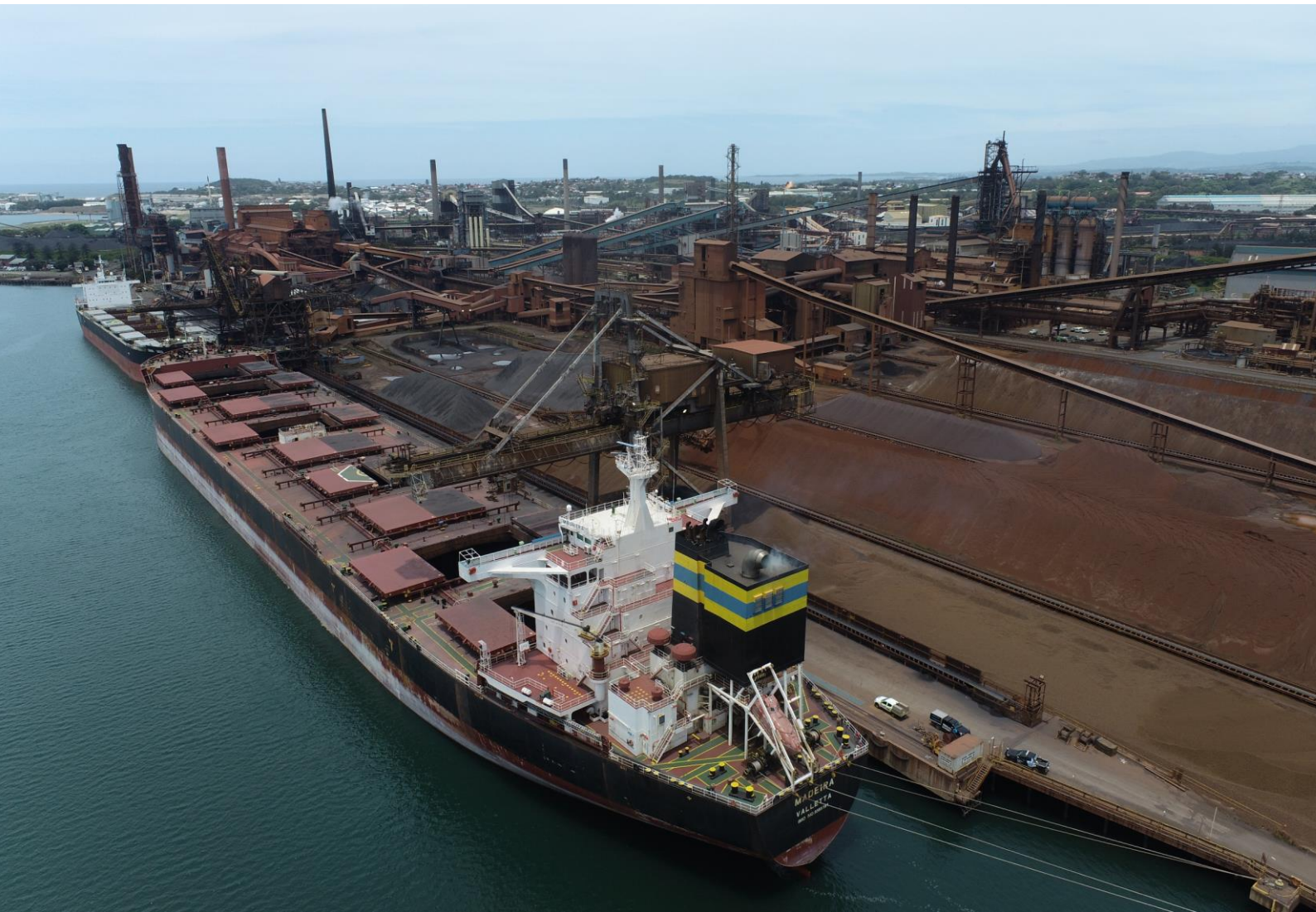
Commodity Logistics & Import Project

Environmental Impact Statement

BlueScope Steel (AIS) Pty Ltd

09 November 2022

→ The Power of Commitment



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Status Code	Revision	Author	Reviewer		Approved for issue		
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Declaration

This Environmental Impact Statement for the Commodity Logistics & Import Project has been prepared in accordance with Division 5, Part 8 of the *Environmental Planning and Assessment Regulation 2021* and submitted under section 5.15 of the *Environmental Planning and Assessment Act 1979*.

Project	Name	Commodity Logistics & Import Project	
	Application number	SSI-36408005	
	Address	Five Islands Rd, Port Kembla NSW 2505	
Proponent	Name	BlueScope Steel (AIS) Pty Ltd (BlueScope) (ABN 19 000 019 625)	
	Address	Five Islands Rd, Port Kembla NSW 2505	
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Declaration	The undersigned declares that this EIS: – has been prepared in accordance with Division 5, Part 8 of the *Environmental Planning and Assessment Regulation 2021*; – contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which the EIS relates; – does not contain information that is false or misleading; – addresses the Planning Secretary's environmental assessment requirements (SEARs) for the project; – identifies and addresses the relevant statutory requirements for the project, including any relevant matters for consideration in environmental planning instruments; – has been prepared having regard to the Department's State Significant infrastructure Guidelines - Preparing an Environmental Impact Statement; – contains a simple and easy to understand summary of the project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development; – contains a consolidated description of the project in a single chapter of the EIS; – contains an accurate summary of the findings of any community engagement; and – contains an accurate summary of the detailed technical assessment of the impacts of the project as a whole.		
	Signature:		
	Name:	Simon Murphy	Karl Rosen
	Date:	09/11/2022	09/11/2022

Executive summary

Introduction

BlueScope Steel (AIS) Pty Ltd (BlueScope) is one of Australia's leading manufacturers and is a global leader in finished and semi-finished steel products. BlueScope operates the Port Kembla Steelworks (PKSW), which has been producing steel products since 1928 and is a key contributor to the New South Wales (NSW) and national economy.

Steel is infinitely recyclable and the most recycled material on earth. It is an essential part of the transition to net zero carbon emission economies as wind turbines, solar farms, hydrogen production, storage facilities and the necessary electrical infrastructure to support all of these depend upon and will require vast amounts of steel. Steel made at PKSW is used throughout Australia for a wide range of infrastructure and construction projects, both large and small, as well as being exported to key overseas markets.

Raw material availability is crucial to secure steel production capability in the near and longer term. Access to the raw materials that are currently used in the blast furnace process, such as metallurgical coal, is critical during the transition to net zero steelmaking. In future, access to raw materials such as Direct Reduced Iron (DRI) and green hydrogen will be required to support net zero steelmaking.

BlueScope is proposing to upgrade the PKSW raw materials berths 111, 112 and 113 (the Berths), the unloading and conveying infrastructure at these berths and other supporting infrastructure through the Commodity Logistics and Import Project (CLIP) (the project). The project will include construction of a new continuous ship unloader (CSU), relocation of existing ship unloaders and construction of new conveying infrastructure, which will allow BlueScope to import the required quantities of raw materials to support continuing operations of the PKSW, while also improving supply chain contingency options and increasing the materials handling capacity for all raw materials inputs required to maintain existing steelmaking operations. The project will deliver modernised ship unloading equipment that provides the potential for improved environmental performance through the reduced potential for dust emissions and material spillage during unloading activities.

The CLIP has been declared Critical State Significant Infrastructure in accordance with section 5.13 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Schedule 5 of the State *Environmental Planning Policy (Planning Systems) 2021*. The declaration recognises the significance of the project to the operations of the PKSW and therefore its significance in contributing to the substantial economic and social benefits for the region, the State and the nation associated with the PKSW, including an economic contribution of around 1% of NSW's GSP, support for 4,500 direct and indirect jobs at PKSW and approximately 10% of overall jobs in the Illawarra, as well as the maintenance of sovereign manufacturing capability in Australia.

The proponent

BlueScope Steel (AIS) Pty Ltd (BlueScope) (ABN 19 000 019 625) is a wholly owned subsidiary of BlueScope Steel Limited (BSL) (ABN 16 000 011 058). BlueScope is the owner and operator of PKSW and is the proponent for the project. BlueScope is one of Australia's leading manufacturers, one of only two primary producers of iron and steel in Australia, and together with BSL is a global leader in finished and semi-finished steel products.

Need for the project and alternatives considered

To maintain its operations, PKSW requires a continuous supply of raw materials, including iron ore, metallurgical coal, scrap steel, limestone, dolomite, and other minor commodities. A key commodity in this supply chain is the unique blend of local New South Wales coal consisting of Wongawilli Seam Coal (also known as 3-seam coal) sourced from South32's Dendrobium operations and Bulli Seam Coal (also known as 1-seam coal) from South32's Appin operations. South32 has notified BlueScope that from 2028, South32 will not be able to supply BlueScope with 3-seam coal as it will have exhausted available reserves at its Dendrobium mine. Unless South32's inability to supply 3-seam can be addressed, thereby maintaining the quality of BlueScope's overall coal blend, BlueScope will need to blend the existing Appin coal with alternate third-party coal(s) primarily from Queensland to produce an equivalent and suitable metallurgical coal blend. The distances and logistics involved in sourcing suitable coal types are such that the alternative metallurgical coal must be imported via Port Kembla Harbour.

The existing berths at PKSW cannot accommodate the increase in capacity which will be required to import alternate coal sources. In addition, the upgrade will provide greater capacity for additional scrap as well as existing raw material volumes and provide flexibility or contingency for supply chain disruptions in other raw materials required for steelmaking. As a result, an upgrade of the Berths is urgently required to support continuation of operations at PKSW, thus maintaining the provision of steel to the domestic and export markets, and the continuation of economic benefit to the Illawarra region, and the State and national economies.

BlueScope has investigated a number of alternatives for continued raw material supply chain operations. Four options were investigated in detail for the project, which are described below:

– Option 1 – Continue with current road and rail operations and develop a new metallurgical coal blend.
– Option 2 – Construct a Continuous Ship Unloader (CSU) at Berth 111 and install supporting infrastructure from the discharge of a ship to stockpiling in the relevant location.
– Option 3 – Construct a Ship unloader (but with a lower capacity) at Berth 112.
– Option 4 –Construct a Ship unloader at Port Kembla Coal Terminal Berth 102 with a third-party operator.

From the options analysis process, Option 2 was determined as the preferred option. This was decided for the following reasons:

– Option 2 utilises available capacity on the deepest and largest berth at PKSW to accommodate additional ships providing the greatest increase in capacity and flexibility in operations across all of the Berths.
– Option 2 allows for the import of the required critical raw material quantities for continued production including the required mix of iron ore, scrap and metallurgical coal types to produce sufficient quality coke for optimal blast furnace operations.
– Option 2 allows for the installation of equipment that can discharge both iron ore and coal at higher rates, whereas other options can only discharge limited types of materials.
– The capacity and operational improvements provided by Option 2 allow for potential future increases in material throughput via the Berths and delivers security and flexibility in raw material supply.
– The inter-operability of the Berths means the facilities can also be more readily used for increased and/or new materials needed to support greenhouse gas reduction strategies (e.g., additional scrap).
– Modernisation of ship unloading equipment provides the potential for improved environmental and safety performance in relation to dust emissions, spillage and electrical drives efficiency.
– While Option 1 has the lowest capital cost, it would introduce unacceptable risks to the operational security of iron and steel production at PKSW, through the introduction of lower quality coke to the blast furnace and increased consumption of coal, with negative repercussions for greenhouse gas emissions.

Site setting

PKSW is located within an industrial site spanning approximately 750 hectares (ha). The site is in the Wollongong Local Government Area and is approximately 80 kilometres from Sydney. The PKSW site comprises the No. 1 Works, No. 2 Works, Steelhaven and the Recycling Area. The No. 2 Works is divided into two sections by Allans Creek. The southern half of the No. 2 Works comprises the Cokemaking, Ironmaking and Steelmaking facilities, while the northern half contains the Recycling Area, and Rolling Mills. All sectors of PKSW are internally linked by road and rail and are serviced with existing electricity, water and gas services.

The port of Port Kembla is located between the Pacific Ocean and the Port Kembla heavy industrial area. The Inner Harbour, specifically developed as an all-weather shipping port, covers approximately 60 ha with around 2,900 m of commercial shipping berths. BlueScope operates five berths in the Inner Harbour that supply materials for PKSW.

Current approved industrial activities at PKSW and the broader Port Kembla industrial area generate dust, steam, particulate matter, unfiltered air and gases. Noise is also generated by activities at PKSW and other surrounding industrial uses. The closest sensitive receivers to the project are residences approximately 900 m to the west of the coal conveyor, which is the nearest operational element.

The area surrounding the Port Kembla industrial area is primarily occupied by residential development which includes small and large-scale retail outlets, community services and commercial facilities.

Project description

The project involves upgrading raw materials berths 111, 112 and 113 (the Berths) to allow BlueScope to continue to import raw materials for ongoing steelmaking operations including iron ore, scrap, coal and other materials. The project provides critical additional capacity for the import of supplemental coal which will be required following the depletion of supply from Dendrobium Coal Mine, as well as capacity for increased scrap usage to assist with GHG intensity reductions.

The project includes construction of a new CSU at Berth 111, new conveying infrastructure to facilitate transportation materials from the berth to stockpiling areas, and modifications to the berth to allow the relocation of the existing Coke Loader and two Ship Unloaders, No. 2 Ore Unloader (2OUL) and No. 3 Ore Unloader (3OUL). The project would include the following major components:

– Installation of a new CSU at Berth 111.
– Relocation and modifications to 2OUL, 3OUL to operate across Berths 111, 112 and 113.
– Installation of new conveyors to allow the transportation of coal to the coal storage area (4 Area) in lieu of trucking.
– New truck wash at 4 Area.
– Installation of foundations, crane rails, and relocation of the coke loader and its supply conveyors to Berth 113.
– Modifications to berth infrastructure and supporting services infrastructure.

Receival of coal and distribution to the Cokemaking area will be undertaken within existing PKSW transportation and materials storage areas.

As the utilisation of the Berths is near full capacity, the relocation of the Coke Loader, 2OUL, and 3OUL will also improve the ship discharge capacity and provide flexibility during outage periods caused by structural works. It is proposed to split the existing CLIP scope into 2 stages:

– Stage 1- Relocation of the Coke Loader and associated Ship Unloader movements.
– Stage 2- Installation of a CSU and associated conveyors.

Project approval process

The project has been declared Critical State Significant Infrastructure in accordance with Section 5.13 of the EP&A Act and Clause 26, 5.13 of the EP&A Act and Schedule 5 of the State *Environmental Planning Policy (Planning Systems) 2021*. This environmental impact statement has been prepared to support the application for project approval, to be determined by the NSW Minister for Planning and Homes.

This EIS has been prepared in accordance with Section 5.7 of the EP&A Act, Part 8 of the *Environmental Planning and Assessment Regulation 2021* and the Secretary's Environmental Assessment Requirements issued by the Department of Planning and Environment on 1 March 2022.

All applicable NSW and Commonwealth law has been considered during the preparation of this EIS. The project is not considered to have the potential to significantly impact any listed matters of national environmental significance including listed threatened species and listed threatened ecological communities. A referral under the *Environment Protection and Biodiversity Conservation Act 1999* is therefore not required for the project.

Community and stakeholder consultation

A wide range of community and stakeholder consultation activities have been undertaken with a broad range of local community groups and interested stakeholders as part of the project, including activities undertaken in unison with stakeholder and communications activities for the 6BF reline, to which the CLIP is closely related. Activities included one-on-one virtual and in-person briefings, group virtual and in-person briefings, a virtual 'Town Hall' for the general public which was attended by over 100 citizens and is available on BlueScope's public website, community open days, use of existing consultation pathways, and distribution of information via local and national media as well as directly on BlueScope social media channels. Much of the early consultation period for the project was carried out virtually due to the COVID-19 pandemic lockdown restrictions in NSW.

As well as the local community groups in the Illawarra region, engagement has been undertaken with a range of other interested key stakeholders, such as local businesses, industry groups, peak bodies, investors, suppliers, local Councils, and the state government and their relevant departments and agencies.

The engagement activities provided an opportunity to inform stakeholders about the project and the CSSI planning approval pathway process, and to answer questions and obtain feedback on additional benefits, concerns, or challenges associated with the project from the perspective of stakeholders. Support for the project was positive; the issues identified during the consultation process have largely been climate change. An assessment of the greenhouse gas impacts generated by the project have been undertaken and included in Appendix I. Traffic and road infrastructure related impacts were also raised as concerns during consultation. These factors are discussed in further depth in Section 9.1.

Key environmental factors

Air Quality

An air quality impact assessment was undertaken to assess the construction and operational impacts of the project. The assessment was undertaken in accordance with relevant legislation and government guidance.

The existing environment was defined as being influenced by a wide range of anthropogenic sources, including industrial operations surrounding the site, shipping and logistics operations, and coal storage. Several sensitive receivers were identified for the purposes of the assessment, being four of the closest residential receivers and two schools.

Background air quality criteria was defined from data taken from DPE air quality monitoring stations nearby and air quality monitoring stations within PKSW. The following pollutants were assessed:

– Total Suspended Particulates (TSP)
– Particulate matter with diameter smaller than 10 microns (PM_{10})
– Deposited dust

Particulate matter with diameter smaller than 2.5 microns ($PM_{2.5}$) was not included in the emission inventory or dispersion modelling based on a review of the last five years of data which shows annual average $PM_{2.5}$ levels below the ambient air quality goal of 8 $\mu g/m^3$ at the three nearest DPE sites (Kembla Grange, Albion Park South and Wollongong) for all years except 2019 which was heavily influenced by bushfires.

The construction phase of the project has the potential to release emissions to air, including:

– Particulate matter generated by excavation, piling, construction and vehicle movement; and
– Minor vehicle emissions

Given the distance between the site and the nearest sensitive receptor, the risk of these emissions impacting sensitive receptors is low.

Operation of the project will be generally consistent with current operations, as operational hours and imported material types will be the same. The supplemental metallurgical coal that is imported will be moved to the stockpiling area by conveyors with no additional truck movements required. The CSU and conveyor belts will be predominantly enclosed, reducing the amount of dust generated in operation. The project will have a minor impact on ambient air quality concentrations within the surrounding environment during operation and will be comparable to or better than existing operations.

Noise and vibration

A noise and vibration impact assessment was undertaken to assess the construction and operation of the project. The assessment was undertaken in accordance with relevant legislation and government guidance. The noise impacted area for the project was defined as a 3.5 km radius from the project site. The existing noise environment was defined as being dominated by industrial noise from industrial premises in Port Kembla, road traffic, and rail noise.

Construction scenarios were determined based on activities that will likely be undertaken during construction of the CLIP. Construction noise modelling was undertaken for each scenario. It is predicted that construction noise levels from CLIP construction activities and laydown areas during daytime hours will generally be within the chosen criteria. However, it was found that piling activities may impact several residences, where the greatest impact was sleep disturbance potential.

The assessment concluded that with the implementation of mitigation measures (such as undertaking piling during the day or ensuring there was sufficient distance between works and receivers), exceedances of sleep disturbance criteria would not occur. No human comfort or building damage was predicted to occur during construction.

Noise modelling undertaken for operational works identified that operation of the project will be generally below the nominated criteria.

Hazard and risk

A hazard and risk assessment was undertaken to assess the construction and operation of the project. A preliminary risk screening was carried out in accordance with *State Environment Planning Policy (Resilience and Hazards) 2021* and the Applying SEPP 33 guideline.

The results of the dangerous goods and transport screening indicate that the project does not exceed any of the thresholds for construction or operation. However, given the potential for dust explosions, the project was determined as 'potentially hazardous' and a Level 1 Preliminary Hazard Analysis was undertaken.

A qualitative hazard identification study was completed as a systematic way to identify any potential off-site impacts during construction and operation. The hazard identification study identified the following hazards with the potential for off-site impact:

– Damage to bunker fuel pipeline during construction activities
– Coal and coke dust located on site conveyors
– Ship movements in port during operations

The hazard identification and analysis demonstrate that CLIP can be designed, constructed, and operated in a manner that will meet the relevant regulations, standards, and policies, and minimise hazardous impact to the public such that it is not a hazardous industry.

Water and hydrology

A water impact assessment was undertaken for the construction and operation of the project. The assessment was undertaken in accordance with relevant legislation and government guidance.

Potential risks to water resources during the construction phase of the project are excavation, stockpiling, construction works and vehicle movement. Specific risks related to water quality include:

– Release of sediment or poor-quality stormwater into drains and waterways that is impacted by excavation works and other construction activities.
– Potential mobilisation of existing contamination within soils via surface water or groundwater.
– Spills of hydrocarbons during relocation of the existing bunker fuel line operated by Park Fuels.
– Spills of hydrocarbons and other chemicals from construction plant and machinery.

Given the design of the project is generally enclosed, the potential impacts from spills are minor. With the implementation of mitigation measures, the project is not expected to have significant impacts during construction.

The project does not include process water discharges to the environment. Hydrology across the site will also not be modified. BlueScope will continue to source industrial and domestic water from existing sources. Accordingly, water use during the operation of the project will be sourced from an appropriately authorised and reliable supply and does not trigger water licencing requirements. No significant change is expected to the existing site water balance.

