, the Sutherland Shire Council website, and other public authority websites were undertaken on 31 August 2023 to identify designated developments, publicly available Part 5 projects, or SSD and SSI projects within the vicinity of the Project that may be relevant for the EIS cumulative impact assessment. The projects that were identified are discussed in Table 6-3.

Table 6-3. Relevant existing/ future projects for cumulative impact assessment

Project	Assessment stage	Relevance
Kamay Ferry Wharves (SSI-10049)	Determination	Transport for NSW received approval reinstate ferry wharves at La Perouse and Kurnell in 2022 (SSI-10049). The Kurnell ferry site would be located along Monument Track, which is located approximately 1.25 km north of the Investigation Area. Expected haulage routes would be via Captain Cook Drive, across the 13-month construction period. On its own, construction impacts associated with the construction of Kamay Ferry Wharves are likely to be supported on the existing road network without impacting performance. Construction of the Project would also require construction traffic to travel along Captain Cook Drive, which may cause cumulative traffic and access impacts on the local roads if the construction programs for both projects overlap.
Breen Resource Recovery Facility (SSD-10412)	Response to submissions	Breen Resources Pty Ltd (Breen) is proposing to develop a new integrated resource recovery facility with associated on-site disposal of residual wastes, and land rehabilitation activities using recovered resources, between Captain Cook Drive and Lindum Road in Cronulla. The project also includes delivery of an activated and integrated community space in the form of the Embellished Marang Parklands Expected haulage routes would be via Captain Cook Drive, with traffic to be associated with delivery of machinery and employees, which may cause cumulative traffic and access impacts on the local roads if the construction programs for both projects overlap. During operation, daily traffic is expected to increase by about 600 to 1,100 vehicles on weekdays and 230 to 420 vehicles on weekends. As there would be minimal operational traffic attributed to the Project, there is not considered to be a cumulative operational traffic impact.
Woolooware to Kurnell Tower Replacement Project	Preparing the Review of Environmental Factors (REF)	Ausgrid is currently planning the replacement of 26 existing transmission towers with poles and move the existing cables onto the new poles between Woolooware and Kurnell. This will involve transferring the overhead cables to the new transmission towers, removing the old transmission towers, and restoring impacted areas.

Project	Assessment stage	Relevance
		The Review of Environmental Factors (REF) has not yet been prepared. Construction is likely to commence in late 2023 and be completed during 2024. The cumulative environmental impact of this work will be considered in the EIS.
Cronulla Town Centre Stage 2 – Plaza Upgrade	Construction commenced in July 2023	Sutherland Shire Council are upgrading the Cronulla Town Centre Plaza, with construction expected to complete in June 2024 (weather permitting). The REF indicates that there will be a negligible impact during construction. It is unlikely that construction vehicles would use Captain Cook Drive to access Cronulla Town Centre, and therefore there is not considered to be a cumulative operational traffic impact.

The Project may generate cumulative noise and traffic impacts with the Kamay Ferry Wharves project, Breen Resource Recovery Facility and the Woolooware to Kurnell Tower Replacement Project especially during construction of the projects. The traffic assessments would include consideration of potential cumulative impacts, and these would be summarised in the EIS in accordance with the *Cumulative Impacts Assessment Guidelines for State Significant Development Projects* (DPE, 2022b).