Traffic

The surrounding road network is primarily comprised of arterial and sub-arterial roads, with some local roads being utilised to access the site. There are existing approved heavy vehicle routes approved for site access. There are also several carparks across the PKSW, eliminating the need for on-street parking.

The construction of the project is expected to generate up to 100 light vehicles per day, comprising of contractors and construction personnel vehicles, resulting in approximately 200 light vehicle movements per day. Based on the findings of previous assessments, there is ample capacity within the local road network to handle construction traffic. The project is not anticipated to generate any material impact on the local road network during construction. During operation, it is anticipated that workforce requirements will not change significantly from existing operations requiring approximately 20 direct and 10 indirect FTE workers. Therefore, ongoing operation traffic impacts will be consistent with the existing operation.

Other environmental factors

Soils, geology and groundwater

The geology of the site is comprised of Quaternary sediments described as quartz and lithic fluvial sand, silt and clay, overlain by the Disturbed Terrain soil landscape (9029xx) occurring within other landscapes.

Historically, the project site was low lying swampland, with soils predominantly including silty sands and clay. The area was progressively filled during the 20th century to accommodate industrial activities with the swampland filled with blast furnace slag, open hearth slag and coal washery rejects. The site surface is flat and generally sealed. Any remaining soil or sediments present on the site are highly disturbed thin coverings overlying fill material. Natural sediments have a high probability of acid sulphate soils, however as the project would be undertaken on disturbed and filled soils, encounter of acid sulphate soils is unlikely.

The site's aquifer system can be summarised as comprising two primary aquifers overlying bedrock. Groundwater recharge predominantly occurs from rainfall infiltration and infiltration of water used for operational purposes, including dust suppression water (used primarily on raw materials stockpiles) and drainage waters. Groundwater flow at the site generally trends in an easterly direction toward the inner harbour. However, topography, subsurface geology, and unlined surface water drainage channels result in localised variations to this trend, particularly along the perimeter of the site and adjacent to Allans Creek.

A search of contaminated land records and records of sites notified to the Environment Protection Authority was conducted on 11 February 2022. The PKSW is listed as a contaminated site by the EPA. The site has had four notices issued to it, the last being in March 2018, which was a notification to cease the Voluntary Management Plan for the site on the basis that regulation of the site under the *Contaminated Land Management Act 1997* is no longer warranted. Ongoing management of site contamination occurs under EPL 6092.

The project will require excavations and ground disturbance, particularly in the early stages of construction. The erosion risk is considered relatively low as the site is flat, and predominantly sealed with concrete or bitumen and the level of disturbance will be minor. Potential erosion and sedimentation impacts will be managed through the implementation of appropriate controls.

Following construction of the project, disturbed areas will be restabilised and resealed where required for operational use. The project is not expected to have ongoing erosion and sedimentation impacts during operation. Operational activities have the potential to impact on soils through spills or leaks of hydrocarbons and chemicals, though with proper management impacts would not be significant. Potential impacts to groundwater during the operational phase are in line with BlueScope's existing operations and would result in a negligible change in groundwater impacts compared to current operations.

Biodiversity

The project is in the Illawarra Interim Biogeographical Regionalisation of Australia (IBRA) sub region. This landscape is substantially altered by urban and industrial development but would have originally had a very similar structure and composition to the Seven Mile Barrier Mitchell Landscape. General elevation ranges from 0 to 25 metres, with local relief of 5 metres.

The environment within the PKSW site is predominantly cleared and highly modified for industrial purposes. Remaining vegetation is limited to planted tree species and opportunistic weeds. Port Kembla Inner Harbour is comprised of hard substrates, with a seabed consisting of fine, unconsolidated silt expanses. Allans Creek and the Port Kembla Inner Harbour are mapped as Key Fish Habitat.

Under Section 7.9 of the *Biodiversity Conservation Act 2016* an application to carry out State Significant Infrastructure is to be accompanied by a biodiversity development assessment report unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values. The project is unlikely to have a significant impact on any biodiversity values, or threatened species or ecological communities, or their habitats, listed under the BC Act. A biodiversity development assessment report waiver was received on 14 February 2022.

A known population of Green and Golden Bell Frog (*Litoria aurea*) is located within the greater PKSW site, approximately 1.6 kilometres from the project site. The Green and Golden Bell Frog is listed as endangered under the BC Act and as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999.* Known Green and Golden Bell Frog habitat and associated corridors for this population include the rail line from Coniston to Port Kembla railway station, the Plate Mill within PKSW, and the Steelhaven site immediately adjacent to PKSW. BlueScope has an established site management protocol in place to avoid impacting areas of PKSW that are known to be Green and Golden Bell Frog habituative and movement corridors. This protocol will continue to be implemented as part of the project.

The project will include the removal of 39 trees in the berth area. These trees have been planted and do not represent a large body of vegetation and do not connect to or provide a vegetated corridor between other areas of vegetation. No known groundwater dependant ecosystems (GDEs) have been identified within the project site.

The Inner Harbour is mapped as Key Fish Habitat and may be visited by threatened bird species, although this is expected to occur only rarely. However, it is a highly developed and utilised marine environment that is known to support few common fish species. The project will not involve removal of marine vegetation and there will be no impacts on fish passage. The marine environment is unlikely to be directly impacted during construction as mitigation measures will be implemented to prevent sediment or contaminants entering waterways.

Aboriginal Heritage

PKSW is located within the traditional lands of the Wodi Wodi, part of the wider Dharawal language group. Prior to European settlement, the wider area surrounding the project site would have supported a variety of habitats, including wetland, saltmarsh, coastal scrub, hilly scrub and forested plains. The project site is located in the administrative boundaries of the Illawarra Local Aboriginal Land Council (LALC). Consultation was undertaken with the Illawarra LALC and the Illawarra Aboriginal Corporation (IAC) to assist in identifying cultural heritage aspects of the project and opportunities for BlueScope to continue working closely with the local indigenous community.

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) identified no recorded Aboriginal sites within the project site. This is consistent with the highly disturbed nature of PKSW. The nearest recorded Aboriginal site is in the vicinity of Spring Hill, comprising an open camp site consisting of two flaked stone artefacts located on the crest of a hill in a disturbed context. This site is approximately 1.6 kilometres northwest of the berths. Excavations into natural material is not anticipated to be required to construct the project and therefore the likelihood of unexpectedly encountering Aboriginal heritage items is low.

Historic heritage

The PKSW site has been subject to a number of past land uses prior to the establishment of the PKSW. During the 1800's the locality was used for cedar cutting, farming, cattle breeding, hotel and estate development, recreational commons and a racecourse. Industrialisation within the locality began in 1882, when the Mount Kembla Coal and Oil Company established a private jetty and rail link. Port operations continued expanding throughout the 19th century and into the early 1900s. Port Development continued during the early to mid 20th century. The PKSW began operation in 1928 under the ownership of the Australian Iron and Steel Company, which would later merge with Broken Hill Proprietary (BHP) in 1935.

The industrialisation boom during the 1950s and 1960s led to large scale land modification across the locality. The resulting industrial development required extensive modification of the natural drainage systems in the area, with Allans Creek being heavily modified and rerouted around the border of the industrial estates. Drainage along Springhill Road and the former Tom Thumb Lagoon were similarly heavily modified. While steel operation areas have remained largely unchanged since the 1960s, works on the Inner Harbour berths and terminals continued well into the 1980s, 1990s and to the present day.

The nearest historic heritage item is the locally listed Commonwealth Rolling Mills, which is approximately 1.2 kilometres southeast of the project site. An item known as the Galloway Steam Engine is located on the PKSW site and is a registered item with the National Trust of Australia. This item is still present on site and is in the No. 1 Open Hearth located south of Five Islands Road, approximately 700 m south of the project site.

No listed items of historic heritage were identified within the project site or near laydown areas. Given the distance between the project site and the closest item, no impacts to historic heritage items are anticipated.

Visual amenity

A range of land uses are present within the surrounding locality including Wollongong CBD, residential areas, the University of Wollongong, Port Kembla, Lake Illawarra, and the conservation areas of the Illawarra Escarpment. The Illawarra Escarpment, located to the west of the project site, provides a natural visual catchment boundary to Wollongong and Port Kembla.

Alterations to the visual landscape due to the presence of construction plant and vehicles is expected to be generally screened from view by regional topography, existing buildings and vegetated screening around the PKSW. Alterations to the visual landscape due to the presence of construction plant and vehicles are expected to be generally screened from view by regional topography, existing buildings and vegetated areas in the locality. Where visible, they will not cause a significant visual impact. During operation, the project may be visible from some viewpoints, however as it is consistent with the existing land use, visual impacts are expected to be low to negligible.

Land use and property

The PKSW site is a multiuse industrial area which includes storage, manufacturing, port berths, private internal roads, and offices. The project is predominantly located within Lot 1 DP 606434 which is owned by BlueScope and is zoned IN3 – Heavy Industrial under the *State Environmental Planning Policy (Transport and Infrastructure) 2021*. The project will also be carried out on Lot 72 DP1182824 which is the subject of a 99-year lease from the NSW Government to NSW Ports. Works on this lot will be undertaken in consultation with NSW Ports and in accordance with relevant land access agreements.

BlueScope also utilises small sections of Lot 71 DP1182824 for access to its PKSW site under a licence agreement with NSW Ports.

There may be some localised internal restrictions on access and land use within the PKSW during construction of the project, however this will only be to different operational areas within the PKSW all managed by BlueScope. Some areas at the Western end of Christy Drive, Lot 71 DP1182824, will be temporarily licensed from NSW Ports and fenced to provide a safety barrier and separation zone to the public during construction, as well as laydown and equipment storage areas. There is also potential for additional space in this area to be leased from NSW Ports if the need arises.

The project will require modification of some existing onsite services, such as water and power. This will be managed by BlueScope to minimise disruptions to existing activities on site. The project will also require a minor modification to the bunker fuel line operated by Park Fuels. Whilst some changes to the arrangement of the Berths will occur, no changes to land use are expected during operation as the Berths are an existing feature of the site and operational activities will be generally consistent with current operation.

Social and economic

PKSW is located in the suburb of Port Kembla, which is approximately 2.5 kilometres south of the City of Wollongong. The population of Port Kembla was recorded as 5,088 in the 2021 census. This comprised 1,356 families, with an average of 1.7 children per family (for families with children). Children aged 0 - 14 made up 18.2 per cent of the population and adults over 65 made up 17.7 per cent of the population. 3.4 per cent of the population identified as Aboriginal and/or Torres Strait Islander. The median weekly household income was $1,308. Industry of employment data collected by the 2021 census was not publicly available at the time of EIS preparation. In the 2016 census, iron smelting and steelmaking made up 3.3% of the suburb’s workforce.

During construction, the project has the potential to generate noise and air quality emissions. Impacts from both factors are considered low given the distance to sensitive receivers and the project location within an existing industrial area. Traffic and transport impacts will also be minor.

During operation, the project has the potential to generate noise and dust emissions, and the CSU may be visible from some viewpoints however, these impacts will be negligible to amenity of the places of community value surrounding the site. The project will have a long-term positive socio-economic impact as it will support the continued operation of the PKSW to facilitate the retention of approximately 4,500 jobs at the site itself (both BlueScope employees and full-time contractors on the site) and support in the order of 10,000 jobs in total in the region and across NSW. The continued operation of flat steel products at the PKSW will supply approximately 2.2 million tonnes to a wide range of infrastructure projects.

Greenhouse gas and energy

It is estimated that construction of the project will generate emissions of 9,440 tCO_2-e over 3 years. Operational emissions are estimated to be on average 15,300 tCO_2-e / year during the operations period. The majority of operational emissions are Scope 2 emissions arising from electricity consumption by the CSU and conveyors (97.4%). Project emissions are negligible compared to annual emissions in NSW and Australia, at 132 $MtCO_2$-e in 2020 and 502 $MtCO_2$-e in 2021 respectively. BlueScope will implement reasonable and feasible measures to minimise GHG emissions from the project, consistent with the importance which BlueScope, and its parent company, BSL, places on reducing its carbon footprint.

The GHG assessment report which is an Appendix to this EIS summarises the work being done by BlueScope and BSL in the area of climate change, including as outlined in BSL's Climate Action Report, published in September 2021.

Waste management

A range of waste streams generated at the PKSW are treated or processed at the premises in accordance with EPL 6092 and existing waste management plans. Most of these waste streams are either reused or recycled via a range of resource recovery activities authorised by EPL 6092. Any waste streams not covered by EPL 6092 are disposed or recycled off-site at appropriately licensed facilities.

Construction of the project will result in the generation of waste through demolition and construction activities of the project. Management of waste material generated by the project will be undertaken in accordance with the principles of the waste management hierarchy. The material will be classified and reused or disposed of in accordance with the EPA's Waste Classification Guidelines (2014). Waste will be stockpiled or stored in receptacles at one of the construction laydown areas prior to reuse or disposal.

During operation, waste generation is expected to be minimal and consistent with existing ship unloading operations undertaken on site.

Cumulative impacts

As described, construction of the project will generate dust and noise emissions, however, assessment of the project in the context of other major projects surrounding the site, has determined that any cumulative impacts would be negligible to minor. Similarly, cumulative impacts will not be significant during ongoing operation. The project will not result in cumulative impacts to water quality during construction or operation.

There is potential for cumulative traffic impacts to be generated during construction, particularly with the 6BF reline project if it were to be constructed at the same time as the project. However, as there is ample capacity within the local road network to handle construction traffic generated by the project, cumulative impacts will not be significant. Cumulative traffic impacts during operation are not anticipated.

The potential for hazards and risks associated with the project were found to be manageable to tolerable levels with the implementation of the proposed safeguards. This means that there will be no significant off-site hazards or risks associated with the project that have the potential to result in cumulative impacts.

During construction, the project will involve resource consumption and minimal generation of greenhouse gas emissions. Where reasonable and feasible, construction will incorporate measures to reduce greenhouse gas emissions and waste and it is expected that other major projects in the area will be required to do the same. Overall impacts to waste generation and greenhouse gas generation are not expected to be significant during construction. During operation, the project is not a large producer of greenhouse gas or waste products. BlueScope is committed to reducing its carbon and other atmospheric impacts over time, further reducing the likelihood of cumulative impacts during operation.

Conclusion

The project is required to make feasible the import to PKSW of metallurgical coal from Queensland when 3-seam coal is no longer able to be supplied by South32 from its Dendrobium Coal Mine in the Illawarra escarpment. The project will also facilitate increased scrap import to assist in BlueScope's greenhouse gas reduction efforts, as well as improving supply chain contingency options and increasing materials handling capacity for all raw material inputs to the PKSW.

The project is therefore of strategic importance to ongoing operations at PKSW, which in turn makes a significant economic and social contribution to the region, State, and nation, including an economic contribution of around 1% of NSW's GSP, support for 4,500 direct and indirect jobs at PKSW and 10% of overall jobs in the Illawarra, and the maintenance of sovereign manufacturing capability in Australia. Some minor environmental impacts will occur during the construction phase of the project, with environmental impacts during operation anticipated as being generally commensurate with those of current berth operations. BlueScope will implement measures to manage and mitigate environmental impacts as outlined in this EIS, such that the environmental impacts will be minimised.

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Glossary and abbreviations

Term/ acronym	Definition
ABS	Australian Bureau of Statistics
AEP	Annual exceedance probability
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
ANZECC	Australian and New Zealand Environment and Conservation Council
ASS	Acid sulphate soils
AQIA	Air Quality Impact Assessment
AQMS	Air Quality Monitoring Stations
AWS	Automatic weather station
BC Act	*Biodiversity Conservation Act 2016*
bgl	Below ground level
BFG	Blast furnace gas
BF-BOF operating model	Blast Furnace ironmaking and Basic Oxygen Furnace steelmaking
Biosecurity Act	*Biosecurity Act 2015*
BlueScope	BlueScope Steel (AIS) Pty Ltd
BoM	Bureau of Meteorology
BOS	Basic oxygen steelmaking
BSL	BlueScope Steel Limited
^{o}C	Degrees Celsius
CAS-OB	Composition adjustment station – oxygen blowing
CBD	Central Business District
CEMP	Construction Environmental Management Plan
CLM Act	*Contaminated Land Management Act 1997*
CO	Carbon monoxide
CO_2	Carbon dioxide
Coastal Management SEPP	*State Environmental Planning Policy (Coastal Management) 2018*
COG	Coke oven gas
CSSI	Critical State Significant Infrastructure
CSU	Continuous Ship Unloader
DCCEEW	Department of Climate Change, Energy, Environment and Water
DECC	Department of Environment and Climate Change
DECCW	Department of Environment, Climate Change and Water
DPE	Department of Planning and Environment
DRI	Direct Reduced Iron
EAF	Electric Arc Furnace
EEC	Endangered ecological community

Term/ acronym	Definition
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental planning instrument
EPL	Environment Protection Licence
Fe	Iron
FSRU	Floating Storage and Regasification Unit
FSRU	Floating Storage and Regasification Unit
GDE	Groundwater Dependent Ecosystems
GHD	GHD Pty Ltd
GHG	Greenhouse Gas
GWP	Global warming potential
ha	Hectares
Heritage Act	*Heritage Act 1977*
HRC	Hot rolled coil
IAQM Guidance	Guidance on the assessment of dust from demolition and construction, Institute of Air Quality Management
ICNG	Interim Construction Noise Guideline
IPCC	Intergovernmental Panel on Climate Change
IAQM Guidance	Guidance on the assessment of dust from demolition and construction, Institute of Air Quality Management
ICNG	Interim Construction Noise Guideline
IPCC	Intergovernmental Panel on Climate Change
km	Kilometres
km/h	Kilometres per hour
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
LNG	Liquified Natural Gas
m	metres
m^3	cubic metres
ML	megalitres
MNES	Matters of National Environmental Significance
mm	millimetres
Mt	megatonnes
Mtpa	million tonnes per annum
NCA	Noise catchment areas
NGA	National Greenhouse Accounts
NGER	National Greenhouse and Energy Reporting

Term/ acronym	Definition
NPfI	Noise Policy for Industry
NPI	National Pollutant Inventory
NPW Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
NVIA	Noise and Vibration Impact Assessment
NWQMS	National Water Quality Management Strategy
NVIA	Noise and Vibration Impact Assessment
PKSW	Port Kembla Steel Works
PMST	Protected Matters Search Tool
POEO Act	*Protection of the Environment Operations Act 1997*
RNP	Road Noise Policy
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SEPP 33	*State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*
SEPP 55	*State Environmental Planning Policy No. 55 – Remediation of Land*
SSD	State Significant Development
SSI	State Significant Infrastructure
SRD SEPP	*State Environmental Planning Policy (State and Regional Development) 2011*
SWMP	Soil and Water Management Plan
t	Tonnes
TfNSW	Transport for NSW
Three Ports SEPP	*State Environmental Planning Policy (Three Ports) 2013*
T&I SEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021*
WIA	Water Impact Assessment
WRF	Weather Research and Forecast model
5BF	No. 5 Blast Furnace
6BF	No. 6 Blast Furnace

1. Introduction

1.1 Background

BlueScope Steel (AIS) Pty Ltd (BlueScope) is one of Australia's leading manufacturers and is a global leader in finished and semi-finished steel products. BlueScope operates the Port Kembla Steelworks (PKSW), which has been producing steel products since 1928 and is a key component in the New South Wales (NSW) and national economy.

The upgrade of the No. 6 Blast Furnace (6BF) at PKSW was declared to be Critical State Significant Infrastructure (CSSI) on 3 May 2021. The 6BF upgrade is a major project involving the reline of the furnace and upgrade of associated infrastructure, including the berth infrastructure for unloading of raw materials. These works are critical as the current operational furnace at PKSW (No.5 Blast Furnace or 5BF) will reach the end of its campaign life between 2026 and 2030, at which time steelmaking operations at PKSW would have to cease in the absence of an alternative functional blast furnace being available.

The majority of the coal used at PKSW for coking and blast furnace energy is sourced from South32 via its Appin and Dendrobium Coal Mines. The Bulli Seam coal (known as 1-seam coal) from Appin Colliery has different properties to the Wongawilli Seam coal (also known as 3-seam coal) from the Dendrobium Mine. The two coal types are mixed in a specific ratio to form a metallurgical coal blend known as the Illawarra Blend.

South32 has notified BlueScope that from 2028, South32 will not be able to supply BlueScope with 3-seam coal as it will have exhausted available reserves at its Dendrobium mine. Unless South32's inability to supply 3-seam can be addressed, thereby maintaining the quality of BlueScope's overall coal blend, BlueScope will need to blend the existing Appin coal with alternate third-party coal(s) primarily from Queensland to produce an equivalent and suitable metallurgical coal blend.

As there is no immediate replacement for the local 3-seam coal, BlueScope has identified that the importation of metallurgical coal from Queensland by ship will provide a suitable alternative source following the end of extraction of the 3-seam coal. BlueScope leases and operates five berths in Port Kembla Inner Harbour to import raw materials for use at PKSW which is currently used to import minor quantities of coal, however the capacity to import additional coal via these berths is constrained by the existing ship unloading infrastructure.

BlueScope proposes to upgrade the PKSW raw materials berths 111, 112 and 113 (the Berths), including the unloading and conveying infrastructure through the Commodity Logistics and Import Project (CLIP) (the project). The project will include construction of a new continuous ship unloader (CSU), relocation of existing ship unloaders and new conveying infrastructure. These upgrades will allow BlueScope to import the required quantities of raw materials and continue operation.

The project has been declared Critical State Significant Infrastructure (CSSI) in accordance with section 5.13 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Schedule 5 of the *State Environmental Planning Policy (Planning Systems) 2021*. This environmental impact statement (EIS) has been prepared to support the application for approval by the NSW Minister for Planning and Homes.

1.2 Project objectives

The key objectives of the project are to:

– Maintain the quality of the PKSW metallurgical coal blend.
– Upgrade the BlueScope leased berths in Port Kembla to ensure continuous operations at PKSW are maintained.
– Improve supply chain contingency options and increase the materials handling capacity for all raw material inputs required to maintain existing steelmaking operations.

The project will enable BlueScope to maintain the provision of steel to the domestic and export markets and continue to provide economic benefit to the Illawarra region, and the State and national economies.

1.3 Proponent details

BlueScope Steel (AIS) Pty Ltd (BlueScope) (ABN 19 000 019 625) is a wholly owned subsidiary of BlueScope Steel Limited (BSL) (ABN 16 000 011 058). BlueScope is the owner and operator of PKSW and is the proponent for the project. BlueScope is one of Australia's leading manufacturers, one of only two primary producers of iron and steel in Australia, and together with BSL is a global leader in finished and semi-finished steel products.

1.4 Purpose and structure of this report

This EIS has been prepared by GHD Pty Ltd (GHD) on behalf of BlueScope to support the application for approval of the project. The purpose of this document is to inform government agencies and other stakeholders about the project, its potential environmental, social and economic impacts, and the measures that will be implemented to manage, mitigate and offset those impacts.

The EIS addresses the specific requirements set out in the Secretary's environmental assessment requirements (SEARs) for the project, which were issued by the NSW Department of Planning and Environment (DPE) on 1 March 2022. The SEARs, together with references to where each of the requirements have been addressed within this EIS, are presented in tabular format in Appendix A.

The EIS has been prepared in accordance with the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.*

An overview of the structure of the EIS is provided below:

- Executive Summary: Provides a brief overview of the project and the key outcomes of the EIS.
- Chapter 1 – Introduction: Provides an overview of the project, proponent, approval process and the structure of this document.
- Chapter 2 – Site description: Provides a site overview and history, and description of the existing environment and land uses.
- Chapter 3 – Strategic context: Explains the strategic need for the project in the context of the NSW policy setting.
- Chapter 4 – Project alternatives: Outline's alternatives considered during development of the preferred project.
- Chapter 5 – Description of the project: Contains a detailed description of the project.
- Chapter 6 – Statutory context: Discusses relevant State and Commonwealth laws and planning instruments.
- Chapter 7 – Consultation and issues identification: Discusses the engagement strategies for the project and the consultation outcomes. Outlines the process for the identification and prioritisation of the assessment for key environmental aspects.
- Chapter 8 – Assessment of key impacts: Contains a description of the existing environment and a comprehensive analysis and assessment of the key issues relevant to the project.
- Chapter 9 – Assessment of other impacts: Contains a description of the existing environment and assessment of other issues relevant to the project.
- Chapter 10 – Environmental management: Provides an outline of the proposed environmental management framework and a consolidated list of the proposed mitigation and management measures.
- Chapter 11 –Justification and conclusion: Provides an overview of the conclusions from the assessment process and discusses the project's justification on balance of environmental, social and economic considerations.
- Chapter 12 – References: Lists references cited in the EIS.
- Appendices – Relevant additional information and specialist reports.

For the purposes of this report, the following definitions are employed:

– The project, also referred to as the CLIP, is the development that is the subject of this EIS, being the proposed upgrade of raw materials berths, unloading and conveying infrastructure.
– The project site is the area in which the project will be located, and which will be directly impacted by the project.
– The study area is the site that was investigated during preparation of the EIS. The study area encompasses the project site and a buffer as relevant to searches and investigations.
– The PKSW site is the area in which the PKSW is located, comprising the No. 1 Works, No. 2 Works, Steelhaven and Recycling area.

2. Site description

2.1 Site history

Heavy industrialisation of Tom Thumb Lagoon and surrounds began in 1882 when the Mount Kembla Coal and Oil Co established a private jetty and rail link to transport coal. Coal operations at the port expanded in the 1880s and shortly thereafter the *Port Kembla Harbour Act 1898* was passed, enabling expansion of the port through construction of breakwaters in the early 1900s.

The Australian Iron and Steel Company commenced operations at the PKSW in 1928 and would later merge with Broken Hill Proprietary (BHP) in 1935. Following the merger, BHP entered into an agreement with the State Government to further expand operations around Tom Thumb Lagoon.

The expansion of the BHP steel works included the reclamation of 30 hectares of the western edge of Tom Thumb Lagoon. The reclamation program raised land by approximately 7 metres, which required 2.3 million cubic metres (m^3) of fill material, predominantly sourced from Port Kembla sand dunes and dredge material from Tom Thumb Lagoon. The resulting industrial development required extensive modification of the natural drainage systems in the area, with Allans Creek being heavily modified and rerouted around the border of the industrial sites. Drainage along Springhill Road and the former Tom Thumb Lagoon were similarly heavily modified. Following these modifications to the site, steel works operation areas have remained largely unchanged since the 1960s.

Increasing industrial demand after World War II led to construction of the Inner Harbour in the 1950s and 1960s. Construction of the Inner Harbour involved significant dredging to create a deep water port, systematic drainage and reclamation of other areas of Tom Thumb Lagoon. Works on berths and terminals continued into the 1980s, 1990s and to the present day to meet changing commercial demands on the port. The northern sections of the Inner Harbour have been entirely infilled for freight and car storage, while additional berths have been constructed around the perimeter of the Inner Harbour.

2.2 Site details

2.2.1 Port Kembla Steelworks

Port Kembla Steelworks (PKSW) is located within an industrial site of approximately 750 hectares (ha) in the Wollongong Local Government Area (LGA) approximately 80 kilometres (km) from Sydney and 2.5 km from the City of Wollongong (see Figure 2.1). PKSW is the largest steel production facility in Australia and specialises in the production of flat steel products, including slab, hot rolled coil, cold rolled coil, plate, coated and painted steel products.

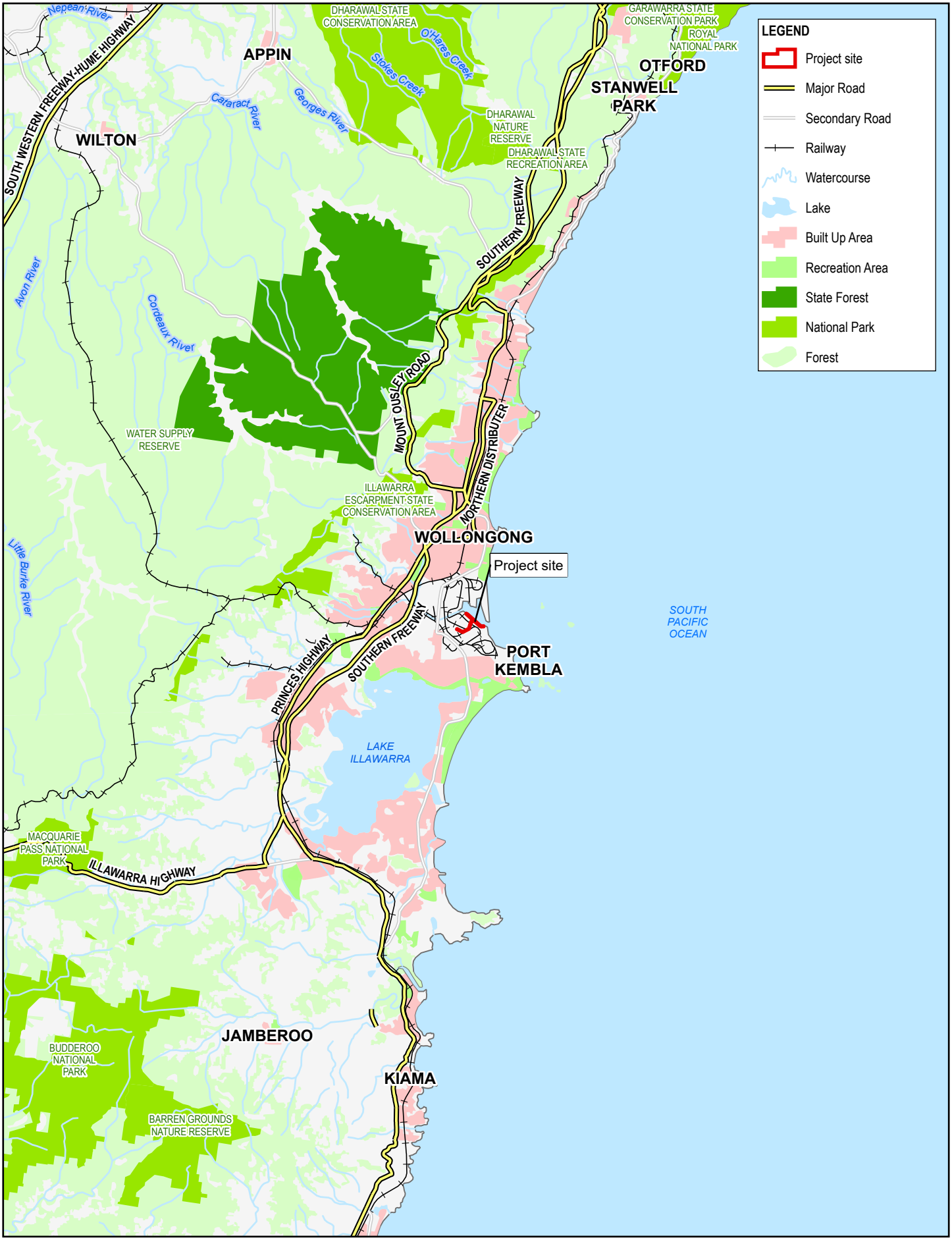
PKSW is an important national economic asset. It is one of only two primary producers of iron and steel in Australia (making iron and steel from iron ore). It is also the only plant in Australia manufacturing upstream flat iron and steel products, supplying the essential feedstock that keeps the other domestic manufacturing facilities of BSL, operational. PKSW, and the adjacent Springhill Works (owned directly by BSL), employ approximately 4,500 direct employees and on-site contractors, and generate about 10,000 jobs in total, including indirect employment in supplier and customer businesses. PKSW provides sovereign manufacturing capability for a range of important construction, infrastructure, manufacturing, energy and defence applications. Together with the Springhill Works, it makes a significant economic contribution to the Illawarra region, generating $6.5 billion or 24 per cent of the region's output per annum.

The PKSW site comprises the No. 1 Works, No. 2 Works, Steelhaven and the Recycling area. The No. 2 Works is divided into two sections by Allans Creek. The southern half of the No. 2 Works comprises the Cokemaking, Ironmaking and Steelmaking facilities, while the northern half includes the Rolling Mills and Recycling Area. BlueScope leases and operates five berths in the Port Kembla Inner Harbour to import raw materials, including iron ore, scrap, coal, limestone and other raw materials (refer to Section 2.2.2). All sectors of PKSW are internally linked by road and rail and are serviced with existing electricity, water and gas services.

The specific facilities in the southern sector of the No. 2 Works include the:

- Berths 111, 112, 113 in Port Kembla Inner Harbour
- No. 3 sinter plant
- Coke ovens batteries and gas processing
- No. 2 blower station
- No. 5 and No. 6 Blast Furnaces
- Raw Materials Handling area
- Basic Oxygen Steelmaking (BOS) plant
- Steel ladle injection unit and vacuum degasser
- Composition Adjustment Station - Oxygen Blowing (CAS-OB) steel ladle treatment station
- Continuous slab casters
- The flat products area (northern sector) comprises the:
    - Hot Strip Mill
    - Plate Mill
    - Cryogenics plant

Each facility plays a different, but integrated, function in the production of steel products. The land to which this project applies is within the southern section of the No. 2 Works and the BlueScope leased berths in Port Kembla, located within Lot 1 DP606434 and Lot 72 DP1182824, respectively.



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Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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BlueScope Steel (AIS) Pty Ltd
Commodities Logistics Infrastructure Project
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Date **25/01/2022**

Regional locality

FIGURE 2-1

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Data source: Commonwealth of Australia (Geoscience Australia): 250K Topographic Data Series 3, 2006. .
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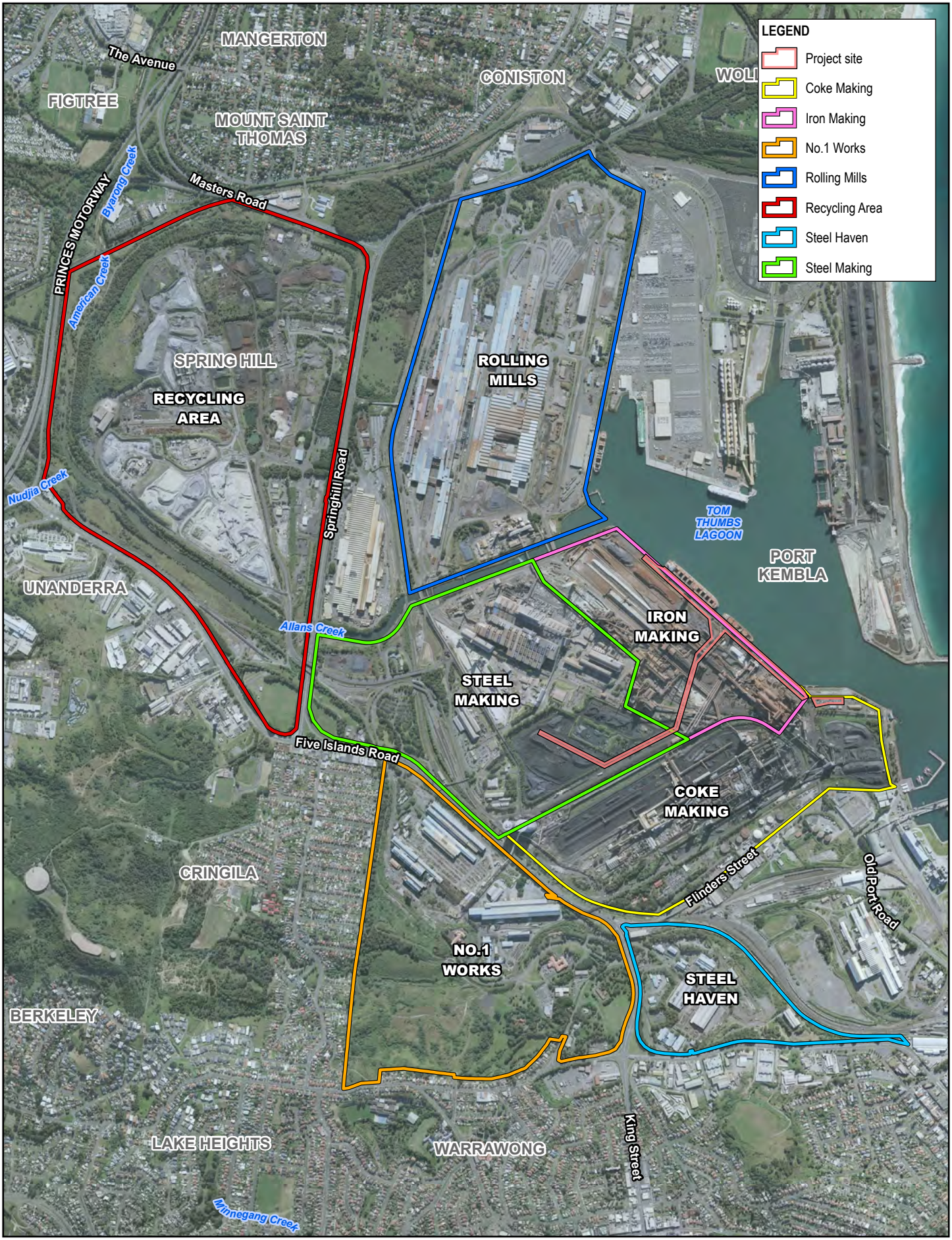

Paper Size ISO A4

0 200 400 600 800

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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BlueScope Steel (AIS) Pty Ltd
Commodities Logistics Infrastructure Project
Environmental Impact Statement

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Existing site layout

FIGURE 2-2

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Data source: Roads, Suburbs, Waterbodies - LPI: DTDB, 2019. Imagery -Metromap Tile Service: 2022. Created by: pfernandes

2.2.2 Existing port facilities

Port Kembla is a deep-water port that operates across two harbours (the Inner Harbour and Outer Harbour). NSW Ports is responsible for port infrastructure at the port, while the NSW Port Authority manages functions including harbour control, vessel tracking, pilotage and navigation. Overall, there at 18 berths within Port Kembla. Two grain terminals operate in the northern part of the Inner Harbour, along with bulk liquid facilities and a number of multi-purpose berths. Port Kembla Coal Terminal (PKCT) is located on the eastern side of the Inner Harbour and operates two berths. Six berths operate in the Outer Harbour for fuel discharge and loading, bulk, and break bulk cargo. BlueScope operates Berths 109, 110, 111, 112 and 113, which are located on the western side of the Inner Harbour. The Berths are shown on Figure 2.3.

Berths 109 to 113 are leased to BlueScope by NSW Ports and are operated 24 hours a day, seven days per week. A summary of the BlueScope leased berths is provided in Table 2.1. The Berths were initially constructed in the 1960s with the last major equipment upgrade occurring in the late 1970s. Existing facilities at the Berths have met the capacity and flexibility needs of the raw materials imported to date, however a changing commodity profile (and in particular, the need to import metallurgical coal, primarily from Queensland, once South32 ceases to supply 3-seam coal from its Dendrobium mine) requires improvements to be made to the equipment to ensure future material types and discharge capacities can be accommodated.

Table 2.1 Berths operated by BlueScope

Berth	Length (m)	Breadth (m)	Depth (m)	Description
109	220	35	12.2	Berth 109 is located to the north of the three Berths which are the subject of this EIS. Berth 109 is increasingly used to discharge imported and domestic scrap and to load steel coils for export and plant via land or ship-based crane. There are no works proposed to this berth under this application.
110	145	35	11	Berth 110 was previously used for the Roll On Roll Off or RORO ships (ships designed to carry wheeled cargo) that were previously owned by BHP Limited. This berth is no longer used and there are no works proposed to it as its design is not suitable for the current shipping fleet.
111	285	60.9	15.5	The largest of the five berths and suitable for Cape Size vessels, Berth 111 is currently used to unload iron ore only as there are no facilities for truck unloading or a conveyor system to handle other materials without contaminating the iron ore stream. Vessels are typically unloaded using No.3 Ore Unloader (3OUL) although it is possible to also use No.2 Ore Unloader (2OUL). Works are proposed for this berth.
112	300	45.7	12.8	Berth 112 is a mid-sized berth suitable for Panamax vessels that are partially loaded, or smaller Supramax and Handymax vessels. It is used for multiple materials including coal, limestone, iron ore pellets, scrap steel and other materials as required. Vessels are also loaded with export coke via this berth. Vessels are typically unloaded onto conveyors for delivery to the primary yard stockpiles which are close to the ironmaking operations. Materials that are used or stockpiled elsewhere are loaded into trucks using 2OUL. Currently, 3OUL cannot be used on Berth 112 because it lacks a truck loading chute and there is not enough space to fit all three ship unloaders on the one berth. This berth currently has the highest utilisation of the BlueScope operated berths. Works are proposed for this berth.
113	190	36.6	10.8 minimum	Berth 113 is a small-sized berth suitable for Handymax vessels. As there are no berth mounted crane rails in this area, berth unloading cranes cannot operate in this area. Ship mounted cranes or land-based mobile cranes are used to handle cargos. Berth 113 is used for scrap steel and some limestone cargos but has a low utilisation due to infrastructure and berth depth restrictions. Works are proposed for this berth.

Paper Size ISO A4

0 100 200 300 400

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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BlueScope Steel (AIS) Pty Ltd
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Berth locations

FIGURE 2-3

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Print date: 19 Oct 2022 - 14:08

Data source: Roads, Suburbs, Waterbodies - LPI: DTDB, 2019. Imagery -Metromap Tile Service: 2022. Created by: pfernandes

2.2.3 Project setting and land use

The project is located in Port Kembla in the Wollongong LGA and Illawarra region of NSW. Sydney is approximately 80 km to the north of Port Kembla, while the Wollongong Central Business District (CBD) is approximately 2.5 km to the north, and Lake Illawarra is approximately 3 km to the south. Port Kembla is the main industrial centre of the Illawarra region.

Port Kembla lies in the coastal plain which is bounded to the west by the Illawarra Escarpment and to the east by the Pacific Ocean. Port Kembla features a heavy industrial area constructed around the port and includes developments such as PKSW, fertiliser production facilities and petroleum hydrocarbon storage and wholesaling.

The project site is zoned IN3 – Heavy Industrial and SP1 - Special Activities under *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP) which replaced *State Environmental Planning Policy (Three Ports) 2013* (Three Ports SEPP) in March 2022. PKSW and the adjacent Springhill Works together comprise the largest site in the Port Kembla industrial area, occupying approximately 750 ha, and are mostly built around the western and southern side of the Inner Harbour. The PKSW site is a multi-use industrial area which includes storage, manufacturing, port berths, private internal roads and offices. Access to PKSW is provided by Springhill Road, Five Islands Road and Flinders Street, and then private internal roads in PKSW.