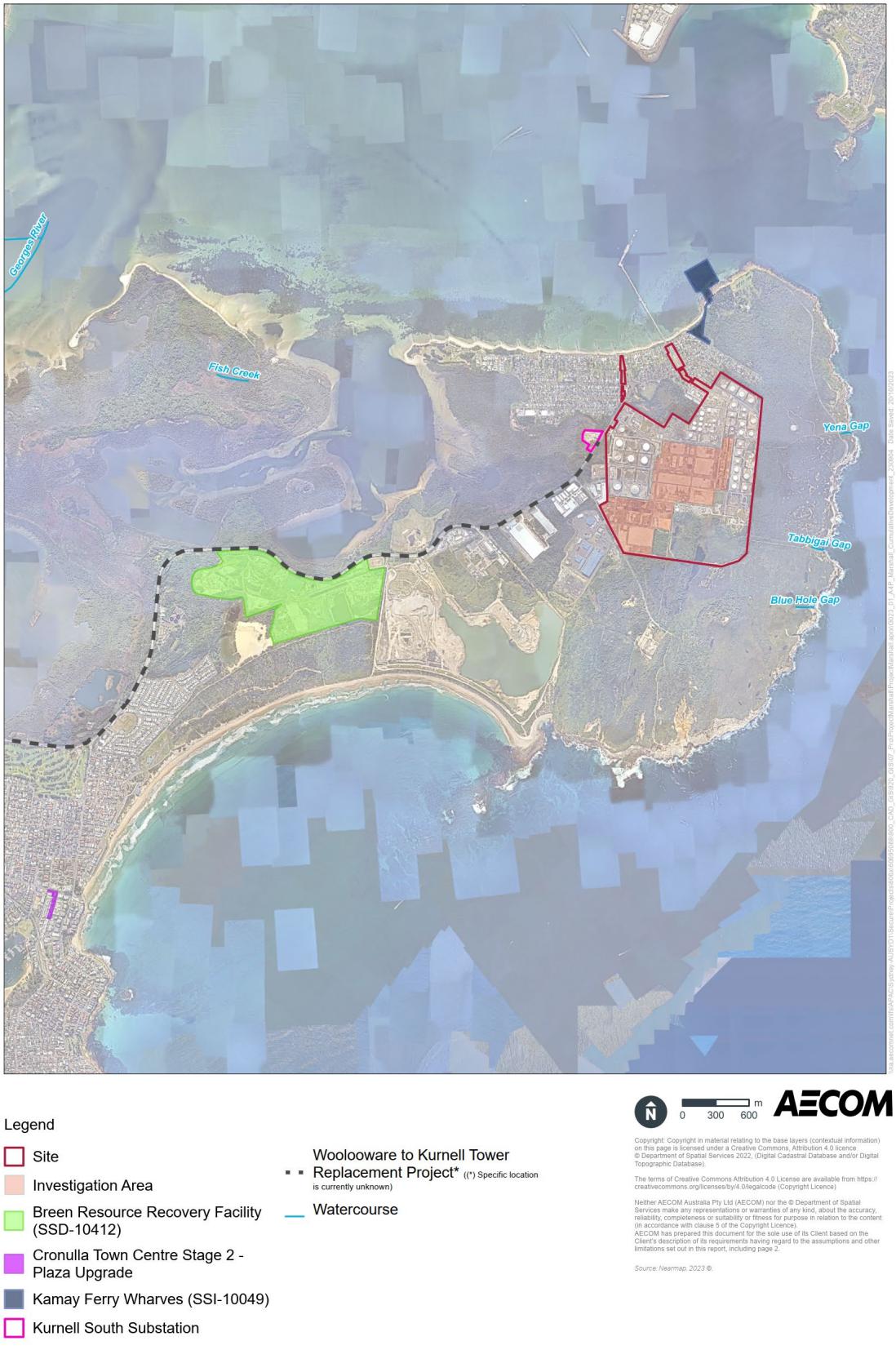

Figure 6-10. Cumulative projects

7.0 Conclusion

Kurnell Energy is seeking development consent for the Project as SSD under Division 4.7 of the EP&A Act in order to construct and operate a BESS with a capacity of 800 MW in capacity and up to 3,800 MWh in duration within the Kurnell Terminal. The Project would involve the installation of an underground grid connection from the BESS to Ausgrid's 132 kilovolt (kV) Kurnell South Zone Substation on Captain Cook Drive. An area within the Site has been identified for development, and Ampol and Kurnell Energy are currently identifying an appropriate location for the Project within the Investigation Area and routes for the underground grid connection.

This Scoping Report has been prepared in accordance with *State significant development guidelines – preparing a scoping report* (DPE, 2022a), in support of an application for SEARs for the Project.

Key matters that have been identified for further detailed assessment during the preparation of the EIS are:

- Hazards and risk
- Geology, soils, groundwater, and contamination
- Noise and vibration
- Non-aboriginal heritage
- Surface water and flooding
- Traffic
- Aboriginal Cultural Heritage Assessment.
- Bushfire

Other matters that will be considered in the EIS are likely to include:

- Air quality
- Aviation
- Biodiversity
- Electro-magnetic fields (EMF)
- Social
- Visual assessment
- Waste.

In assessing the Project, the key focus would be avoidance and minimisation of potential impacts on the environment and local communities, where practicable and feasible, when taking into consideration engineering constraints and cost implications. The assessment would also identify mitigation and management measures to minimise potential impacts on the environment during construction and operation of the Project. Consultation with stakeholders and the local community would continue throughout the Project assessment, design, and construction phases.

It is requested that DPE confirm the Project as SSD and issue SEARs to enable an EIS to be prepared.