The port of Port Kembla is located between the Pacific Ocean and the Port Kembla heavy industrial area. The Inner Harbour, specifically developed as an all-weather shipping port, covers approximately 60 ha with around 2,900 m of commercial shipping berths. BlueScope currently leases five berths, which are used for import and export of materials.

The area surrounding Port Kembla industrial area is primarily occupied by residential development. These urban areas provide small and large-scale retail outlets, community services (e.g., medical facilities, hospital, schools and sporting facilities) and commercial facilities (e.g., banking and post office). The closest urban developments to PKSW are the suburbs of Cringila, Berkeley, Lake Heights, Warrawong and Port Kembla to the south, and Unanderra, Cobblers Hill, Mount St Thomas, Coniston and Figtree to the north and west. The urban areas of Cringila are located adjacent to the No. 1 Works and No. 2 Works areas and are the nearest to the project site, being approximately 1.5 kilometres to the southwest as shown on Figure 2.2.

2.2.4 Existing environment summary

The PKSW site is generally flat and resides upon a base of artificial fill, including dredged sand and mud, rocks and local soil materials. The site is generally sealed, with small areas of exposed soil. Soils on site are classified as disturbed terrain and have a low probability of acid sulphate soils. PKSW is listed as a contaminated site on the EPA's register of contaminated sites, with contamination managed and regulated under licence conditions attached to BlueScope's EPL 6092.

Currently, saltwater from the harbour is used for indirect cooling in industrial processes within the site and is returned to the harbour after use. A small amount of water from industrial processes is also released into the harbour via licenced discharge drains. Groundwater beneath the site generally flows towards the Inner Harbour and Allans Creek. Given the flat topography of the site, rainfall is expected to pool in some areas, and be drained from the site via the creeks into the harbour. PKSW is located above the 1 per cent AEP level.

PKSW is predominantly cleared and provides minimal habitat value. Vegetation on site comprises planted species and opportunistic weed species. No threatened vegetation, flora species or ecological communities have been identified as occurring within PKSW. The waterways surrounding the site are mapped as Key Fish Habitat. The site has recorded sightings of the endangered Green and Golden Bell Frog (*Litoria aurea*). The presence of the Green and Golden Bell Frog is managed across PKSW in accordance with site manual MA-ENV-03-03 Management of Threatened Species, the Green and Golden Bell Frog (BlueScope, 2020). Listed bird species may also visit the site temporarily.

The Inner Harbour is a marine environment that contains 18 shipping berths and facilitates a wide variety of industrial activities. Port Kembla is a deep-water shipping channel that can accommodate vessels with a ship length of up to 311 metres. Passage from the Outer Harbour to the Inner Harbour requires navigation through a narrow channel called The Cut. The channel is well marked with navigational buoys, sector lights and leading marks. The Inner Harbour has historically been impacted by industrial and urban runoff, as well as port activities. These activities have led to the contamination of marine sediments and waters. Previous studies undertaken on the harbour have identified this contamination to be heightened levels of heavy metals and total suspended solids (TSS) (PK Environmental Group, 2005).

Habitat within the Inner Harbour is comprised of hard substrates such as break walls, piles, and quay walls. The sea bed is comprised of soft sediment and is lacking in seagrass communities. The sediment of the Inner Harbour is considered to have a high probability of acid sulphate soil occurrence (GHD, 2018a). Biofouling communities previously identified within the area are oysters, gastropods, ascidians, tubeworms and bryozoans. The Inner Harbour also supports various fish species and is mapped as Key Fish Habitat.

No listed Aboriginal or historic heritage items have been recorded on the PKSW site. The nearest Aboriginal heritage item is located approximately 1,800 m from the project site. The nearest historic heritage item is the Commonwealth Rolling Mill Plant and Gardens located approximately 1,700 m to the south of the project.

Traffic associated with PKSW enters the site via Springhill Road, Five Islands Road and Flinders Street. PKSW is located close to the Princes Motorway, Princes Highway, Shellharbour Road and Masters Road which are used as major transport roads for vehicles transiting to wider NSW. PKSW also contains several internal roads and a functioning dock area for transport of goods via shipping.

Current approved industrial activities at PKSW and other industrial activities in the vicinity of the PKSW generate dust, steam, particulate matter, unfiltered air and gases. Noise is also generated by activities at PKSW and other surrounding industrial uses. The closest sensitive receivers is 900 m to the west of the coal conveyor, which is the nearest operational element.

A detailed description of the existing environment in relation to each of the key and other environmental issues relevant to the project is provided in Chapter 8 and Chapter 9.

2.2.5 Land ownership

The project will be predominantly located within Lot 1 DP606434, which is part of the PKSW site owned by BlueScope. The project will include equipment installations in the Ironmaking, Cokemaking and Steel making sections of this parcel of land, as shown in Figure 2.2.

The remainder of the project will be located within Lot 72 DP1182824which is the subject of a 99 year lease from the NSW Government to NSW Ports, due to expire in 2054.

Parts of Lot 71 DP1182824 are currently licensed for certain uses to BlueScope by NSW Ports, with the license conditions currently being revised to align with the Lot 72 lease. Negotiations to use the western end of Lot 71 for a temporary construction zone, laydown area and to provide a safety separation zone to the public during construction works are also progressing with NSW Ports to be ready for the execution stage. A small section of Lot 71 may also be required for the relocation of the bunker fuel line, subject to detailed design.

Other areas subject to use by the project for laydown of equipment, storage and preparation of piles, temporary storage of excavate spoil and machinery storage are Lot 1 DP 606430 (in the area shown as the Recycling Area in Figure 2.2) and Lot 1 DP190251, known as the CRM Works area.

3. Strategic context

3.1 Critical state significant infrastructure

The CLIP has been declared as CSSI in recognition of its significance to NSW for economic and social reasons. The proposed upgrades to the Berth will play a significant role in facilitating ongoing iron and steelmaking at PKSW, by providing the necessary infrastructure to allow import from Queensland of additional quantities of metallurgical coal which will be required once South32 ceases to supply BlueScope with 3-seam coal from its Dendrobium coal mine, located in the Illawarra escarpment and currently transported to PKSW by rail. The project will also improve supply chain contingency options and increase the materials handling capacity for all raw materials inputs required to maintain steelmaking operations.

More particularly, the declaration of the CLIP as CSSI recognises that by facilitating the ongoing operation of the PKSW, the CLIP contributes to the following economic and social outcomes:

- An economic contribution of approximately $10.3 billion in output per annum, equivalent to 1% of Gross NSW State Product.
- Continued supply of approximately 2.2 million tonnes of steel to the domestic market per annum, which is essential to support a range of major NSW infrastructure and construction projects of State significance, such as:
  - Road and rail projects.
  - Building and construction projects, including hospitals, schools, stadiums, dwellings, commercial and industrial buildings.
  - Energy infrastructure, including wind turbines, solar farms, electricity transmission infrastructure and pumped hydro.
- Continuation of approximately 4,500 jobs direct and indirect jobs at PKSW.
- Ongoing sovereign manufacturing capability.

BlueScope is seeking approval for the project from the Minister for Planning and Homes in accordance with Section 5.13 of the EP&A Act. The application of the EP&A Act with regard to the assessment and determination of the project is discussed in Section 6.1.

3.2 Global and national strategic context

Steel plays an integral role in the construction of enduring assets and supporting the transport and utilities that are vital to productive cities and the people who live in them. Steel products provide solutions for rapid construction and long-term use, flexible design, thermal comfort and weather resilience.

The steel supplied today will support economies for decades to come. Steel is critical to many sectors, including the renewable energy sector, which along with sustainable transport technology and higher levels of urbanisation, is predicted to increase steel demand. According to the International Energy Agency, global demand for steel is projected to increase by more than a third through to 2050[1].

Steel's recyclability is unmatched by other material groups and its contribution to a circular economy is increasingly recognised. Steel products are becoming more lightweight, designed for diverse application and extended useful life, and the value of raw materials maximised through reuse, remanufacturing and recycling.

PKSW is a regionally cost-competitive steel maker that is located close to major population centres and is well-serviced by port, rail, and road logistics. PKSW is one of only two integrated steelworks in Australia, and the only Australian facility producing hot-rolled steel flat products for downstream processing. The ongoing operation of PKSW supports a variety of downstream manufacturing businesses.

Increasing globalisation has led to a decline in industrial production in developed economies such as Australia, raising concerns for the nation's capacity to produce goods locally in the event of a disruption to world trade.

[1] International Energy Agency (IEA) Iron and Steel Technology Roadmap, Towards more sustainable steelmaking, October 2020.

Cessation of ironmaking in Australia is an issue of national importance, as the complexity and cost of establishing replacement ironmaking, steelmaking and hot-rolling facilities would be prohibitive if PKSW is shutdown. Additionally, the COVID-19 pandemic has disrupted many global supply chains, highlighting the risk of being too reliant upon global supply chains for critical products.

The CLIP is a key component of the No.6 BF Upgrade Project. If the project does not proceed, BlueScope's ability to continue primary steelmaking in Australia will be significantly compromised, with sub-optimal alternatives for import of raw materials, including metallurgical coal, leading to adverse economic consequences for BlueScope, the region and the State, as well as negative environmental impacts if BlueScope is required to import higher volumes of metallurgical coal by road and rail to compensate for the loss of supply of South32's 3-seam coal.

3.3 State and local strategic context

The Illawarra region has grown with the steel industry and continues to rely upon the steel industry as a major contributor to the local economy, through direct employment, employment of contractors and by supporting downstream manufacturers. Centred around the steel industry, the Illawarra has developed a skilled workforce and contractor base from which a broader range of industries can draw.

The Illawarra is emerging as a major industrial hub for clean manufacturing and renewable energy infrastructure. A number of potential energy projects have been identified in connection with the area, including the Port Kembla Gas Terminal for the import of Liquified Natural Gas (LNG) and the proposed associated development of a dual fuel LNG-Hydrogen power station. In addition, there is the potential development of the Illawarra Hydrogen Hub as part of the National Hydrogen Roadmap and NSW Electricity Roadmap. BlueScope is also supporting sustainable manufacturing through the commitment to invest $20 million in the BlueScope Renewable Manufacturing Zone (BRMZ) as announced in November 2020.

BlueScope's position as an established manufacturer and potential customer will be of value to these projects and will help support many more people than its own workforce. The project is therefore an important factor in maintaining the Illawarra's contribution to the NSW and national economies.

3.3.1 NSW 2040 Economic Blueprint

The NSW 2040 Economic Blueprint (NSW Government 2019) aims to inform views on what the NSW economy can achieve over the next two decades. The Blueprint has been informed by research on economic trends, jobs and productivity trends, and through broad consultation with various stakeholders. The Blueprint identifies a range of recommendations to enhance the performance of the NSW economy guided by the following aspirations:

– A two-trillion-dollar economy after 2040
– Healthy, productive people
– Vibrant, well-connected cities
– Productive, vibrant regions
– Innovative, world-class businesses
– Sustainable environmental and resources management
– Better government performance

A key aspect of the Blueprint in achieving the above aspirations is a focus on economic growth, advanced manufacturing, and new industries. The project will contribute to these areas through the delivery of benefits to the State economy. The project will assist in the delivery by PKSW of up to $10.3 billion in output for the State per annum, the equivalent of 1% of Gross NSW State Product. Additionally, the continued production of steel at PKSW will benefit downstream manufacturing industries, helping to promote the development of advanced manufacturing and new industries.

In relation to the aspiration of innovative, world-class businesses, the Blueprint recommends encouraging high growth future industries, more advanced manufacturing and growing the local defence industry supply chain. The project will help to realise these recommendations by maintaining the domestic supply of steel products to manufacturing businesses within these sectors. The project will contribute to the State's capacity to secure Defence procurements and facilitate the growth of new businesses and industries.

The project will contribute to the aspiration of achieving a two trillion dollar economy by 2040 through the provision of jobs and commerce in the local economy during construction and maintaining the significant contribution which PKSW makes to the Illawarra economy.

The project will assist in supporting the continued operation of PKSW beyond 2028, facilitating the retention of approximately 4,500 jobs at the site itself and supporting approximately 10,000 jobs in total including indirect employment in supplier and customer businesses. This significant contribution to local and regional employment will contribute to the aspiration for the citizens of NSW to be healthy, productive people.

The Blueprint identifies that in order to have an innovative industrial base, liveable cities, productive jobs and high living standards, sustainable environmental and resource management is required. The potential impacts of the project on the environment have been assessed throughout this EIS. The project is not expected to have a significant impact on the environment and management measures are provided in this EIS to prevent or mitigate environmental impacts. As such the project is consistent with the aspiration for sustainable environmental and resource management.

3.3.2 NSW Climate Change Policy Framework

The NSW Government has released the NSW Climate Change Policy Framework, which commits NSW to the aspirational objectives of achieving net zero emissions by 2050 and helping NSW to become more resilient to a changing climate.

The policy framework defines the NSW Government's role in reducing carbon emissions and adapting to the impacts of climate change. The Net Zero Plan outlines how the NSW Government's climate change objectives will be achieved. It is intended to be implemented in stages to enable evolving technologies to be incorporated into future stages and to allow for continual improvement over time with the aim of achieving net zero emissions by 2050.

As outlined in Section 9.9, BSL's own climate change policy aims to achieve net zero emissions by 2050 across BSL's global footprint, subject to the enablers outlined in BSL's Climate Action Report and is consistent with the NSW Climate Change Policy Framework.

Net Zero Plan Stage 1: 2020–2030

The Net Zero Plan Stage 1: 2020–2030 outlines four key priorities in regard to emission reductions to 2030. These are:

– Drive uptake of proven emission reduction technologies
– Empower consumers and businesses to make sustainable choices
– Invest in the next wave of emissions reduction innovation
– Ensure that NSW leads by example

BSL's climate change strategy as outlined in the Climate Action Report includes medium term targets to be achieved by 2030 and the aim of achieving net zero emissions by 2050, subject to the enablers outlined in BSL's Climate Action Report. BSL and BlueScope will work towards the targets through the uptake of proven emission reduction technologies as they become technically and commercially viable and through investment in emissions reduction innovations. Section 9.9 of this report provides further detail regarding BSL's Climate Action Report, and measures being implemented to achieve the specified GHG emissions intensity reduction targets. The project will be undertaken in accordance with the Climate Action Report and is therefore consistent with the NSW Climate Change Policy Framework and Net Zero Plan Stage 1: 2020–2030.

3.3.3 EPA Draft Climate Change Policy and Action Plan

The Draft Climate Change Policy (EPA, 2022a) (the Policy) and Draft Action Plan (EPA, 2022b) (Action Plan) outlines the commitment made by the EPA to deliver on statutory objectives related to climate change. Both documents are currently in draft form and on exhibition until 3 November 2022.

The Policy supports and builds on the NSW Government's overarching climate change objectives, which include reducing greenhouse gas emissions and making NSW more resilient and adapted to a changing climate. The Policy also gives EPA stakeholders certainty on climate change regulatory approach. The Policy has three key pillars:

– Inform and plan: continually improving EPA customer service, providing support and report
– Mitigate: reducing greenhouse gas emissions
– Adapt: adapting and building resilience to a changing climate

The Draft Climate Change Action Plan 2022-2025 (EPA, 2022b) sets out the specific actions that the EPA are taking to deliver on the three key pillars on the policy between 2022 and 2025. The Action Plan identifies existing and future ways that the EPA can mitigate and report on climate change factors in NSW.

In the Action Plan, the EPA commit to working with regulated premises to reduce climate change impacts. As the PKSW are regulated by the EPA under EPL 6092, BlueScope will continue to work alongside the EPA to reduce carbon emissions and undertake actions in alignment with the Climate Change Action Plan.

3.3.4 State Infrastructure Strategy 2012 – 2032

The State Infrastructure Strategy (NSW Government 2018) (the Strategy) is a 20-year infrastructure investment plan for the NSW Government that aims to place strategic fit and economic merit at the centre of investment decisions. The Strategy assesses infrastructure problems and solutions, and provides recommendations to best grow the State's economy, enhance productivity and improve living standards for the NSW community.

The Strategy focuses on investment in road, rail, ports, telecommunications, water, schools, hospitals, sports arenas and other local infrastructure as a means of achieving economic growth and improving living standards. Such infrastructure projects are steel intensive - therefore, the project will support the aims of the Strategy through providing a local source of steel products to downstream manufacturers and the construction industry. Similarly, the Strategy identifies a range of road, rail, and port projects and priorities including those which support the ongoing operation of the PKSW, an acknowledgement of the importance of the operation to the State.

3.3.5 NSW Freights and Ports Plan 2018-2033

The NSW Freights and Ports Plan 2018-2033 outlines the NSW Government and industry's need to boost the performance and utilisation of the State's existing roads, rail, ports, pipelines, and airports. The plan includes over 70 initiatives to be delivered by 2033 with the following five key objectives: economic growth, efficiency, connectivity and access, capacity, safety, and sustainability. The CLIP supports the key objectives of the plan by supporting economic growth and creating a greater freight capacity for raw materials at Port Kembla. The use of a continuous ship unloader removes the risk of suspended loads and increases the safety of unloading operations at the port.

3.3.6 NSW COVID-19 Recovery Plan

The NSW COVID-19 Recovery Plan (NSW Government 2020) is the government's plan to ensure the NSW economy is rebuilt following the COVID-19 pandemic. It identifies several investments and initiatives aimed at harnessing the innovations and lessons learnt during the COVID-19 pandemic to ensure the NSW economy is resilient and self-sufficient.

The initiatives outlined in the plan include:

– Investing $100 billion in a four-year infrastructure pipeline to drive employment growth.
– A Planning System Acceleration Program bringing forward immediate planning reforms to support productivity, investment and jobs by reducing the time taken to approve projects.
– Reviewing education and training programs to respond to skill shortages and focus on core competencies, as well as increased investment in schools.
– Adopting innovative digital models to facilitate seamless and easy interactions with government.
– Building a self-sufficient economy through supporting advanced manufacturing and local supply chains.
– Supporting national reforms to Federal-State relations to reduce overlap and regulation in cross-jurisdictional areas.

The project will contribute to the goals of the NSW COVID-19 Recovery Plan by supplying raw materials to support the continued manufacture of hot-rolled steel flat products to support a variety of downstream manufacturing businesses. This will in turn support the local manufacturing sector and maintain local supply chains. The CLIP will provide ongoing employment opportunities during construction and operation, supporting a resilient and self-sustaining NSW economy.

3.3.7 Illawarra Shoalhaven Regional Plan 2041

The Illawarra Shoalhaven Regional Plan 2041 (NSW Government 2021) is an overarching regional plan applying to the local government areas of Kiama, Shellharbour, Shoalhaven, and Wollongong.

The plan identifies four key planning themes for the region, which are:

– A productive and innovative region
– A sustainable and resilient region
– A region that values its people and places
– A smart and connected region

Under the four key themes, the plan outlines 30 objectives are proposed that would aim to protect and enhance the region's assets and plan for a sustainable future. The project aligns with several of these objectives as described below:

– Objective 3 of the Plan is to grow the Port of Port Kembla as an international trade hub. The Port of Port Kembla directly and indirectly supports more than 3,500 jobs and contributes $543 million to the regional economy each year. The project will support this objective through supporting operations at the PKSW, which is a significant exporter providing income and indirect job creation at Port Kembla.
– Objective 4 of the Plan is to activate regionally significant employment precincts to support new and innovative economic enterprises. Port Kembla is identified as being a regionally significant employment lands area. Construction of the project will assist in the retention of approximately 4,500 jobs at the site. Continued investment by BlueScope into the PKSW is expected to support the development of green energy options, such as a hydrogen hub.
– Objective 15 of the Plan is to plan for a Net Zero region by 2050. As described in Section 3.3.2, BSL's own climate change policy aims to achieve net zero emissions by 2050 across BSL's global footprint, subject to the enablers outlined in BSL's Climate Action Report. BSL and BlueScope will work towards the targets through the uptake of proven emission reduction technologies as they become technically and commercially viable and investment in emissions reduction innovations.

3.3.8 Wollongong 2028 — Community Strategic Plan

The Wollongong 2028 Community Strategic Plan outlines the community's main priorities and aspirations for the future and includes strategies for how to achieve them. The plan identifies the following community goals:

– We value and protect our environment
– We have an innovative and sustainable economy
– Wollongong is a creative, vibrant city
– We are a connected and engaged community
– We have a healthy community in a liveable city
– We have affordable and accessible transport

In relation to the goal of an innovative and sustainable economy, the plan identifies objectives of increased local employment opportunities and expansion of the profile of Wollongong as a regional city. The project will contribute to the sustainability of the local economy by supporting ongoing steel production at PKSW. The project will provide local employment opportunities of between 80 and 100 jobs during construction. Additionally, through supporting the continued operation of PKSW beyond 2028, the project will facilitate the retention of approximately 4,500 jobs at the site itself (both BlueScope employees and full-time contractors on the site) and support in the order of 10,000 jobs in total including indirect employment in supplier and customer businesses.

As part of the goal to have a healthy community in a liveable city, the plan identifies the objective to increase participation in recreational and lifestyle activities. The project will support the ongoing operation of the PKSW, which will also see continued support provided to community programs through BlueScope's community partners program. The community partners program was established in 2012 and has supported over 150 local community groups with well over $1.5 million in funding. Many of the groups funded include recreational and lifestyle activities, contributing to the goal for Wollongong of a healthy community in a liveable city.

The project will also be consistent with the goal to value and protect the environment. As the project is located within the disturbed PKSW site and existing BlueScope leased berths in Port Kembla, impacts to the natural environment will be minimal. The project is not expected to have a significant impact on the environment and management measures are provided in this EIS to prevent or mitigate environmental impacts.

3.4 BlueScope Steel Limited corporate strategy

BSL has elevated climate change strategy to the core of its corporate strategy and has set a target to reduce the Scope 1 and 2 GHG emissions of its steelmaking sites by 12 per cent by 2030 relative to 2018, and a goal of achieving net zero GHG emissions by 2050, subject to the enablers referred to in BSL's Climate Action Report. This is in line with Wollongong City Council's 2050 Net Zero Emissions target.

The company has taken a range of measures to enhance its management of climate change risks and opportunities, including reporting annually in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). The importance of the climate change strategy is evidenced by the refocus of the Board Committee previously known as the Audit and Risk Committee to issues around sustainability, including climate change, and the corresponding change of name to the Risk and Sustainability Committee of the Board and a Climate Change Council, introduction of shadow carbon pricing for the evaluation of capital projects, and investment in a solar power purchasing agreement equivalent to 20 per cent of its Australian electricity consumption. In February 2021, BSL appointed a Chief Executive Climate Change to coordinate its global climate change response and help drive the company's decarbonisation pathway.

BSL is working to optimise its existing operating assets and is exploring a range of opportunities to reduce its energy use and greenhouse gas emissions intensity. This includes further increasing use of scrap, the more efficient use of indigenous gases, the potential for injecting hydrogen-rich coke ovens gas into the blast furnace, trials of biomass injection into the blast furnace and a range of off-gas heat and energy reuse opportunities. BSL is also pursuing breakthrough decarbonisation technology with continued progression of the assessment of a pilot hydrogen-based direct reduced iron melter and a hydrogen electrolyser.

BlueScope and BSL are also participating in and leading several collaborations with industry and research organisations, including Responsible Steel, the Australian Industry Energy Transition Initiative project, and with the University of Wollongong. BlueScope and BSL plan to continually explore and implement when commercially viable best available technology to reduce carbon emissions of the PKSW as they become and commercially and technologically viable.

Raw material availability will be crucial to secure steel production capability in the near and longer term and to support the transition to net zero. Securing access to the raw materials that are currently used in the blast furnace process, such as metallurgical coal, will be critical in the early transition period, as will be securing future raw material requirements, such as Direct Reduced Iron (DRI) and green hydrogen.

In 2021, BSL committed $150M to pursue the research and development of carbon reduction projects across the global business over 5 years, anticipating an indicative estimate of $300M to $400M of capital will be required to be invested over a 10 year period. During FY2022, BlueScopeX™ was established and is BSL's fund for direct investment in start-ups and innovations in decarbonisation and energy efficient buildings. This commitment aligns with community interests and the NSW Government's intentions.

Along with its Finley Solar Farm Power Purchase Agreement in NSW, in late 2020 BSL announced a $20M investment to develop a Renewable Manufacturing Zone at PKSW. Half of this investment will be allocated to companies aspiring to build manufacturing capability, particularly in the renewable energy sector in NSW, with an immediate focus on supporting the manufacture of wind tower, solar farm, and pumped hydro electricity transmission facilities. The remaining half of the investment will be directly investing into PKSW to support the development of technology solutions in steelmaking, such as the development of green hydrogen projects.

Based on the measures taken and commitments made as outlined in this section, it is clear that BSL's corporate strategy aligns closely with the NSW Climate Change Policy Framework and Net Zero Plan Stage 1. Further detail in relation to the NSW Climate Change Policy is outlined in Section 3.3.2.

4. Project alternatives

4.1 Project rationale

PKSW currently operates as an integrated iron and steel plant utilising Blast Furnace ironmaking and Basic Oxygen Furnace steelmaking (BF-BOF operating model). The plant is co-located with hot rolling mills for plate and coil and has adjacent manufacturing facilities for coated products, flat products and welded beams. Current operations produce around 3.1 million metric tonnes of steel per year (Mtpa) of which around 2 Mtpa services the domestic market with the remainder being exported.

To maintain its operations, PKSW requires a continuous supply of raw materials, including iron ore, metallurgical coal, scrap steel, limestone, dolomite, and other minor commodities. These raw materials enter the precinct via road, rail and sea, including via the five BlueScope leased berths within Port Kembla. Typically, local commodity supplies enter via road or rail, with supplies of materials from further afield entering via sea. The existing ship unloading infrastructure located at the Berths is over 50 years old and cannot achieve the increased throughput required to support ongoing steelmaking operations at PKSW. Recent and emerging disruptions to key commodity supply chains (particularly in relation to metallurgical coal, and scrap as explained below) have highlighted the importance of the upgrade to the Berths proposed by the project.

At present, the Berths handle about 6 million tonnes of raw materials per annum with existing infrastructure operating near its design capacity. This will need to be expanded to accommodate at least an additional 1 million tonnes of coal per annum from 2028. The upgrade to the raw material handling capabilities of the Berths is critical for the on-going security of the steelworks, predominantly due to the significant disruption to the local supply of premium metallurgical coal that will occur within the next five to six years. BlueScope uses metallurgical coal in its coke ovens at PKSW to produce coke, which is a fuel source for the blast furnace and a carburising agent. Metallurgical or metallurgical coal differs from thermal coal due to its higher energy content and lower moisture content.

Currently, BlueScope obtains a unique blend of local New South Wales coal consisting of Wongawilli seam coal (also known as 3- seam coal) from South32's Dendrobium operations and Bulli Seam coal (also known as 1-seam coal) from South32's Appin operations. BlueScope also already imports via ship a relatively small amount of supplementary coal from outside NSW.

South32 has notified BlueScope that from 2028 it will not be able to supply BlueScope with 3-seam coal as it will have exhausted available reserves at its Dendrobium mine. 3-seam coal has specific qualities which are critical to the overall ability of the coal blend to satisfy the particular cokemaking requirements that are essential for blast furnace performance. The quality of the coal blend also influences the amount of coke required to produce one tonne of iron and is critical to the quality and volume of steel products produced. BlueScope remains committed to maximising local coal supplies where they are available and suitable but must maintain the quality of its coal blend to avoid the need for increased throughput of coal which in turn increases greenhouse gas emissions.

Unless South32's inability to supply 3-seam can be addressed, thereby maintaining the quality of its overall coal blend, BlueScope will need to blend the existing Appin coal with an alternate third-party coal to produce an equivalent and suitable metallurgical coal blend. BlueScope has not identified a suitable alternate coal supply located within NSW (that is, it has not identified alternate sources within NSW which would not significantly impact both productivity and greenhouse gas emissions). The distances and logistics involved in sourcing suitable coal types are such that the alternative metallurgical coal must be imported via Port Kembla Harbour.

A further key consideration for the Berth infrastructure is the potential for increased use of scrap per tonne of steel manufactured as a strategy to mitigate greenhouse gas (GHG) emissions. As all scrap is transported to the PKSW via ship, this increased scrap usage will also require additional capacity to be realised at the BlueScope Berths. Further detail regarding GHG management and mitigation is provided in Section 9.9.

Due to the changing mix and volume of raw materials being imported via the Berths, the existing berths at PKSW cannot accommodate the increase in capacity required to import alternate coal sources, additional scrap, existing raw material volumes and provide flexibility or contingency for supply chain disruptions in other raw materials required for steelmaking. As a result, the upgrade of the Berths which comprises CLIP is urgently required to support continued operations at PKSW, maintain the provision of steel to the domestic and export markets, and continue to provide economic benefit to the Illawarra region.

4.2 Alternatives considered

BlueScope has investigated a number of alternatives for continued raw material supply chain operations. Four options were investigated in detail for the project, which are described below.

– Option 1 – Continue with current road and rail operations but develop a new metallurgical coal blend. Refer Section 4.2.1.
– Option 2 – Construct a Continuous Ship Unloader (CSU) at Berth 111 and install supporting infrastructure from the discharge of a ship to stockpiling in the relevant location. Refer Section 4.2.2.
– Option 3 – Construct a Ship unloader (but with a lower capacity) at Berth 112. Refer Section 4.2.3.
– Option 4 –Construct a Ship unloader at Port Kembla Coal Terminal Berth 102 with a 3rd party operator. Refer Section 4.2.4.

4.2.1 Option 1 – Current operations with a new metallurgical coal blend

This option involves no changes to current berth infrastructure and the delivery of key raw materials. Coal would need to be locally sourced and transported to PKSW via the existing mix of road and rail. Due to the types of coal available from within NSW that can be economically serviced by road and rail, any change in existing supply of 3-seam coal from South 32's Dendrobium Mine would require a different blend of metallurgical coal to be developed for use in the coke ovens. Current trials have shown that it is unlikely that a suitable mix of locally sourced coal could produce a competent coke capable of maintaining current blast furnace performance. The use of a local only coal blend (without 3-seam coal) would significantly impact the volume of iron produced in the blast furnace, increasing the amount of coke required per tonne of iron. This increased coke rate would, in turn, increase GHG emissions per tonne of iron and erode the cost competitiveness of steel products on the global market.

Option 1 is the closest to a ‘do nothing’ option and means that PKSW would not retain the current cost effectiveness of production, would not obtain the operational security of coal supply and would result in an increase of GHG emissions from the PKSW site compared to the preferred option.

4.2.2 Option 2 – Construct a new Ship Unloader at Berth 111

This option involves construction of a new ship unloader at Berth 111. This option will allow BlueScope to achieve the maximum utilisation out of the largest, deepest berth that can accommodate Cape size vessels. This will allow the unloading of iron ore and metallurgical coal on the same berth without the risk of cross-contamination, enabling the use of larger classes of vessels at the berth. Together with the other changes to conveyor infrastructure, trucking infrastructure and improving the flexibility of berth operations through relocating existing ship unloaders, this option will improve the inter-operability, capacity and operational efficiency of the Berths. The improvements will also provide for future capacity requirements, including the required increase in imported metallurgical coal (critical to BlueScope’s operations) and the handling of other materials (e.g. additional scrap) which have the potential to improve GHG emissions per tonne of steel.

Option 2 will also have benefits in potential efficiency gains with the import and handling of other raw materials that are required for both current PKSW operations and any potential future expansion of exports or additional imports.

4.2.3 Option 3 – Construct a Ship unloader at Berth 112

This option involves construction of a screw type ship unloader at Berth 112. This ship unloader is similar in nature to Option 2 utilising a vertical screw instead of the bucket elevator mechanism. This machine would improve the utilisation of this berth and allow a more efficient unloading of coal and other minor materials. As Berth 112 is a smaller, shallower berth than Berth 111, it does not provide the advantage of accommodating the larger vessel classes. The screw type unloader is not suitable for discharging iron ore and so is not a viable option for Berth 111. This option will provide limited improvements to the capacity of the Berths and will not adequately address any future raw material capacity requirements.

4.2.4 Option 4 –Construct a Ship unloader at Berth 102

This option involves construction of a screw type ship unloader at Port Kembla Coal Terminal (PKCT) Berth 102 to convert it into an export / import berth. PKCT conveying, stacking storage, reclaiming and truck dispatch facilities would then be utilised to transport the coal to PKSW. While this option would not impact existing operations at BlueScope's leased berths, it would take importation out of BlueScope's control, requiring agreement and coordination with PKCT. It would also require the conversion of the terminal from an export only to an export / import facility, require a significant change to the flow of products around the terminal and place constraints on the operation of PKCT. This option would not address any existing or future utilisation and capacity issues for the BlueScope Berths.

4.3 Analysis of options

A comparison of options considered with regard to key evaluation criteria was undertaken as set out in Table 4.1. Based on the analysis of the options considered, Option 2 was selected as the preferred option.

Table 4.1 Summarised evaluation of Options considered.

Metric	Option 1 – Current import capabilities	Option 2 - Construct CSU at Berth 111	Option 3 - Construct a Ship unloader at Berth 112	Option 4 - Construct a Ship unloader at Berth 102
Financial Evaluation	Low capital cost	Moderate capital cost	Moderate capital cost	Moderate capital cost
Sales and Supply Chain	No flexibility and locks business into unverified coal specifications. Further congests the Berths. Future issues with unavailability of vessel class to load coal at coal supplier's loading facilities.	Very flexible option with future further increased capacity and additional materials. Utilises largest berth and largest ship classes. Addresses restriction of vessel class by coal exporters.	Resolves current coal imports without additional load on the Berths Offers no additional flexibility or berth utilisation relief. Low future flexibility Future issues with unavailability of vessel class by coal exporters.	Resolves current coal imports without additional load on the Berths. Offers no additional flexibility or berth utilisation relief. Low future flexibility Only addresses issue for 10 years during life of Dendrobium mine.
Operations	Impact on operations during trials. Unknown outcome or viability of new coal sources. Berth operations still constrained high utilisation rates.	Significant positive improvement in Berth operations and capacity. Allows for future increases in imports via ships and berth. Reduces berth utilisation rates to acceptable world standard.	Some positive improvement in Berth operations and capacity. Allows for minor increases in imports via ships and berth. Increased truck movements within PKSW.	Maintains current conditions while allowing additional coal imports. Increased truck movements within PKSW and external roads. No improvement in current high BlueScope berth utilisation.
Environment	No change to existing operations.	Reduced dust emissions compared to existing equipment. Reduced spillage compared to existing equipment. Higher efficiency drive motor technology.	Higher efficiency drive motor technology.	Higher efficiency drive motor technology.
External Affairs/ Community	Little change to existing operation.	Positive impact from business investment and modernisation.	Positive impact from business investment and modernisation.	Positive impact from business investment and modernisation.
Suggested next steps	Discard Option. Does not meet project objectives.	Take foreword as preferred Option.	Discard Option.	Discard Option.

4.4 Preferred option

Option 2 is the preferred option for the following reasons:

- Option 2 utilises available capacity on the deepest and largest berth at PKSW to accommodate additional ships providing the greatest increase in capacity and flexibility in operations across all of the Berths.
- Option 2 allows for the import of the required critical raw material quantities for continued production including the required mix of iron ore, scrap and metallurgical coal types to produce sufficient quality coke for optimal blast furnace operations.
- Option 2 allows for equipment to be installed that can discharge both iron ore and coal at higher rates, whereas other options can only discharge limited types of materials.
- The capacity and operational improvements provided by Option 2 allow for potential future increases in material throughout via the Berths and deliver security and flexibility in raw material supply.
- The inter-operability of the Berths means the facilities can also be more readily used for increased and/or new materials needed to support GHG reduction strategies (e.g., additional scrap).
- Modernisation of ship unloading equipment provides the potential for improved environmental and safety performance regarding dust emissions, spillage and electrical drives efficiency.
- While Option 1 has the lowest capital cost, it would introduce unacceptable risks to the operational security of iron and steel production at PKSW, through the introduction of lower quality coke to the Blast Furnace and increased consumption of coal with negative repercussions for greenhouse gas emissions.

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5. Description of the project

5.1 Project overview

The project will involve upgrade of the raw materials berths, and unloading and conveying infrastructure, which will allow BlueScope to continue to import raw materials operations including iron ore, scrap, coal and other materials for ongoing steelmaking operations. The project provides additional capacity for the import of supplemental coal following depletion of supply from Dendrobium Coal Mine and also increased scrap usage to assist with GHG reductions.

The project includes construction of a new CSU at Berth 111, new conveying infrastructure to facilitate transportation materials from the berth to stockpiling areas, and modifications to the berth to allow the relocation of the existing Coke Loader and two Ship Unloaders, No.2 Ore Unloader (2OUL) and No.3 Ore Unloader (3OUL). The project includes the following major components:

– Installation of a new CSU at Berth 111.
– Relocation and modifications to 2OUL and 3OUL to operate across Berths 111, 112 and 113.
– Installation of new conveyors to allow the transportation of coal to the coal storage location (4 Area) in lieu of trucking.
– New truck wash.
– Installation of foundations, crane rails, and relocation of the Coke Loader and its supply conveyors to Berth 113.
– Modifications to berth infrastructure and supporting services infrastructure.

Receival of coal and distribution to the Cokemaking area will be undertaken within existing PKSW transportation and materials storage areas.

As the utilisation of the berth is already near full capacity, the relocation of the Coke Loader, 2OUL, and 3OUL will be undertaken to manage the current shortfall in ship discharge capacity and to provide flexibility during outage periods caused by structural works. It is proposed to split the existing CLIP scope into 2 stages:

– Stage 1- Relocation of the Coke Loader and associated Ship Unloader movements.
– Stage 2- Installation of a CSU and associated conveyors.

A summary of the project is provided in Table 5.1. Each of the project components are described below with key project features shown on Figure 5.1. A flow diagram showing how the CSU operates as part of the wider site raw materials supply chain is provided in Figure 5.2.

Table 5.1 Project Summary

Project element	Summary	Further information
Relocation	Modify existing 3OUL to allow it to operate on both Berth 111 and Berth 112 (enable CSU footprint). Modify existing 2OUL to allow it to operate on both Berth 112 and Berth 113 (after the installation of new crane rails). Coke Loader relocated to operate on Berth 113 (to enable footprint for 2OUL and 3OUL, allow greater flexibility across all three berths).	Section 5.1.1
Construction	Construction of a new CSU to operate on Berth 111. New conveying infrastructure to deliver coal from the CSU to the permanent stockpiling location in 4 Area, including the separation of iron ore and coal during the conveying process.	Section 5.1 and 5.2
Access	The majority of the construction traffic will access the site via Flinders Street and Old Port Road, connecting to the major roads that service the Port Kembla industrial area, including the Princes Motorway and Princes Highway, Shellharbour Road, Springhill Road, Five Islands Road and Masters Road. No changes to existing access arrangements are proposed.	Section 5.3

Project element	Summary	Further information
Ancillary construction facilities	Various locations within the PKSW site within Lot 1 DP606434, Lot 71 DP1182824 and Lot 72 DP1182824, respectively. Temporary storage at Lot 1 DP 190251 and Lot 71 DP 1182824.	Section 5.4 and 5.5
Operation	Operation of the Berths will be generally the same as existing operations including the processing and transportation of raw materials (iron ore, scrap, coal, limestone). 3OUL will remain in service operating across Berth 111 and Berth 112. 2OUL will remain in service operating across Berth 112 and Berth 113. Coke Loader (1OUL) will remain in service but operations will be relocated to Berth 113.	Section 5.8
Waste	Construction: – Demolition waste – General construction waste – Excavation spoil – Scrap steel Operation: – Conveyor belts – Conveyor transfer point spillage	Section 9.10
Workforce	Construction: 80-100. Operation: approximately 20 direct and 10 indirect FTE jobs as per existing operations.	Section 5.6
Construction work hours	Where practical, and subject to the final construction program, construction will be carried out during the following construction hours: – Monday to Friday: 7.00 am to 6.00 pm – Saturday: 7.00 am to 6.00 pm – Sundays and public holidays: no work Construction activities may need to be scheduled to be undertaken as night or early morning works depending on wind and weather conditions.	Section 5.7
Construction duration	– Stage 1: 1 – 28 months – Stage 2: 1 – 36 months Period between stages to be confirmed based on operational requirements.	Section 5.2
Operational duration	Ongoing	Section 5.8.1

LEGEND

- Existing feature
- Proposed feature
- Relocated feature
- Project site

Paper Size ISO A4

0 40 80 120 160

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

BlueScope Steel (AIS) Pty Ltd
Commodities Logistics Infrastructure Project
Environmental Impact Statement

Project No. **12555409**
Revision No. **0**
Date **09/11/2022**

Key project features

FIGURE 5-1

G:\22\12555409\GIS\Maps\12555409_EIS_0.aprx
Print date: 09 Nov 2022 - 14:01

Data source: Roads, Suburbs, Waterbodies - LPI: DTDB, 2019. Imagery -Metromap Tile Service: 2022.
Created by: tmorton

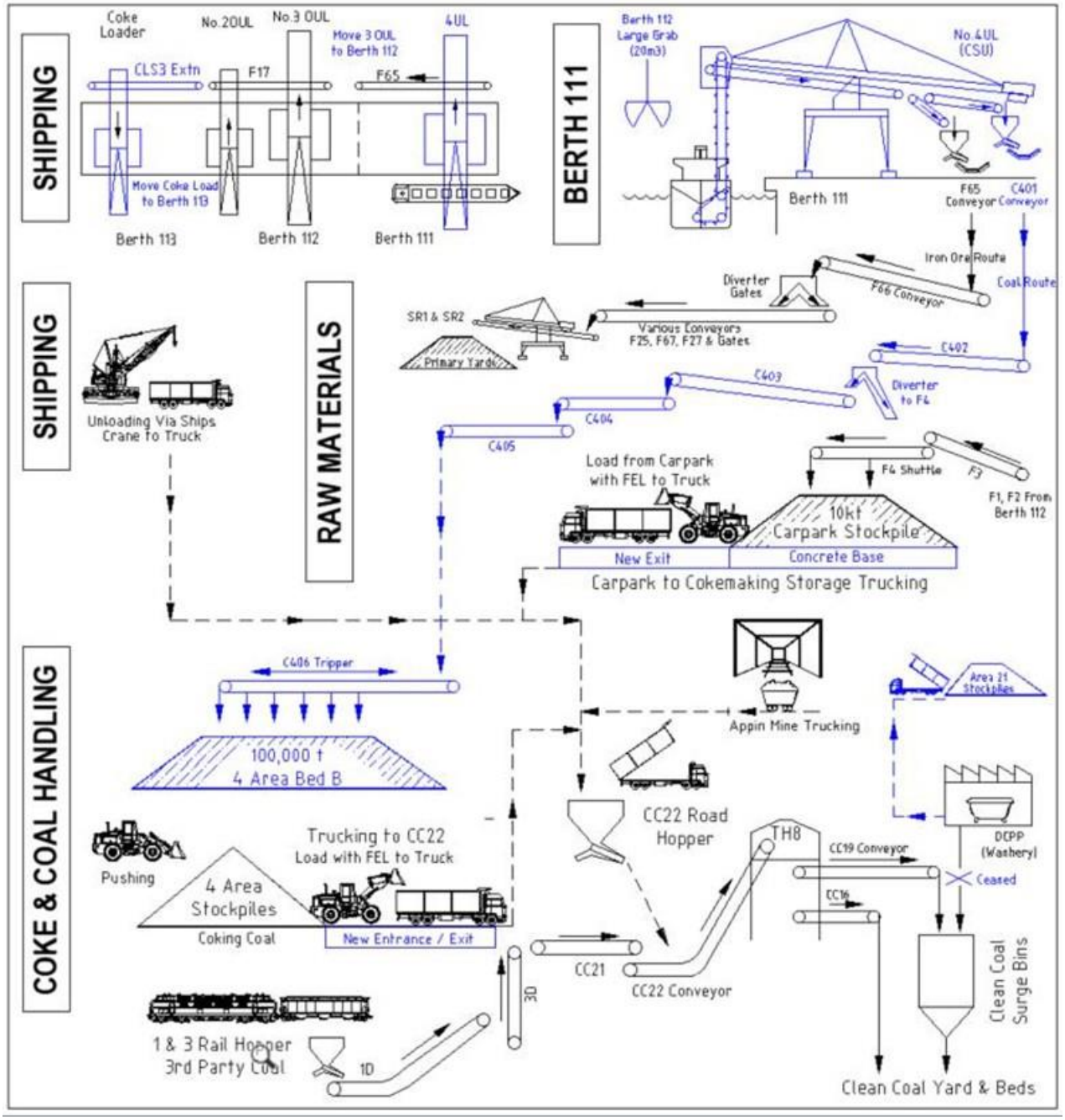

Figure 5.2 Simplified process flow diagram

5.1.1 Relocation of existing infrastructure

The project will require the relocation of the following existing infrastructure:

Relocation of 3 Ore Unloader

The installation of the CSU on Berth 111 will require the 3OUL to be relocated for primary use at Berth 112. The relocated 3OUL will still be able to operate at Berth 111 if required, providing redundancy in the event of a failure of the proposed CSU or for products that require discharge to trucks, and to assist in increasing the discharge rate when required.