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Appendix A

Scoping summary table

Table A.1. Scoping summary table

Matter	Level of assessment	Cumulative impact assessment	Engagement	Relevant government plans, policies, and guidelines	Scoping Report reference
Geology, soils, groundwater, and contamination	Detailed	No	General	• *National Environment Protection (Assessment of Site Contamination) Measure* (National Environment Protection Council, 2011) • *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (Environment Protection Authority, 2015) • *Guidelines for the Assessment and Management of Groundwater Contamination* (NSW Environment Protection Authority, 2007)	Section 6.2
Surface water and flooding	Detailed	No	General	• *Managing Urban Stormwater: Soils and Construction – Volume 1* (Landcom, 2004) • *Australian and New Zealand guidelines for fresh and marine water quality* (ANZECC & ARMCANZ, 2000) • *Acid Sulfate Soils Assessment Guidelines* (Acid Sulfate Soils Management Advisory Committee, 1998)	Section 6.3
Noise and vibration	Detailed	Yes	General	• *Noise Policy for Industry* (Environment Protection Authority, 2017) • *Interim Construction Noise Guideline* (Department of Environment, Climate Change and Water, 2019) • *NSW Road Noise Policy* (Department of Environment, Climate Change and Water, 2011) • *Assessing vibration: A technical guideline* (Department of Environment, Climate Change and Water, 2006)	Section 6.4
Aboriginal heritage	Detailed	No	Specific (with LALC)	• *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (Office of Environment and Heritage, 2011)	Section 6.5

Matter	Level of assessment	Cumulative impact assessment	Engagement	Relevant government plans, policies, and guidelines	Scoping Report reference
				• *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (Department of Environment, Climate Change and Water, 2010)	
Non-Aboriginal heritage	Detailed	No	General	• *Assessing Significant for Historical Archaeological Sites and 'Relics'* (Heritage Branch of the Department of Planning, 2009)	Section 6.5.3
Hazards and risk	Detailed	No	General	• *Assessment Guideline: Multi-Level Risk Assessment* (Department of Planning and Infrastructure, 2011) • *Hazardous Industry Planning Advisory Paper No. 4 – Hazard Analysis* (HIPAP 4) • *Hazardous Industry Planning Advisory Paper No. 6 – Hazard Analysis* (HIPAP 6)	Section 6.7
Traffic, transport, and access	Detailed	Yes	General	• *Guide to traffic management Part 12: Integrated Transport Assessments for Developments* (Austroads, 2020)	Section 6.8
Biodiversity	Standard	No	General	• *Biodiversity Assessment Method* (Department of Planning, Industry and Environment, 2020)	Section 6.9
Social	Standard	Yes	Specific	• *Social Impact Assessment Guideline – For State Significant Developments* (Department of Planning and Environment, 2021)	Section 6.10
Air quality and odour	Standard	No	General	• N/A	Section 6.10
Aviation	Standard	No	General	• *National Airports Safeguarding Framework principles and guidelines* (Infrastructure, 2019)	Section 6.10
Bushfire	Standard	No	General	• *Planning for Bushfire Protection* (NSW Rural Fire Service, 2019)	Section 6.10

Matter	Level of assessment	Cumulative impact assessment	Engagement	Relevant government plans, policies, and guidelines	Scoping Report reference
EMF	Standard	No	General	• *EMF Management Handbook* (Energy Networks Association, 2016) • *Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz* (Australian Radiation Protection Agency and Nuclear Safety Agency, 2021)	Section 6.10
Visual amenity	Standard	No	General	• *Guidelines for Landscape and Visual Impact Assessment – 3rd Edition* (Institute of Environmental Management and Assessment, 2013)	Section 6.10
Waste management	Standard	No	General	• *Waste Classification Guidelines Part 1: Classifying Waste* (NSW Environment Protection Authority, 2014) • *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021* (NSW Environment Protection Authority, 2014)	Section 6.10

Appendix B

Protected Matters of National Environmental Significance

EPBC Act Protected Matters Report

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. Please see the caveat for interpretation of information provided here.

Report created: 31-Aug-2023

Summary

Matters of National Environment 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.

World Heritage Properties:	None
National Heritage Places:	2
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	7
Listed Threatened Species:	93
Listed Migratory Species:	82

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. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

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.

Commonwealth Lands:	3
Commonwealth Heritage Places:	1
Listed Marine Species:	106
Whales and Other Cetaceans:	14
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	5
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	18
Key Ecological Features (Marine):	None
Biologically Important Areas:	3
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

National Heritage Places			[Resource Information]
Name	State	Legal Status	Buffer Status
Historic			
Kamay Botany Bay: botanical collection sites	NSW	Listed place	In feature area
Kurnell Peninsula Headland	NSW	Listed place	In feature area

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Towra point nature reserve	Within Ramsar site	In feature area

Listed 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.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community may occur within area	In buffer area only
Coastal Upland Swamps in the Sydney Basin Bioregion	Endangered	Community likely to occur within area	In feature area
Eastern Suburbs Banksia Scrub of the Sydney Region	Critically Endangered	Community likely to occur within area	In feature area
Posidonia australis seagrass meadows of the Manning-Hawkesbury ecoregion	Endangered	Community likely to occur within area	In buffer area only
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community may occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat may occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
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	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area	In feature area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pterodroma leucoptera leucoptera Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In feature area
Pterodroma neglecta neglecta Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche impavida			
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris			
Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini			
Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi			
White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
FISH			
Epinephelus daemelii			
Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hippocampus whitei			
White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat known to occur within area	In feature area
Macquaria australasica			
Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area	In feature area
Prototroctes maraena			
Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Seriolella brama			
Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In feature area
Thunnus maccoyii			
Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
FROG			

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Litoria aurea](#)			
Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area	In feature area
MAMMAL			
[Balaenoptera borealis](#)			
Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Balaenoptera musculus](#)			
Blue Whale [36]	Endangered	Species or species habitat may occur within area	In feature area
[Balaenoptera physalus](#)			
Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Chalinolobus dwyeri](#)			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Dasyurus maculatus maculatus (SE mainland population)](#)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
[Eubalaena australis](#)			
Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area
[Isoodon obesulus obesulus](#)			
Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat likely to occur within area	In feature area
[Notamacropus parma](#)			
Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area	In feature area
[Petauroides volans](#)			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
[Petaurus australis australis](#)			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus			
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
OTHER			
Dendronephthya australis			
Cauliflower Soft Coral [90325]	Endangered	Species or species habitat known to occur within area	In buffer area only
PLANT			
Acacia terminalis subsp. Eastern Sydney (G.P.Phillips 126) listed as Acacia terminalis subsp. terminalis MS			
Sunshine Wattle (Sydney region) [91564]	Endangered	Species or species habitat known to occur within area	In feature area
Caladenia tessellata			
Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calochilus pulchellus			
Pretty Beard Orchid, Pretty Beard-orchid [84677]	Endangered	Species or species habitat may occur within area	In feature area
Cryptostylis hunteriana			
Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eucalyptus camfieldii			
Camfield's Stringybark [15460]	Vulnerable	Species or species habitat may occur within area	In feature area
Genoplesium baueri			
Yellow Gnat-orchid, Bauer's Midge Orchid, Brittle Midge Orchid [7528]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Melaleuca biconvexa Biconvex Paperbark [5583]	Vulnerable	Species or species habitat may occur within area	In feature area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Prostanthera densa Villous Mintbush [12233]	Vulnerable	Species or species habitat may occur within area	In feature area
Pterostylis sp. Botany Bay (A.Bishop J221/1-13) Botany Bay Bearded Greenhood, Botany Bay Bearded Orchid [64965]	Endangered	Species or species habitat likely to occur within area	In feature area
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area	In feature area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat known to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dermochelys coriacea			
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
Eretmochelys imbricata			
Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Natator depressus			
Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
SHARK			
Carcharias taurus (east coast population)			
Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Carcharodon carcharias			
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Galeorhinus galeus			
School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In feature area
Rhincodon typus			
Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In feature area
Sphyrna lewini			
Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
SNAIL			
Meridolum maryae			
Maroubra Woodland Snail, Maroubra Land Snail [89884]	Endangered	Species or species habitat known to occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Anous stolidus			
Common Noddy [825]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In feature area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In feature area
Phoebetria fusca Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area
Sternula albifrons Little Tern [82849]		Breeding likely to occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Thalassarche salvini](#) Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
[Thalassarche steadi](#) White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Migratory Marine Species			
[Balaenoptera borealis](#) Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Balaenoptera edeni](#) Bryde's Whale [35]		Species or species habitat may occur within area	In feature area
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Species or species habitat may occur within area	In feature area
[Balaenoptera physalus](#) Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Caperea marginata](#) Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In feature area
[Carcharhinus longimanus](#) Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In feature area
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area
Lagenorhynchus obscurus Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In feature area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area	In feature area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In feature area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Orcinus orca](#) Killer Whale, Orca [46]		Species or species habitat likely to occur within area	In feature area
[Rhincodon typus](#) Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Terrestrial Species			
[Cuculus optatus](#) Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat likely to occur within area	In feature area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
[Myiagra cyanoleuca](#) Satin Flycatcher [612]		Species or species habitat likely to occur within area	In feature area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
[Symposiachrus trivirgatus as Monarcha trivirgatus](#) Spectacled Monarch [83946]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
[Arenaria interpres](#) Ruddy Turnstone [872]		Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
[Calidris alba](#) Sanderling [875]		Roosting known to occur within area	In feature area
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat likely to occur within area	In feature area
[Calidris ruficollis](#) Red-necked Stint [860]		Roosting known to occur within area	In feature area
[Calidris subminuta](#) Long-toed Stint [861]		Roosting known to occur within area	In feature area
[Calidris tenuirostris](#) Great Knot [862]	Critically Endangered	Roosting known to occur within area	In feature area
[Charadrius bicinctus](#) Double-banded Plover [895]		Roosting known to occur within area	In feature area
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Charadrius mongolus](#) Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
[Charadrius veredus](#) Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area	In feature area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area	In feature area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area	In feature area
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area	In feature area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
Tringa incana Wandering Tattler [831]		Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area
Xenus cinereus			
Terek Sandpiper [59300]		Roosting known to occur within area	In feature 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.