Relocation of Coke Unloader

The project will include extending the rails on Berth 112 to include Berth 113 and relocating the Coke Loader to allow it to operate on Berth 113. Relocation of the existing conveyors and transfer house and construction of new connecting conveyors and transfer house would also be undertaken. This will allow the 2OUL to operate across Berths 112 and 113, extending its operating range and providing greater operating flexibility across the Berths.

Modifications to 2 Ore Unloader

Relocation of the 3OUL and Coke Unloader would require modifications to 2OUL to allow operation across both Berths 112 and 113.

Ancillary relocation

The project will also require the bunker fuel line owned and operated by Park Fuels to be relocated approximately two metres from its existing location along with several other electrical, air and water services.

5.1.2 Continuous ship unloader (CSU)

CSU description

CSUs are equipped with a bucket-elevator unloading device that is suspended from a boom. The material to be unloaded is scooped from the ship by the bucket elevator then transported vertically to the top of the CSU boom, where it is unloaded onto a conveyor belt. The entire bucket elevator system can fully rotate, allowing access to the entire hold of the ship. This enables improved emptying of the hold and reduces the requirement for trimming. Trimming is the process whereby the material left in the hold structural elements, corners, access ways and other locations is cleaned from these areas and piled to allow the unloader to be able to reach it. The CSU traverses on the existing pier-mounted rails along the full length of a ship. Dimensions for the proposed CSU are provided in Table 5.2.

The CSU proposed for construction at Berth 111 will allow for the handling of both coal and iron ore and will be capable of achieving an average discharge rate of 20,000 tonnes per day for coal and of 40,000 tonnes per day for iron ore. The design of the CSU will reduce trimming time, providing significant reductions in the time taken to completely discharge a ship and therefore increase the throughput of the berth. Key features of the CSU are described in Table 5.2 and shown on Figure 5.3.

Table 5.2 Continuous ship unloader – indicative dimensions

Feature	Summary
Height	55 metre bottom of bucket elevator to top of suspension elements (with boom level)
Length	97 metres from tip of bucket elevator to tip of counterweight
Width	39 metres across long travel assemblies
Weight	2,500 tonnes

The CSU conveying system is enclosed from the pickup in the ship's hold until the material is discharged on the receiving conveyor. As the CSU is not lifting a bucket of material over the side of the ship, spillage is almost eliminated. This removes the need for spill containment controls such as catch tarpaulins or bins to be set up alongside the ship and reduces dust emissions.

The CSU also removes the risk of damaging the ship as the machine head is placed inside the hold once and then remains inside the hold during the entire unloading operation. This prevents the need for continually moving the ship unloader head in and out of the ship as is required for a 'grab' or clamshell type unloader. The use of a CSU removes the risk of suspended loads and increases the safety of unloading operations at the port. An example of a CSU is shown in Figure 5.4.

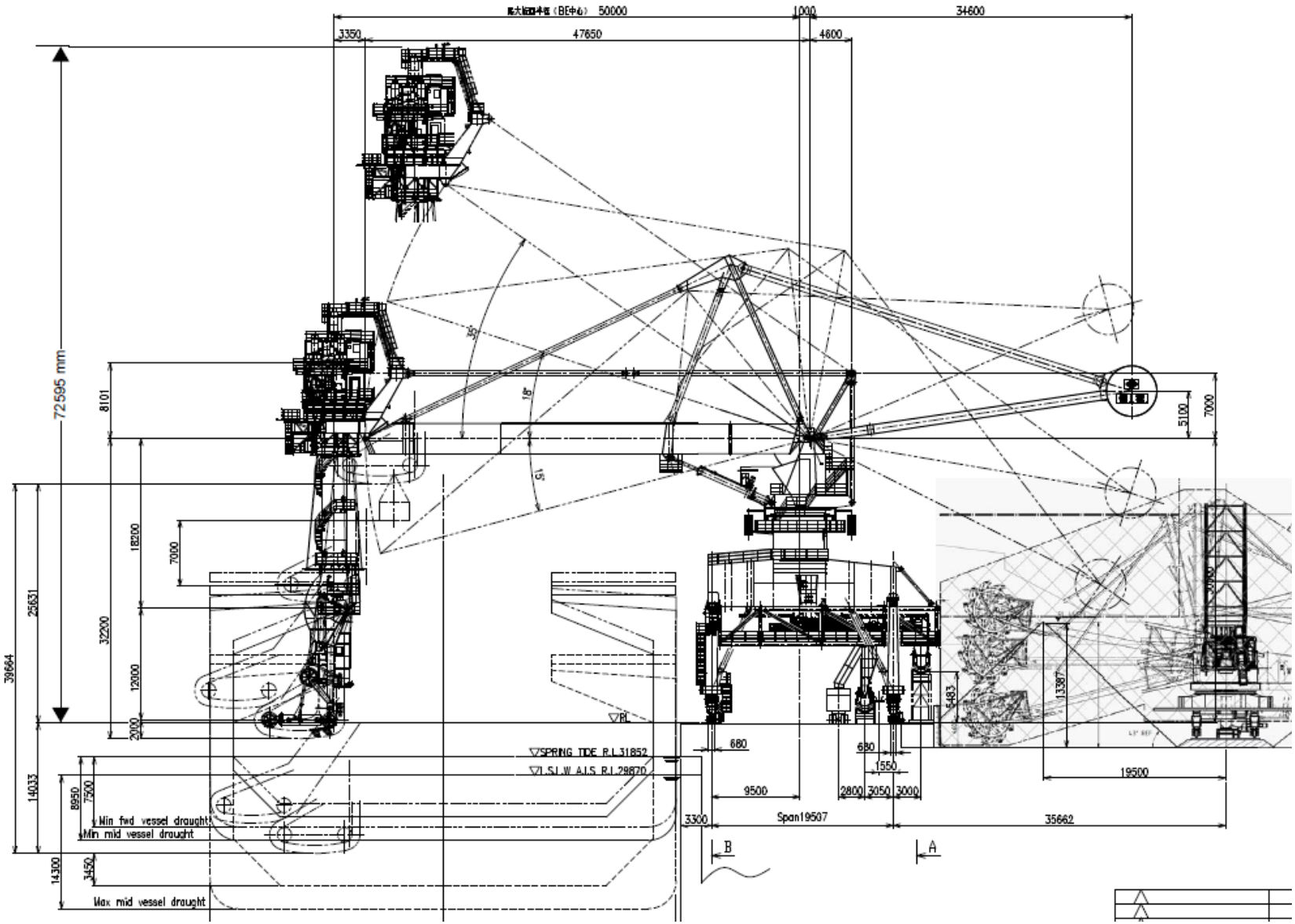

Figure 5.3 CSU schematic

Figure 5.4 Example of CSU machinery

CSU installation

The CSU will be assembled off-site at a supplier's location and transported to the PKSW by heavy lift ship either as one piece or up to 4 separate pieces depending on ship carrying capacities. The installation of the CSU will involve:

- The heavy lift ship coming alongside Berth 111 during appropriate tidal and weather conditions.
- The use of 'ship's gear' or the ship's own lifting cranes to move the CSU from the ship onto the crane rails on the berth. The heavy lift ship will use continuous ballast balancing to maintain a level angle of list within acceptable tolerances as the CSU's weight is transferred from the ship to the shore.
- Once weight has been transferred to shore the ship's gear will be disconnected.
- If the CSU is delivered in separate large parts, the parts will be assembled on the berth by a land based mobile crane.
- Installation of power, control and communications and commissioning will be completed by shore-based BlueScope contractors familiar with working conditions at PKSW.

Figure 5.5 shows an example of a CSU being unloaded from a heavy lift ship.

Figure 5.5 Example of heavy lift ship disembarking CSU. Image courtesy of Dry Cargo International (drycargmag.com)

5.1.3 New conveying infrastructure

Berth 111 is the main berth for importing high volume raw materials for the operation of PKSW. This is primarily iron ore, which makes up over 3 million tonnes of the total 6 million tonnes of commodities imported across all the Berths. Due to the proximity of the iron ore storage yards, significant conveyor infrastructure across multiple paths already exists to distribute iron ore that is discharged at Berth 111 to the relevant stockpiles.

This current infrastructure is only suitable for iron ore as discharges of coal and iron ore cannot be mixed due to the risk of contamination and its impact on the ironmaking process. As such, new conveyor infrastructure is required for transporting coal that is unloaded on Berth 111 to the coal stockpiling areas. It is proposed to partially duplicate the iron ore materials handling system in the conveying chain along Berth 111 and then install a new conveyor route to the main coal stockpiling area (Referred to as 4 Area). The new conveyor infrastructure will have the benefit of facilitating the discharge of multiple coal types, as well as being safer and more efficient. Provision to divert certain types of coal to a F4A Stockpile in the Raw Materials Handling area will also be included in the conveyor sequence design. The 4 Area will be used to store metallurgical coal, while the F4A Stockpile will be used to temporarily store other coal types, such as those used for pulverised coal injection. The new conveyor sequence will require the construction of several new conveyors to link Berth 111 to the 4 Area. The proposed location and route of the new conveyors is shown on Figure 5.6. Trucks will transport material from the F4A Stockpile to other locations within PKSW.

To provide for this transfer of coal the following conveyor sequence is proposed:

– The conveyor sequence will be sized to transport around 1,500 tonnes per hour (tph) of coal to meet the discharge rate of the CSU. The sequence consists of seven new conveyors, C01, C02, C03, C04, C05, C06, and C07.
– C01 conveyor will run along Berth 111 parallel to the existing iron ore conveyor (F65). C01 will be an open conveyor to allow for the movement of the CSU while discharging material onto C01.
– C02 conveyor will transfer and elevate the coal from C01 to above the existing F4 conveyor and transfer coal onto the C03 conveyor. This transfer includes a diverter at the head chute, allowing coal to be transferred onto C03 towards 4 Area or diverted to C07 towards the F4A Stockpile. C02 conveyor will be enclosed on three sides and includes a walkway.
– C03, C04, and C05 conveyors will transport coal from the C02 transfer towards 4 Area. These conveyors are positioned to avoid several large structures and sections of plant. These conveyors will be enclosed on 3.5 sides and will include walkways.
– C06 conveyor is a tripping conveyor that will receive coal from C05 and deliver it to the stockpile in 4 Area. The conveyor is open to allow for unlimited discharge points along its length to evenly distribute the coal into a single pile, or multiple smaller piles. The stockpile capacity under the tripper will be approximately 100,000 tonnes to allow for the discharge of a full Panamax size ship while providing capacity to reclaim the previous shipment of coal.
– C07 is a short belt feeder linking the C02 diverter discharge and the existing F4 conveyor to deliver coal to the F4A Stockpile to facilitate trucking of coal types that are not suitable for 4 Area.

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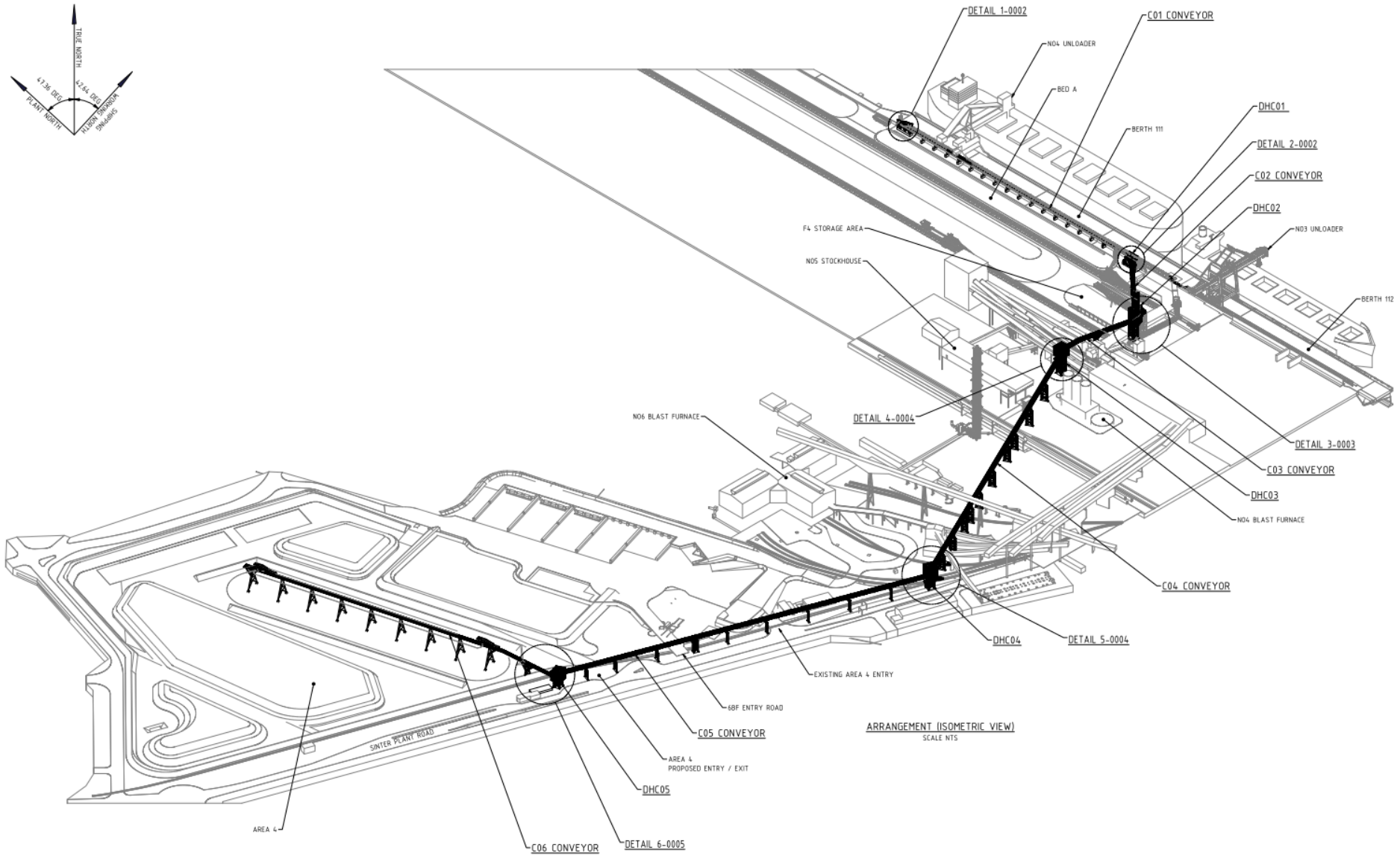

Figure 5.6 Coal Conveyor Route from Berth 111 to 4 Area

5.2 Construction activities and schedule

5.2.1 Project staging

The need for the CLIP is based on BlueScope's requirement to import sufficient quantities of existing raw materials and replacement sea borne coal to supply the 5BF until its decommissioning and then 6BF on commencement of operations. For as long as suitable coal can be sourced locally it will continue to be transported by rail to the PKSW. The supply of coal via rail provides significant relief to the quantity of material being imported via the berth, allowing scope for other commodities to be imported.

Prior to the installation of the CSU and its associated conveyors, structural works are required across the five BlueScope berths. Therefore, the installation of the CSU and its associated conveyors has been scheduled to be installed after the completion of works on the relevant berths.

As the utilisation of the berth is already at close to full capacity, the relocation of the Coke Loader, No.2 Ship Unloader, and No.3 Ship Unloader will be undertaken earlier than the delivery of the CSU to manage the current shortfall in ship discharge capacity and to provide flexibility during outage periods caused by structural works. As a result of this scheduling, it is proposed to split the CLIP scope into 2 stages:

– Stage 1- Relocation of the Coke Loader and associated No.2 & No.3 Ship Unloader movements
– Stage 2- Installation of a CSU and associated conveyors

5.2.2 Stage 1- Relocation of Coke Loader

This stage will involve the relocation of the Coke Loader at the earliest possible time to provide greater flexibility across the Berths for the importation of raw materials and to provide capacity for long berth outage periods resulting from structural works to the berth walls and support structures. Construction of this stage will be undertaken in the following phases:

1. Pre-work and site preparation. The time frame for this step will be approximately 1 to 6 months from project approval. Activities are expected to occur during standard construction hours and include:
    - Mobilisation of contractors and equipment and removal of temporary structures within the proposed work site.
    - Establishment of construction facilities, including fencing, site offices and temporary infrastructure (such as lighting and power).
2. Berth modifications at Berth 113. The commencement of this step will occur approximately 6 to 18 months from project approval with a duration of 18 to 28 months. Activities will occur both during and outside standard construction hours and include:
    - Excavation, piling and construction of reinforced concrete structures to support new crane rail beams, which will allow the extension of crane rails from Berth 112 to Berth 113.
    - Installation of below ground infrastructure.
3. Coke Loader relocation. The time frame for this step will be approximately 12 to 24 months from project approval with a duration of 12 to 24 months. Activities will occur both during and outside standard construction hours. Work outside of standard construction hours will usually be associated with large crane lifts. Activities include:
    - Relocation of the existing conveyors and transfer house.
    - Construction of new connecting conveyor and transfer house.
    - Relocation of electrical supplies for the Coke Loader.
    - Modifications to allow 2OUL to operate on Berths 112 and 113.
    - Modifications to allow 3OUL to operate on Berths 111 and 112.
    - Modifications to existing infrastructure to facilitate these works at Berth 113.

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- Reconfiguration of internal roads.
- Commissioning of Coke Loader and 2OUL in new positions.

4. Demobilisation of construction site. Expected timeframe up to 6 months:
    - Removal of construction compound and layout down areas.
    - Return of construction areas to their previous use.
    - Fine tuning equipment.
    - Commence operation.