Commonwealth Land Name	State	Buffer Status
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [12058]	NSW	In feature area
Commonwealth Land - Australian Telecommunications Commission [12059]	NSW	In feature area
Transport and Regional Services - Airservices Australia		
Commonwealth Land - Airservices Australia [12057]	NSW	In buffer area only

Commonwealth Heritage Places [Resource Information]

Name	State	Status	Buffer Status
Historic			
Cape Baily Lighthouse	NSW	Listed place	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus			
Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
Calidris alba Sanderling [875]		Roosting known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In feature area
Calidris subminuta Long-toed Stint [861]		Roosting known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area overfly marine area	In feature area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In feature area
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In feature area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Roosting known to occur within area overfly marine area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In feature area
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area overfly marine area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area overfly marine area	In feature area
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Numenius minutus](#) Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area	In feature area
[Numenius phaeopus](#) Whimbrel [849]		Roosting known to occur within area	In feature area
[Pachyptila turtur](#) Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat known to occur within area	In feature area
[Phaethon lepturus](#) White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In feature area
[Phoebetria fusca](#) Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In feature area
[Pluvialis fulva](#) Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
[Pluvialis squatarola](#) Grey Plover [865]		Roosting known to occur within area overfly marine area	In feature area
[Pterodroma cervicalis](#) White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
[Recurvirostra novaehollandiae](#) Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Stercorarius antarcticus as Catharacta skua Brown Skua [85039]		Species or species habitat may occur within area	In buffer area only
Sterna striata White-fronted Tern [799]		Foraging, feeding or related behaviour likely to occur within area	In feature area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Breeding likely to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat may occur within area overfly marine area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri platei as Thalassarche sp. nov. Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
Tringa incana as Heteroscelus incanus Wandering Tattler [831]		Roosting known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area overfly marine area	In feature area
Fish			
Acentronura tentaculata Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Festucalex cinctus Girdled Pipefish [66214]		Species or species habitat may occur within area	In feature area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area	In feature area
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In feature area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area	In feature area
Hippocampus abdominalis Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233]		Species or species habitat may occur within area	In feature area
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat known to occur within area	In feature area
Histiogamphelus briggsii Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]		Species or species habitat may occur within area	In feature area
Lissocampus runa Javelin Pipefish [66251]		Species or species habitat may occur within area	In feature area
Maroubra perserrata Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In feature area
Notiocampus ruber Red Pipefish [66265]		Species or species habitat may occur within area	In feature area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area	In feature area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area	In feature area
Solenostomus paradoxus Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area	In feature area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In feature area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In feature area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In feature area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area	In feature area
Urocampus carinirostris Hairy Pipefish [66282]		Species or species habitat may occur within area	In feature area
Vanacampus margaritifer Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In feature area
Mammal			
Arctocephalus forsteri Long-nosed Fur-seal, New Zealand Fur-seal [20]		Species or species habitat may occur within area	In feature area
Arctocephalus pusillus Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dugong dugon Dugong [28]		Species or species habitat may occur within area	In feature area
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding likely to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area	In buffer area only

Whales and Other Cetaceans			[Resource Information]
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area	In feature area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat may occur within area	In feature area

Current Scientific Name	Status	Type of Presence	Buffer Status
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Species or species habitat may occur within area	In feature area
[Balaenoptera physalus](#) Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
[Caperea marginata](#) Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In feature area
[Delphinus delphis](#) Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In feature area
[Eubalaena australis](#) Southern Right Whale [40]	Endangered	Species or species habitat known to occur within area	In feature area
[Grampus griseus](#) Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In feature area
[Lagenorhynchus obscurus](#) Dusky Dolphin [43]		Species or species habitat may occur within area	In feature area
[Megaptera novaeangliae](#) Humpback Whale [38]		Species or species habitat known to occur within area	In feature area
[Orcinus orca](#) Killer Whale, Orca [46]		Species or species habitat likely to occur within area	In feature area
[Tursiops aduncus](#) Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In feature area
[Tursiops truncatus s. str.](#) Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Boat Harbour	Aquatic Reserve	NSW	In buffer area only
Cape Banks	Aquatic Reserve	NSW	In buffer area only
Kamay Botany Bay	National Park	NSW	In feature area
Towra Point	Nature Reserve	NSW	In feature area
Towra Point	Aquatic Reserve	NSW	In feature area

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Towra Point Estuarine Wetlands	NSW	In feature area

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Kurnell Sand Extraction and Backfilling Proposal	2002/631	Controlled Action	Completed	In feature area
Sand Reclamation to Towra Beach	2003/1085	Controlled Action	Post-Approval	In feature area
Not controlled action				
Botany Bay Cable Project	2007/3552	Not Controlled Action	Completed	In feature area
Carbon Black Plant Upgrade	2006/2785	Not Controlled Action	Completed	In feature area
Construction Of Two New Fuel Processing Plants On Existing Site	2003/1243	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Industrial Subdivision	2004/1859	Not Controlled Action	Completed	In feature area
Industrial Subdivision, 262-276 Captain Cook Drive	2004/1899	Not Controlled Action	Completed	In feature area
Installation of viewing platform	2005/2138	Not Controlled Action	Completed	In feature area
Noxious weed removal and controlled burn	2003/1272	Not Controlled Action	Completed	In feature area
Rabbit Control Anzac Rifle Range	2005/1940	Not Controlled Action	Completed	In feature area
Shipment of Spent Nuclear Fuel to USA	2007/3672	Not Controlled Action	Completed	In feature area
Sydney Desalination Plant	2005/2331	Not Controlled Action	Completed	In feature area
Taleb Property Pty Ltd, Tempe Tyres Warehouse project, Captain Cook Drive, Kurnell	2017/8068	Not Controlled Action	Completed	In feature area
Undertake a controlled burn of the Eastern Suburbs Banksia Scrub at Byrne Cresce	2004/1728	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Referral decision				
Breeding program for Grey Nurse Sharks	2007/3245	Referral Decision	Completed	In feature area

Biologically Important Areas			
Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Likely to occur	In feature area
Sharks			
Carcharias taurus			
Grey Nurse Shark [64469]	Foraging	Known to occur	In feature area
Whales			
Megaptera novaeangliae			
Humpback Whale [38]	Foraging	Known to occur	In feature area

Bioregional Assessments

SubRegion	BioRegion	Website	Buffer Status
Sydney	Sydney Basin	BA website	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and 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.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

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:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Appendix C