5.2.3 Stage 2- Installation of CSU and Conveyor Sequence

Commencement of this stage will occur three to four years prior to the CSU being required for use, which could be as early as 2028 depending on the expected cessation of 3-seam coal production by South32. This stage is anticipated to be undertaken over the following sequence:

1. Pre-work and site preparation. The time frame for this step will be approximately 36 months prior to the formal date for the cessation of 3-seam coal with a duration of 6 months. Activities are expected to occur during standard construction hours and include:
    - Removal of temporary and mobile structures within the proposed work site.
    - Establishment of construction facilities, including fencing, site offices and temporary infrastructure (such as lighting and power).
2. Commodity clearance from the berth and transfer to 4 Area. The time frame for this step will be approximately 24 to 36 months prior to the formal date for the cessation of 3-seam coal with a duration of 18 to 28 months. Activities will occur both during and outside standard construction hours. Work outside of standard construction hours will usually be associated with large crane lifts. Activities include:
    - Construction of new conveyors and transfer houses.
    - Piling and excavation.
    - Establishing foundations and retaining walls.
    - Installation of electrical services.
    - Minor modifications to the Berths to accommodate the new conveyors.
3. Installation of CSU at Berth 111. The time frame for this step will be approximately 12 to 20 months prior to the formal date for the cessation of 3-seam coal with a duration of 12 to 18 months. Activities will occur both during and outside standard construction hours. Work outside of standard construction hours will usually be associated with large crane lifts. Activities include:
    - Unloading of CSU from ship onto Berth 111.
    - Connection of services to CSU.
    - Relocation of 3OUL to Berth 112.
    - Reconfiguration of internal roads.
4. Demobilisation of construction site and commission CSU and conveyors:
    - Removal of construction compound and layout down areas.
    - Return of construction areas to their previous use.
    - Commissioning of overall system, including trial unloading of ships and trial of distribution systems.
    - Fine tuning equipment.
    - Commence operation.

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5.3 Construction site access and traffic

The majority of the construction traffic will access the site via the major roads that service the Port Kembla industrial area, including the Princes Motorway and Princes Highway, Shellharbour Road, Springhill Road, Five Islands Road and Masters Road. The primary access points for CLIP construction activities are from the south via Old Port Road and Christy Drive. Parking for light vehicles is provided in the existing Christy Drive carpark. Light vehicle access for construction workers will be via the existing Christy Drive access or directly to the PKSW via other existing access points on Flinders Street and Old Port Road. Heavy vehicle access will be directly to the PKSW via existing access points on Flinders Street and Old Port Road. No infrastructure upgrades are required to allow construction access. All internal access will be via established roads with the PKSW site access. Traffic generation is discussed further in Section 9.1. No changes to existing access arrangements are proposed as part of the project. Onsite parking will be available for the workforce as shown in Figure 5.1.

The rail network within the port precinct consists of rail lines, sidings and loops. The Port Kembla rail network links to the Illawarra and Moss Vale-Unanderra rail line, managed by the NSW Government and ARTC respectively. The Illawarra Line is a shared passenger and freight rail line. The project will not impact any rail infrastructure owned or managed by third parties.

5.4 Construction laydown areas

Laydown areas for construction equipment and materials will be predominantly within the PKSW site, with some use of NSW Ports' land in accordance with relevant land access agreements. The delivery of materials and equipment to the work sites will be staged as required with minimal storage close to the berths. Indicative laydown areas are shown on Figure 5.7 and summarised in Table 5.3.

Table 5.3 Ancillary facilities existing and proposed use

ID	Location	Activity	Size (m^2)	Indoor/Outdoor
1	Berth 113 laydown	Main construction area laydown and staging area, equipment, materials and site sheds.	5,806	Outdoor
2	Tug berth laydown	Piling rig, piles and equipment	5,000	Outdoor
3	Christy Dr laydown	Containers for covered storage, equipment	845	Indoor using containers
4	Sinter Plant laydown	Piles, conveyors and large equipment, excavation spoil	2,328	Outdoor
5	21 Area Laydown A	Large equipment, excavation spoil	7,430	Outdoor
6	21 Area Laydown B	Large equipment, excavation spoil	4,864	Outdoor
7	Carpark Laydown	Materials, equipment, excavation spoil	3,616	Outdoor
8	4BF Laydown	Materials, equipment, excavation spoil, piles	1,161	Outdoor
9	Energy Services Laydown	Materials, equipment, excavation spoil, piles	1,617	Outdoor
10	4 Area Laydown	Materials, equipment, excavation spoil, piles	8,726	Outdoor

Ancillary facilities for existing and proposed uses are shown in Figure 5.7.

ID	Location	ID	Location
1	Berth T1-3 laydown	6	21 Area Laydown B
2	Tug berth laydown	7	Carpark Laydown
3	Christy Dr laydown	8	4BF Laydown
4	Sinter Plant laydown	9	Energy Services Laydown
5	21 Area Laydown A	10	4 Area Laydown

Paper Size ISO A4

0 125 250 375 500

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

GHD

BlueScope Steel (AIS) Pty Ltd
Commodities Logistics Infrastructure Project
Environmental Impact Statement

Project No. **12555409**
Revision No. **A**
Date **13/10/2022**

Ancillary facilities

FIGURE 5-7

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Print date: 19 Oct 2022 - 14:08

Data source: Roads, Suburbs, Waterbodies - LPI: DTDB, 2019. Imagery -Metromap Tile Service: 2022. Created by: pfernandes

5.5 Construction materials and equipment

Much of the equipment and materials required for the project have a long lead time for procurement. Specific types and quantities of equipment and materials will be determined during project planning. An indicative list of equipment and materials that may be required for the project is provided in Table 5.4 and Table 5.5 respectively.

Table 5.4 Indicative construction equipment

Construction equipment		
Excavators- Various Sizes	Concrete Trucks	Welding machines
Bulldozers	Contractor service vehicles	Site Sheds
Semi-trailers and rigid body trucks	Concrete trucks	Vacuum Trucks
Dump Trucks	Rollers – compactor and vibratory	Boring machines
Mobile Cranes-up to 750 tonnes	Piling Rigs	Asphalting machines
Elevated Work Platforms	Semi-Trailers	Rockbreakers
Concrete pumps	Welding machines	Forklifts up to 5 tonnes
Excavators up to 50 tonnes	Heavy lift ship (for import of CSU only)	-

Table 5.5 Indicative construction materials

Construction material	Approximate quantity
Piles	Approximately 500 to 600 tonnes.
Reinforced Concrete including steel reinforcing	Stage 1: Coke Loader Relocation to Berth 113: 1,000 m^3 Stage 2: Conveyors C01 to C06: 1,200 m^3 Stage 2: Other minor components: <500 m^3
Aggregates, sand, etc (excluding concrete)	Stage 1: Coke loader Relocation to Berth 113: 10,000 m^3 Stage 2: Conveyors and other items: 5,000 m^3 The above quantities include the recycling and reuse of slag, concrete, etc excavated form the site.
Concrete pipes, culverts	Less than 1 km to be installed
Steel Structures	CSU: 2,000 t, Piles at Berth 113: 6,000 t Conveyors: 3,000 t
Conveyor Belt	3,500 m
Asphalt	10,000m^2
Motors, gearboxes, hydraulic & air cylinders	25 motors and gearboxes
Steel wire ropes	None
Spoil	Excavation Conveyors: 5,000 m^3 Berth 113: 28,000m^3 Permanent Spoil: Conveyors: 4,000m^3 Berth 113: 5,000m^3 Remainder returned to ground.

5.6 Workforce

It is anticipated that labour requirements for the project will be modest and mostly satisfied by a mixture of local general contractors and specialist external contractors where required. Across the duration of the project, a workforce of approximately 80 - 100 full-time equivalent (FTE) workers will be required.

During operation, it is anticipated that workforce requirements will not change significantly from the existing operations requiring approximately 20 direct and 10 indirect FTE workers.

5.7 Work hours

Authorisation for 24-hour construction is being sought as part of the request for planning approval.

Where practical, and subject to the final construction timetable, construction will be carried out during the following construction hours:

– Monday to Friday: 7.00 am to 6.00 pm
– Saturday: 7.00 am to 6.00 pm
– Sundays and public holidays: no work

However, there will be several construction activities scheduled to be undertaken outside of standard hours to manage interaction with the remainder of PKSW operations, shipping movements, tidal flows and the higher day shift workforce. The CSU itself will be transported to site by ship and require a crane lift from ship to shore. This operation and other significant crane lifts will need to be undertaken when weather conditions are calmest which is generally during the early morning, prior to 7.00 am. Additionally, contractors for piling works generally operate in 14 to 16-hour shifts, requiring some works outside standard hours.

Where practical, noise generating activities with potential to impact any nearby receivers will be scheduled during standard hours.

As the construction activities, including piling and crane lifts, are similar for both stages, the work hours will be the same for both stages.

5.8 Operation

5.8.1 Operational hours

Operation of the project will be 24 hours per day seven days a week consistent with current operations. Operation will be ongoing following commissioning.

5.8.2 Operational traffic and transport

Shipping operations will continue to service BlueScope's berths in a similar manner as they are currently operated. BlueScope has consulted with NSW Ports and the Port Authority of NSW as detailed in Section 7. Shipping movements will continue to occur 24 hours per day. The additional capacity that the new CSU will provide will allow for an estimated 15 to 18 additional ships (30 to 36 additional ship movements) per year. Vessel types accessing the Berth will be a mix of types that currently service the Berths including Handymax, Supramax, Panamax and Cape class vessels. Further details regarding site traffic and access are provided in Section 9.1.1.

Trucking operations will continue to move raw materials from BlueScope's berths in a similar manner as they are currently operated. The additional volumes of metallurgical coal that are imported will be moved to the stockpiling area by conveyors and no additional truck movements are required. The existing truck movements occur using internal roads and transport routes within the PKSW site. They do not currently impact the public road network and will not cause impacts in the future. Further details regarding site traffic and access are provided in Section 9.1.1.

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5.8.3 Berth utilisation

At the completion of Stage 2, the project will result in an additional 1.0 Mtpa of material discharged through the BlueScope leased berths. The upgrade to the capacity of Berth 111 will maximise the use of this deeper berth to accommodate more frequent use of the larger class of Cape sized ships and fully loaded Panamax ships.

Due to their larger hold capacity relative to Panamax or Handysize ships, Cape sized vessels improve berth utilisation through economies of scale while fully loading Panamax ships ensures the full use of ship capacity. The installation of the higher capacity unloading equipment and the use of larger ship classes will reduce total berthing, vessel turning, and wharfing time. Berth 112 will then have available capacity for other materials, while the extension of rails to Berth 113 will significantly improve the utilisation of that berth and the overall flexibility across the three raw material Berths.

Through improving the total ship discharge rate and berth flexibility, additional berthing days will become available, allowing more ships to be processed by the Berths in an annual period.

5.8.4 Berth clearance

Once material has been discharged from a ship, it must be removed and cleared from the berth at a rate that is equal to or greater than the rate of discharge of the unloading machines. Materials that are used in the ironmaking process such as iron ore and limestone are stored and blended in the Raw Materials Handling area adjacent to the Berths. Significant infrastructure including multiple conveyor paths already exists to allow the blending and stockpiling of iron ore and other commodities.

Coal, however, is used in the Cokemaking process, which is in a different section of PKSW and therefore does not have any have permanent storage areas within the Raw Materials Handling area. As only minor volumes of metallurgical coal currently arrive via ship, there is no conveyor sequence to transport it to 4 Area. The project scope includes the installation of 7 new conveyors between Berth 111 and 4 Area to facilitate the transport of metallurgical coal from ships to the stockpile via conveyor. This conveyor sequence removes the need for trucking metallurgical coal from the berth.

Minor volumes of non-metallurgical coal currently imported will continue to be transported via truck from the berth to the coal storage areas located in various plant locations depending on the coal type, including the Cokemaking and Recycling Areas, in line with current operations.

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6. Statutory context

6.1 Approval pathway and permissibility

6.1.1 Environmental Planning and Assessment Act 1979

The key legislation in NSW regulating the use of land is the *Environmental Planning and Assessment Act 1979* (EP&A Act) and *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation). The EP&A Act institutes a system for environmental planning and assessment, including approvals and environmental impact assessment requirements for proposed developments. The EP&A Act contains three key parts that impose requirements for planning approval. These include:

– Part 4, which provides for the assessment and determination of development that requires development consent from the local council, a regional planning panel or the NSW government for development which is classed as State Significant Development (SSD).
– Part 5 (Division 5.1), which provides for the environmental assessment of activities that do not require approval or development consent under Part 4.
– Part 5 (Division 5.2), which provides for the assessment and determination of State Significant Infrastructure (SSI) including critical SSI (CSSI).

The need or otherwise for consent for a new development application is set out in environmental planning instruments (EPIs) as described below.

The project has been declared CSSI in accordance with Section 5.13 of the EP&A Act and clause 26, Schedule 5 of *State Environmental Planning Policy (Planning Systems) 2021*. BlueScope is seeking CSSI approval for the project under Part 5, Division 5.2 of the EP&A Act. The Minister for Planning and Homes is the approval authority and the project is to be assessed in accordance with the provisions of Division 5.2 of the EP&A Act.

6.1.1.1 EP&A Regulation requirements

Part 8 of the EP&A Regulation describes the requirements for an EIS. Division 5 of Part 8 describes the form and content of an Environmental Impact Statement. These requirements and where they are addressed in the EIS are outlined in Appendix C.

6.1.1.2 Development contributions

Pursuant to section 5.22(3) of the EP&A Act, the provisions of Division 7.1 and 7.2 of the EP&A Act apply to SSI that is not being carried out by or on behalf of a public authority. The Minister has the discretion to impose a condition of approval requiring payment of a development contribution after considering the provisions of any applicable development contributions plan. BlueScope notes that the project will have negligible, if any, impacts on the requirements and demand for local government services and amenities.

6.1.2 Environmental planning instruments

BlueScope is seeking CSSI approval as identified above. Section 5.22(2) of the EP&A Act provides that environmental planning instruments do not apply to or in respect of SSI (including CSSI), except where they apply to the declaration of infrastructure as SSI or CSSI. While environmental planning instruments other than *State Environmental Planning Policy (Planning Systems) 2021* therefore do not apply, the following instruments have been taken into consideration when assessing the potential impacts of the project.

6.1.2.1 State Environmental Planning Policy (Planning Systems) 2021

The *State Environmental Planning Policy (Planning Systems) 2021* replaces the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) to identify development that is considered to be of state significance and includes provisions for SSD and SSI including CSSI. CSSI is defined as development that is, in the opinion of the Minister for Planning, essential to the State for economic, environmental or social reasons.

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The project has been declared as CSSI and is listed in clause 26, Schedule 5 of the *State Environmental Planning Policy (Planning Systems) 2021:*

Under Part 2.3, section 2.15 of this SEPP, the project therefore:

> *(a) may be carried out without development consent under Part 4 of the EP&A Act, and*
>
> *(b) is declared to be State significant infrastructure for the purposes of the EP&A Act if it is not otherwise so declared, and*
>
> *(c) is declared to be critical State significant infrastructure for the purposes of the EP&A Act.*

6.1.2.2 State Environmental Planning Policy (Transport and Infrastructure) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021 replaces the *State Environmental Planning Policy (Three Ports) 2013* (Three Ports SEPP), which provided a planning regime for the development and delivery of infrastructure on land in Port Botany, Port Kembla and the Port of Newcastle.

The project falls within the Port Kembla land application map under Part 5.1 of the T&I SEPP. The project is located on land zoned IN3 Heavy Industrial and SP1 Special Activities. The SP1 zoning applies to the port facilities of Port Kembla. The project meets the definition of a heavy industry and port facilities in accordance with the T&I SEPP and is consistent with the objects of the land zoning.

6.1.2.3 State Environmental Planning Policy (Resilience and Hazards) 2021

The *State Environmental Planning Policy (Resilience and Hazards) 2021* (R&H SEPP) replaces several former SEPPs that were applicable to this project:

– State Environmental Planning Policy (Coastal Management) 2018 (Coastal Management SEPP)
– State Environmental Planning Policy No. 33 - Hazardous and Offensive Development (SEPP 33)
– State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55)

Compliance with the aspects of *State Environmental Planning Policy (Resilience and Hazards) 2021* is described below.

Coastal management

The Coastal Management SEPP aimed 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*. The objectives of the Coastal Management SEPP were to manage development in the coastal zone and establish a framework for land use planning and decision making in the coastal zone. The provisions of the Coastal Management SEPP were transferred over to Chapter 2 of the R&H SEPP.

The project is located partially within the coastal use and coastal environment area mapped under the R&H SEPP and therefore development consent would ordinarily be required. While the CSSI declaration overrides the need for consent under the R&H SEPP, consideration has been given to the requirements of the SEPP, including the following principles:

– The development is designed, sited and will be managed to avoid adverse impacts, or
– If adverse impacts cannot be reasonably avoided—the development is designed, sited and will be managed to minimise those impacts, or
– If those impacts cannot be minimised—the development will be managed to mitigate those impacts

For development within the coastal use area, the responsible authority has the additional requirement of taking into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.

The project is consistent with Clause 2.10 and Clause 2.11 of Part 2.2 of the R&H SEPP as detailed in Table 6.1.

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Table 6.1 Consistency with Part 2.2 of the R&H SEPP

Clause 2.10 and 2.11 requirements	Comment
Clause 2.10(1)	
(a) The integrity and resilience of the biophysical, hydrological and ecological environment	A comprehensive environmental assessment for the project has been carried out (Chapters 8 and 9). The project will not significantly degrade the biophysical, hydrological or ecological environment.
(b) Coastal environmental values and natural coastal processes	The project will be located in a highly modified industrial site and will not impact on coastal environmental values or natural coastal processes.
(c) The water quality of the marine estate, in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1	The project is not likely to adversely impact the water quality of the marine estate. Water quality impacts are discussed in Section 8.4. The project is not located in or near any coastal lakes listed in Schedule 1 of the R&H SEPP.
(d) Marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms	Potential impacts on biodiversity have been considered, with the assessment concluding no State or Commonwealth listed threatened biota, or their habitats, will be significantly impacted as a result of the project. Biodiversity impacts are discussed in Section 9.3.
(e) Existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability	The project is located on privately owned land or land that is subject to long term leases to private entities and will not impact on any existing public open space or access to and along the foreshore, beach, headland or rock platforms.
(f) Aboriginal cultural heritage, practices and places	The project is unlikely to impact on Aboriginal cultural heritage, practices and places. Potential impacts to Aboriginal heritage are discussed in Section 9.4.
(g) The use of the surf zone	The project is not located within or near the surf zone.
Clause 2.11(1)	
(a)(i) Existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability	The project is located on privately owned land or land that is subject to long term leases and will not impact on access to and along the foreshore, beach, headland or rock platforms.
(a)(ii) Overshadowing, wind funnelling and the loss of views from public places to foreshores	During construction, presence of plant and equipment will have a negligible impact on the visual amenity of the site given the context of the surrounding industrial area. During operation, the site will be generally consistent with the pre-existing visual landscape. Visual amenity impacts are discussed in Section 9.6.
(a)(iii) The visual amenity and scenic qualities of the coast, including coastal headlands	
(a)(iv) Aboriginal cultural heritage, practices and places	The project is unlikely to impact on Aboriginal cultural heritage, practices and places. Potential impacts to Aboriginal heritage are discussed in Section 9.4.
(a)(v) Cultural and built environment heritage	The project is unlikely to impact on cultural and built environment heritage. Potential impacts to historic heritage are discussed in Section 9.5.

Hazardous and offensive development

As discussed above, the R&H SEPP replaces SEPP 33 which regulated, amongst other matters, the determination of development applications to carry out development for the purposes of a potentially hazardous industry or potentially offensive industry.

A hazard and risk assessment has been undertaken to satisfy Clause 3.11 in the R&H SEPP in accordance with the *Hazardous and Offensive Development Application Guidelines, Applying SEPP 33* (Department of Planning, 2011) as part of the EIS. The hazard and risk assessment concluded that the project can be designed, constructed, and operated in a manner that will meet the relevant regulations, standards and policies and minimise hazardous impact to the public (see Section 8.3).

Remediation of land

The R&H SEPP also replaces SEPP 55 which provided for a state-wide planning approach to the remediation of contaminated land. In particular, Chapter 4 of the R&H SEPP aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.

The project represents a continuation of the existing industrial land use. Management of contaminated land will continue to be managed in accordance with EPL 6092 and in compliance with relevant legislation, including as discussed in Section 6.2 and 9.2.

6.2 Other relevant legislation

6.2.1 NSW legislation

6.2.1.1 Protection of the Environment Operations Act 1997

The objectives of the *Protection of the Environment Operations Act 1997* (POEO Act) include the protection, restoration and enhancement of the quality of the environment, having regard to the need to maintain ecologically sustainable development, as well as the reduction of risks to human health and the environment by the use of mechanisms that promote, amongst other things, pollution prevention and cleaner production. The POEO Act provides for an integrated system of licensing and contains a core list of activities in Schedule 1 which require an Environment Protection Licence (EPL).

PKSW is operated under EPL 6092, which allows a range of scheduled activities to be carried out at the site, including shipping in bulk. Whilst the project does not propose a change to the nature of the scheduled activities undertaken, due to the proposed changes in site infrastructure, BlueScope will need to provide modified premises mapping to the EPA in relation to the new ship unloader and conveyor arrangements.

Section 5.24 of the EP&A Act provides that an EPL cannot be refused if it is necessary for carrying out an approved CSSI project and is substantially consistent with the CSSI approval.

6.2.1.2 Biodiversity Conservation Act 2016

The purpose of the *Biodiversity Conservation Act 2016* (BC Act) is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future. The BC Act lists threatened species, populations and ecological communities as well as critical habitat and key threatening processes to be considered when assessing an activity.

Under Section 7.9 of the BC Act, an application to carry out SSI, including CSSI, is to be accompanied by a biodiversity development assessment report (BDAR) unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values.