SIA scoping table

Social Impact Assessment (SIA) Worksheet

Project name: Project Marshall

Date: 20-Oct-2023

PROJECT ACTIVITIES	CATEGORIES OF SOCIAL IMPACTS	POTENTIAL IMPACTS ON PEOPLE		PREVIOUS INVESTIGATION OF IMPACT		CUMULATIVE IMPACTS		ELEMENTS OF IMPACTS - Based on preliminary investigation					ASSESSMENT LEVEL FOR EACH IMPACT				PROJECT REFINEMENT	MITIGATION / ENHANCEMENT MEASURES
Which **project activity / activities** could produce social impacts ?	what **social impact categories** could be affected by the project activities	What impacts are likely, and what concerns/aspirations have people expressed about the impact? Summarise how each relevant stakeholder group might experience the impact. **NB. Where there are multiple stakeholder groups affected differently by an impact, or more than one impact from the activity, please add an additional row.**	Is the impact expected to be **positive or negative**	Has this impact previously been investigated (on this or other project/s)?	If "yes - this project," briefly describe the previous investigation. If "yes - other project," identify the other project and investigation	Will this impact combine with others from this project (think about when and where), and/or with impacts from other projects (cumulative)?	If yes, identify which other impacts and/or projects	Will the project activity (without mitigation or enhancement) cause a material social impact in terms of its: You can also consider the various magnitudes of these characteristics					Level of assessment for each social impact	What methods and data sources will be used to investigate this impact?			Has the project been refined in response to preliminary impact evaluation or stakeholder feedback?	What **mitigation / enhancement measures** are being considered?
								extent i.e. number of people potentially affected?	**duration** of expected impacts? (**i.e. construction vs operational phase**)	**intensity** of expected impacts i.e. scale or degree of change?	**sensitivity** or vulnerability of people potentially affected?	**level of concern/interest** of people potentially affected?		Secondary data	Primary Data - Consultation	Primary Data - Research		
Construction: traffic impacts to residents	way of life	Potential disruptions to way of life for individuals and the community, caused by temporary disruptions to road users (including pedestrians and cyclists), and potential changes to access for private properties, businesses and social infrastructure	Negative	No	Kurnell Refinery Conversion (2013) and Kurnell Refinery Demolition (2014) -traffic impacts were considered	No	Not required	No	No	Unknown	No	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	Not yet but will be investigated at the EIS stage	Assessment and management of traffic impacts will be provided in the EIS chapter and Traffic and Transport Impact Assessment Report.
Construction: impacts to heritage values	culture	Potential for minor changes to connections to Country for Aboriginal communities, natural values or heritage items, resulting in impacts to cultural elements which are valued by the community	Negative	Yes - other project	Kurnell Jet Fuel B Line Project (2011) - considered the impact upon Aboriginal values. Consultation undertaken. Kurnell Refinery Conversion (2013) - considered the impact upon Aboriginal values. Consultation undertaken. Kurnell Permanent Soil Regen Project (2015) - considered the impact upon Aboriginal values. No consultation undertaken. Kurnell ACS Management Project (2016) - considered the impact upon Aboriginal values. No consultation undertaken.	No	Not required	No	No	Unknown	Yes	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	Not yet but will be investigated at the EIS stage	Assessment of Aboriginal heritage impacts will be provided as part of the EIS. Interested Aboriginal parties will be consulted as part of the ACHAR process
Construction: impacts to non-Aboriginal heritage values	culture	Potential for changes to non-Aboriginal heritage items of local importance - Australian Oil Refinery (#A2524), resulting in impacts to cultural elements which are valued by the community	Negative	No	Kurnell Jet Fuel B Line Project (2011) - considered the impact upon non-Aboriginal values. Consultation undertaken with local Council. Kurnell Refinery Conversion (2013) - considered the impact upon non-Aboriginal heritage sites. Consultation undertaken with local Council and management discussed Kurnell Refinery Demolition (2014) - considered the impact upon non-Aboriginal heritage sites. Consultation undertaken with local Council.	No	Not required	No	No	Unknown	No	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	Not yet but will be investigated at the EIS stage	Assessment of non-Aboriginal heritage impacts will be provided as part of the EIS chapter. The Sutherland Shire Council will be consulted regarding the heritage listing
Construction: health and wellbeing impacts	health and wellbeing	Potential temporary health and wellbeing impacts for those who live or use areas within the vicinity of construction activities, such as direct impacts to health associated with dust or ongoing construction noise, or stress from ongoing amenity impacts (negative), or reliving previous environmental impacts caused by Ampol at the Site	Negative	No	Kurnell Refinery Conversion (2013) and Kurnell Refinery Demolition (2014) - noise and other amenity impacts were considered	No	Not required	No	No	Unknown	No	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	Not yet but will be investigated at the EIS stage	Assessment and management of noise and vibration, air quality, visual, etc. will be provided as part of their respective EIS chapters and specific reports. Discussion with affected residents. SIA specific mitigations to be developed as required.
Construction: impacts to surroundings	surroundings	Adverse impacts to community members and visitors' sense of place in areas subject to amenity impacts. However, the Site is already industrial, so there will minimal changes to the use and amenity	Negative	No		No	Not required	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Not yet but will be investigated at the EIS stage	Assessment and management of noise and vibration, air quality, visual, etc. will be provided as part of their respective EIS chapters and specific reports. Discussion with affected residents. SIA specific mitigations to be developed as required.
Construction: impacts to surroundings	surroundings	Potential visual impact for users of the adjacent National Park. However, views back to the Site are limited, the Site is already industrial and the project would not greatly affect the current setting	Negative	No		No	Not required	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Not yet but will be investigated at the EIS stage	Assessment and management of visual impacts will be provided as part of the EIS.
Construction: impacts to surroundings	surroundings	Potential impacts on residents located close to construction activity due to increased noise and vibration, dust and construction traffic	Negative	No		No	Not required	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Not yet but will be investigated at the EIS stage	Assessment and management of traffic, noise and vibration, air quality, etc. will be provided as part of their respective EIS chapters and specific reports. Discussion with affected residents. SIA specific mitigations to be developed as required.
Construction: impacts to livelihoods	livelihoods	Potential benefits to businesses, including benefit from a net gain in passing trade (depending on the business location) during construction owing to the presence of construction workers (this was previously experienced during the Conversion and Demolition projects at the Site).	Positive	No	Kurnell Refinery Conversion (2013) and Kurnell Refinery Demolition (2014) - experienced during the construction works.	No	Not required	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Not yet but will be investigated at the EIS stage	Consultation with business groups to understand local impacts of the development and how they may be enhanced
Construction: impacts to livelihoods	livelihoods	Potential benefits for local construction related businesses, such as construction recruitment agencies, construction companies and resource suppliers	Positive	Yes - other project	Kurnell Refinery Conversion (2013) - considered the impact of benefits for the construction industry	No	Not required	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Not yet but will be investigated at the EIS stage	Consultation with business groups to understand local impacts of the development and how they may be enhanced
Construction: impacts to livelihoods	livelihoods	Direct and indirect employment opportunities in the area, for example to supply goods, services and materials to the project's construction, which can positively influence the local community's capacity to earn an income in the area	Positive	Yes - other project	Kurnell Refinery Conversion (2013) - considered the impact of benefits for the construction industry	No	Not required	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Not yet but will be investigated at the EIS stage	Consultation with business groups to understand local impacts of the development and how they may be enhanced
Construction: impacts to decision making systems	decision-making systems	Community members may express dissatisfaction with their ability to influence the strategic decision making and construction methodology or planning for the project	Negative	No		No	Not required	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Not yet but will be investigated at the EIS stage	Consultation with interested community members as part of project development
Construction: cumulative impacts		Potential for combined and consecutive social impacts on the community with other projects under construction nearby. Specifically noise and vibration, and cumulative traffic impacts are likely to be of concern to residents in Kurnell.	Negative	No		No	Not required	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Not yet but will be investigated at the EIS stage	Consideration of cumulative amenity impacts throughout EIS and consideration within SIA in a social context.
Operation: amenity impacts	community	Potential reductions in amenity in the proximity of the project, such as noise impacts of BESS (and potential changes in visual amenity)	Negative	No		No	Not required	No	No	Unknown	No	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	Not yet but will be investigated at the EIS stage	Assessment and management of traffic, noise and vibration, air quality, etc. will be provided as part of their respective EIS chapters and specific reports. Discussion with affected residents. SIA specific mitigations to be developed as required.
Operation: impacts to health and wellbeing	health and wellbeing	Potential health and wellbeing impacts for community members amenity-related impacts, if not avoided or properly managed	Negative	No		No	Not required	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Not yet but will be investigated at the EIS stage	Assessment and management of traffic impacts will be provided in the EIS chapter and Traffic and Transport Impact Assessment Report.

Social Impact Assessment (SIA) Worksheet | Project name: Project Marshall | Date: 20-Oct-2023

PROJECT ACTIVITIES	CATEGORIES OF SOCIAL IMPACTS	POTENTIAL IMPACTS ON PEOPLE		PREVIOUS INVESTIGATION OF IMPACT		CUMULATIVE IMPACTS		ELEMENTS OF IMPACTS - Based on preliminary investigation					ASSESSMENT LEVEL FOR EACH IMPACT				PROJECT REFINEMENT	MITIGATION / ENHANCEMENT MEASURES
Operation: impacts to health and wellbeing	health and wellbeing	Potential concern regarding risk to the community in the case of hazardous accidents within the Site	Negative	No		No	Not required	No	No	Unknown	No	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	Not yet but will be investigated at the EIS stage	Assessment and management of noise and vibration, air quality, visual etc. will be provided as part of their respective EIS chapters and specific reports. Discussion with affected residents. SIA specific mitigations to be developed as required.
Operation: changes to local visual and noise environment	surroundings	Changes to local noise environment as a result of the presence of the operational BESS	Negative	No		No	Not required	No	No	Unknown	No	Unknown	Detailed assessment of the impact	Required	Broad consultation	Targeted research	Not yet but will be investigated at the EIS stage	Assessment and management of noise and vibration will be provided as part of the EIS chapter and Noise and Vibration Impact Assessment report. Discussion with affected residents. SIA specific mitigations to be developed as required.
Operation: impacts to livelihoods	livelihoods	Potential benefits for businesses and community member's livelihoods, such as benefits to businesses associated with operation and maintenance	Positive	No		No	Not required	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Not yet but will be investigated at the EIS stage	Consultation with business groups to understand local impacts of the development and how they may be enhanced
Operation: cumulative impacts		Potential for cumulative visual, traffic or noise impacts to local community of this project alongside others in the area, particularly new developments in the Ampol Site	Negative	No		No	Not required	No	No	No	No	Unknown	Minor assessment of the impact	Required	Limited - if required (e.g. local council)	Not required	Not yet but will be investigated at the EIS stage	Consideration of cumulative amenity impacts throughout EIS and consideration within SIA in a social context.
INSERT NEW ROWS ABOVE THIS ROW																		