The project is unlikely to have a significant impact on any threatened species, populations or ecological communities listed under the BC Act, therefore the requirement for a BDAR has been waived. Impacts to biodiversity are addressed in Section 9.3.

6.2.1.3 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) provides for the protection of Aboriginal objects (sites, objects and cultural material) and Aboriginal places.

It is an offence under Section 86 of the NPW Act to harm or desecrate an object the person knows is an Aboriginal object. It is also a strict liability offence to harm an Aboriginal object or harm or desecrate an Aboriginal place, whether knowingly or unknowingly. Section 87 of the NPW Act provides a series of defences against the offences listed in Section 86, including where the harm was authorised by and conducted in accordance with the requirements of an Aboriginal Heritage Impact Permit (AHIP) under Section 90 of the NPW Act. Under section 5.23 of the EP&A Act, an AHIP permit under Section 90 of the NPW Act is not required for approved CSSI.

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The project will be restricted to a highly disturbed industrial site of the existing PKSW and is therefore not expected to have any impacts on Aboriginal cultural heritage. Potential for impacts upon Aboriginal cultural heritage are addressed in Section 9.4.

6.2.1.4 Heritage Act 1977

The *Heritage Act 1977* (Heritage Act) is concerned with all aspects of heritage conservation ranging from basic protection against indiscriminate damage and demolition of heritage buildings and sites, through to their restoration and enhancement.

Heritage places and items of particular importance to the people of NSW are listed on the State Heritage Register. An application for approval under Section 59 of the Heritage Act is required to be made for any direct impacts on an item on the register. An application for a permit from the NSW Heritage Council under Section 139 of the Heritage Act is required prior to disturbance or excavation likely to discover, expose, move, damage or destroy a relic.

The project is not expected to impact upon any identified heritage item or relic (see Section 9.5). Under section 5.23 of the EP&A Act, an approval under Part 4 or a permit under Section 139 is not required for approved CSSI.

6.2.1.5 Contaminated Land Management Act 1997

The *Contaminated Land Management Act 1997* (CLM Act) establishes a process for investigating and (where appropriate) remediating land that is considered to be contaminated.

Section 59 of the CLM Act requires the NSW Environment Protection Authority (EPA) to inform local authorities of contaminated sites, and for local councils to specify certain matters relevant to contaminated land management in a planning certificate. Section 60 of the CLM Act requires landowners to report any contamination that represents a significant risk of harm to human health or the environment to the EPA.

The PKSW site is listed as a contaminated site by the EPA. The site has had four notices issued to it, the last being in March 2018, which was a notification to cease the Voluntary Management Plan for the site on the basis that regulation of the site under the CLM Act is no longer warranted, BlueScope having completed the work required of it under the Voluntary Management Plan. Contamination is discussed further in Section 9.2.

6.2.1.6 Ports and Maritime Administration Act 1995

The *Ports and Maritime Administration Act 1995* (Ports and Maritime Act) regulates the operation of ports in NSW across a range of matters including navigation, commercial operation and port charges that apply, management of port infrastructure, port safety and the functions of port corporations as well as Transport for NSW (TfNSW) in relation to port operations. The Ports and Maritime Act provides broad powers to port operators to regulate activities that may pose a risk to the safety or security of the port including but not limited to the movement of vehicles and the loading/unloading of material.

The project will not impact on port navigational aids. The project supports the continued commercial operation of the port. NSW Ports is the port operator at Port Kembla. BlueScope has engaged with NSW Ports (refer Section 7) and will continue consultation as appropriate throughout construction and operation of the project.

6.2.2 Commonwealth legislation

6.2.2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and provides a legal framework to protect and manage nationally important flora, fauna, ecological communities and heritage places defined as matters of national environmental significance (MNES). Part 9 of the EPBC Act provides that an action that has, will have or is likely to have a significant impact on MNES may not be undertaken without prior approval from the Commonwealth Minister. Approval under the EPBC Act is also required for actions carried out by Commonwealth agencies or impacting on Commonwealth land.

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A search using the Protected Matters Search Tool (PMST) with a 10 kilometre buffer from the project was undertaken on 14 February 2022. Table 6.2 provides a summary of the results.

Consideration of potential impacts upon listed threatened species and communities and any other MNES potentially impacted by the project has been undertaken as part of the EIS. No impacts have been identified that are considered likely to be significant and consequently a referral to DCCEEW under the EPBC Act has not been made.

Table 6.2 EPBC protected matters search results

Protected matter	Matter located within search radius	Comments	Potential impact
Matters of national environmental significance			
World Heritage Property	None	N/A	N/A
National Heritage Places	None	N/A	N/A
Wetlands of International Importance	None	N/A	N/A
Great Barrier Reef Marine Park	None	N/A	N/A
Commonwealth Marine Areas	1	No impact expected from project	
Threatened Ecological Communities	8	Discussed further in Section 9.3.3	
Threatened Species	104	Discussed further in Section 9.3.3	
Migratory species	77	Discussed further in Section 9.3.3	
Other matters			
Commonwealth Land	42	None occurring on site	N/A
Commonwealth Heritage Places	None	N/A	N/A
Marine Species	106	Discussed further in Section 9.3.3	
Whales and Other Cetaceans	14	Discussed further in Section 9.3.3	
Critical Habitats	None	N/A	N/A
Commonwealth Reserves Terrestrial	None	N/A	N/A
Australian Marine Parks	None	N/A	N/A

6.2.2.2 Native Title Act 1993

The objectives of the *Native Title Act 1993* (Native Title Act) are to:

– Recognise native title rights and set down basic principles in relation to native title in Australia.
– Provide for the validation of past acts and intermediate period acts, which may be invalid because of the existence of native title.
– Provide for a future regime in which native title rights are protected and conditions imposed on acts affecting native title land and waters.
– Provide a process by which native title rights can be established and compensation determined, and by which determinations can be made as to whether future grants can be made or acts done over native title land and waters.
– Provide for a range of other matters, including the establishment of a National Aboriginal and Torres Strait Islander Land Fund.

Under the Native Title Act, the valid grant of a freehold estate on or before 23 December 1996 is known as a 'previous exclusive possession act'. This means that native title has been extinguished over the area and native title claimants cannot include this land in their applications.

The project is located on freehold land owned by BlueScope as well as land leased or licensed from NSW Ports. All of it is highly disturbed and has been the site of industrial activities for many decades. It is considered unlikely that native title would have survived even on the leased or licensed land; to the extent that it may have survived, the acts which will be undertaken as part of the project will not impact native title rights in any way additional to the impacts which have already arisen as a result of that disturbance and the past and present industrial use of the land.

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7. Consultation and issues identification

7.1 Introduction

This chapter describes the stakeholder and community consultation process carried out prior to the lodgement of the EIS and the consultation activities which will continue during the assessment and construction of the project once approved. It includes issues raised and identifies where, if applicable, the design or work program has been amended in response to those issues. This chapter also details the approach to the impact assessment and the location within the EIS of the responses to the SEARs.

PKSW is recognised as an important national economic asset and has been deemed critical to the state of NSW. The longevity of steel production at the site and its significant economic contribution has resulted in a high level of awareness of BlueScope's operations among the broader community and key stakeholders.

Over a long period of time, BlueScope has established mature and sophisticated engagement channels with the community which have led to a strong local understanding of the company's operations, the steelmaking process, the critical importance of the blast furnace and its raw material needs, as well as providing various opportunities and touchpoints for the community to engage directly on operational issues.

These engagement channels include:

– The BlueScope Community Consultative Committee (CCC) – formed in 2015 and chaired by the Lord Mayor of Wollongong. The CCC meets quarterly and aims to provide a forum for open discussion between BlueScope, community representatives and other stakeholders in relation to the environmental management and performance of operations at PKSW. Minutes of each meeting are published on the www.bluescopeillawarra.com.au website. The CCC represents significant numbers of residents through local community groups, including NSW Ports, Wollongong City Council, the EPA industry groups; the Port Kembla Pollution Group; community service groups; local schools; neighbourhood forums (representing residents in nearby suburbs); the Area Health Service and Healthy Cities Illawarra.
– Site visits – as part of BlueScope's open-door policy, over 5,000 visitors tour the PKSW plant every year (with the exception of COVID-19 restrictions) maintaining open, transparent and effective communication and relationships with neighbours, the local community, visitors and all interested stakeholders.
– The BlueScope Visitor Centre – located at the main North Gate entrance to the steelworks, the Visitor Centre is open to the general public six days per week (with the exception of COVID -19 restrictions) and contains displays and information about PKSW. The centre is regularly used by a variety of local community groups as a central meeting place for events and forums.
– Various local business organisations, networks and peak bodies with which BlueScope is affiliated and regularly updates on matters of interest.
– Local partnerships – for example the longstanding BlueScopeWIN Community Partners Program (in the Illawarra) which since its establishment in 2012, has funded over $5 million in donations and sponsorships to support hundreds of local community groups over the last decade.

BlueScope's community engagement approach is based on living up to 'Our Purpose' and 'Our Bond'.

Our Purpose sets the course for BlueScope to deliver what matters to its communities around the world. In August 2020 BSL announced its new Purpose and Corporate Strategy, which reinforced the commitment to 'Strengthening our Communities'.

"We create and inspire smart solutions in steel, to strengthen our communities for the future"

Our Bond outlines the guiding principles and underlying values of BSL as a company. It identifies key stakeholders, guides business conduct, and provides benchmarks for success. One of those principles is that '*Our communities are our homes*'. BlueScope prides itself on upholding its strong reputation by being a good neighbour and also a good corporate citizen in the Illawarra region.

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According to Reptrak, who produce the Corporate Reputation Index globally, BlueScope has a 'Strong' reputation in Australia including within the local Illawarra community. Out of the Top 60 benchmark companies in Australia, BlueScope has consistently ranked in the top 10 to 20 companies with a score in the 'Strong' range. BlueScope is also the highest ranked manufacturer/industrial company amongst the Top 60.

Together, **Our Purpose**, **Our Bond** and **Strategy** define the way BlueScope develops, manufactures and sells steel products and solutions, while building resilience and capacity to drive a sustainable future.

7.1.1 Consultation context

From a consultation perspective, the CLIP differs from many major projects requiring the preparation of an EIS. The project essentially involves the upgrade of existing facilities including the installation of a new ship unloader, in a location which already houses a ship uploader, and some additional conveying infrastructure on a site with a large amount of existing similar infrastructure.

When determining consultation requirements for the CLIP the following has been considered:

– Significant stakeholder engagement channels already exist at the PKSW, so many community concerns and issues have been identified over decades of operation.
– The project does not increase the existing operational footprint and is located entirely within the existing PKSW industrial area.
– Once construction work is complete there will be negligible impacts on the surrounding residents or businesses.
– The project will not impact on production levels or generate significant operational impacts (refer Sections 8 and 9.

7.2 Consultation undertaken to date

7.2.1 Consultation strategy

BlueScope has developed a community consultation strategy for the project to identify key issues of concern to stakeholders and the community. The community consultation strategy was developed with consideration of the community participation objectives in the *Undertaking Engagement Guidelines for State Significant Projects* (DPIE, 2021). The purpose of the community consultation strategy is to ensure ongoing and effective communication with key stakeholders and the local community. The outcome of consultation is summarised in Section 7.2.3.

Stakeholder groups identified to have an interest in the project include:

– DPE
– NSW Government
– Federal Government
– Local Councils (Wollongong and Shellharbour)
– Regulators
– Local, State and Federal politicians (located in the Illawarra and/or with relevant ministerial portfolios)
– Environment Protection Authority (EPA)
– Port Authority of NSW
– NSW Ports
– Transport for NSW
– DPE Water
– Natural Resources Access Regulator
– Environment Energy and Science Group
– Heritage NSW
– NSW Fire and Rescue
– Sydney Trains

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– Surrounding local landowners and residents neighbouring the PKSW site
– Traditional owners and indigenous groups
(including the Illawarra Local Aboriginal Land Council and Illawarra Aboriginal Corporation)
– Neighbouring businesses (e.g. Port Users' group, Port Kembla Coal Terminal)
– BlueScope Community Consultative Committee
– Local community groups (e.g. neighbourhood forums, local schools)
– Community more broadly
– Environmental groups
– Industry groups and peak bodies
– Business leaders
– Local and national Media
– Investors / shareholders and analysts
– Suppliers / contracting community (e.g. Utility providers)
– Unions
– BlueScope employees
– BlueScope customers

Community engagement is aimed at keeping key stakeholders informed of the assessment process and anticipated project impacts such that concerns could be raised and effectively addressed through the project design and implementation process. To date, this has been achieved through a number of different channels, which are identified in Section 7.2.2.

7.2.2 Consultation activities

Government agency and stakeholders

BlueScope has consulted with a number of government agencies and other key stakeholders during preparation of the EIS. A summary of these engagement activities is presented in Table 7.1.

Table 7.1 Government agency and stakeholder engagement activities

Stakeholder	Date	Summary
NSW Ports	Monthly from Sept 2021	Regular liaison meeting, typically the third Tuesday of the month, specific slide detailing CLIP progress included in report slide pack.
EPA	06 April 2022	BlueScope met with EPA to discuss project background and scope.
Port Authority of NSW	10 May 2022	Meeting with Harbour Master and slide pack detailing berth remediation works and specific slides detailing CLIP scope.
Port Authority of NSW	June 2022 to present	Various emails and video meetings to discuss technical aspects of the design including berthing speed, angle of approach, fender design, bollard capacity, etc.
Illawarra Aboriginal Corporation	7 April 2022, 12 & 26 November 2021.	To introduce and provide ongoing updates on BlueScope's major projects at PKSW including CLIP, inform of engagement activities completed to date / stakeholder feedback, and invite ongoing face-to-face meeting / site visits at IAC's request. No concerns were raised.

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Stakeholder	Date	Summary
I3net	14 May 2022 Townhall event (in person)	To present an update to members (over 90 in attendance) on all BlueScope major projects at PKSW, including CLIP. Key updates were provided to members outlining the consultation and planning approval steps, and a call to identify any local procurement opportunities. No concerns were raised, and members expressed an interest to be kept up-to-date on the project milestones and potential tender/employment opportunities.
Department of Regional NSW	24 May 2022 Teams meeting	To introduce the project to the Regional Director (Illawarra and Shoalhaven), inform of engagement activities completed to date / stakeholder feedback, and invite face-to-face meeting / site visit. Also to understand any overlapping stakeholders and engagement considerations during and post EIS phase. No concerns were raised, and support was provided to assist BlueScope where required with State Government agency project engagement.
NSW Department of Planning and Environment; NSW EPA	1 June 2022 Site visit and briefing	To present an update on all BlueScope major projects at PKSW, including CLIP. This included a visit to the operational/non-operational sites to better understand proposed works and gain feedback on the appropriate approval pathway and key considerations / concerns (i.e. from the DPE Hazards Team). No concerns were raised in relation to the CLIP project.
UOW and Business Illawarra Journey to Low Emissions forum	1 June 2022 Forum	Participated in a discussion on 'the transition to low emissions' including outlining BlueScope's roadmap and stream of advanced manufacturing and decarbonisation projects, including noting the CLIP project. BlueScope was represented on a panel discussion by Chief Executive Australian Steel Products (ASP), John Nowlan. Over 100 local business representatives, industry groups, education institutions, elected government representatives and government agencies were in attendance. No concerns were raised on the project.
Recharge Illawarra	10 June 2022 Briefing	To provide an update on the project. It was a positive discussion with clear support on all aspects of the project.
The Hon. Natalie Ward, MLC Member of the Legislative Council Minister for Metropolitan Roads, and Minister for Women's Safety and the Prevention of Domestic and Sexual Violence	24 June 2022 Briefing and site visit	To introduce the project as well as note the status of other PKSW Major Projects, inform of engagement activities completed to date / stakeholder feedback.
Jo Haylen MP Shadow Minister for Transport	27 June 2022 Briefing	To introduce the project as well as note the status of other PKSW Major Projects, inform of engagement activities completed to date / stakeholder feedback.
The Hon. Samuel Farraway, MLC Minister for Regional Transport and Roads	5 July 2022 Briefing	To introduce the project as well as note the status of other PKSW Major Projects, inform of engagement activities completed to date / stakeholder feedback.
Greater Cities Commissioners (Executive Directors); Business Illawarra; Wollongong City Council and Department of Regional NSW	12 July Briefing and site visit	To introduce the project as one of BlueScope's major projects at PKSW, inform of engagement activities completed to date and project timeline, gain feedback on the proposal (including and concerns), and visit key project locations. It was a positive discussion with clear support on all aspects of the project.

Stakeholder	Date	Summary
NSW Government Clean Energy Taskforce	14 July 2022 Briefing and site visit	To introduce the project, inform of engagement activities completed to date / stakeholder feedback and visit the key project locations. No concerns were raised.
State and Federal Labor MPs: Member for Whitlam, Stephen Jones MP, Member for Cunningham, Alison Byrnes, Member for Gilmore, Fiona Phillips MP, Member for Wollongong, Paul Scully MP, Member for Keira, Ryan Park MP and Member for Shellharbour, Anna Watson MP	22 July 2022 Site visit and briefing	To provide an update on the project, inform of engagement activities completed to date / stakeholder feedback and visit the key project locations. No concerns were raised.
NSW Department of Planning and Environment (Development Assessment team)	27 July 2022 Site visit and briefing	To provide an update on the project, inform of engagement activities completed to date / stakeholder feedback and visit the key project locations. No concerns were raised regarding CLIP and a commitment was shared to continue dialogue on the planning approval process for BlueScope's major projects at PKSW.
RDA Illawarra and Transport for NSW (Executive Directors)	27 July 2022 Site visit and briefing	To introduce the project, inform of engagement activities completed to date / stakeholder feedback, and raise discuss key transportation and logistics challenges (current and emerging) relevant to all PKSW Major projects. A site tour followed and included. The meeting enabled dialogue to continue with key representatives within TfNSW and BlueScope on project logistics considerations for CLIP.
Illawarra Local Aboriginal Land Council CEO, Adell Hyslop	28 July 2022 Briefing	To provide ILALC's new CEO with an update and overview of the CLIP and other major projects proposed at PKSW, outline the consultation and planning approval steps, and identify feedback and answer any questions. BlueScope offered to coordinate a site visit to include CLIP and other major projects within the PKSW. The discussion also enabled for positive discussion and proposed follow up engagement regarding BlueScope's First Nations Framework and Aboriginal procurement and employment opportunities.
Department of Regional NSW, Aboriginal Partnerships Manager, Scott Morgan	2 & 31 August 2022 Briefing	To provide DRNSW new Aboriginal Partnership Manager with an update and overview of the CLIP and other major projects proposed at PKSW, outline the consultation and planning approval steps, and identify feedback and answer any questions. BlueScope offered to coordinate a site visit to include CLIP and other major projects within the PKSW. The discussion facilitated positive opportunities for BlueScope to connect with relevant local Aboriginal groups as part of the project engagement.
Ports Land Roundtable	3 August 2022 Briefing	BlueScope provided an update on all major projects underway and proposed at PKSW, including CLIP and invited further follow up discussions and feedback on the project including engagement considerations during and post EIS phase. Representatives included senior representatives at Wollongong City Council, NSW Ports, NSW Department of Planning and Environment, Department of Regional NSW and BlueScope.

Stakeholder	Date	Summary
NSW Shadow Minister for Finance, and Shadow Minister for Industry and Trade, Annoulack Chanthivong MP; and NSW Shadow Minister for Emergency Services and Shadow Minister for Energy and Climate Change, Jihad Dibb MP	4 August 2022 Site visit and briefing	To introduce the project, inform of engagement activities completed to date / stakeholder feedback, gain feedback on the proposal and visit key project locations. Broad support was given for all aspects of the project in particular the capacity to maintain sovereign capability and provide economic and employment benefits, created from all BlueScope major projects at PKSW.
I3net; Wollongong City Council; Business Illawarra; Department of Regional NSW	5 August 2022 Briefing	To provide stakeholders with an update and overview of the project, outline the consultation and planning approval steps, and identify local procurement opportunities and understand resourcing challenges and solutions in the Illawarra for CLIP and other proposed major projects in the Illawarra region. A commitment to continue discussions with i3net and other participants was made to assist in better understanding the skills and capability requirements for all major projects in the Illawarra.
EnergyCo briefing	16 August 2022 Site visit and briefing	To introduce the project, inform of engagement activities completed to date / stakeholder feedback, gain feedback on the proposal (including any concerns) and visit various PKSW major project locations. No concerns were raised regarding the project. EnergyCo provided an update on activities underway across the state and discussed transmission and energy requirements associated with some of BlueScope's major projects as well as the Company's long-term goal to be net zero by 2050 (and renewable energy supply needs).
The Hon. Matthew Kean NSW Treasurer, and Minister for Energy The Hon. Peter Poulos MLC Parliamentary Secretary for the Illawarra	7 & 25 July, 23 & 29 August 2022 Briefing	This includes a series of discussions, meetings and correspondence between BlueScope and the NSW Treasurer on BlueScope's major projects at PKSW, including CLIP. Specific discussions were held with the Treasurer on associated planning approval requirements, applicable local content policies and co-investment discussions.
Senator for NSW the Hon, Tim Ayres Assistant Minister for Manufacturing and Assistant Minister for Trade	26 August 2022 Site visit and briefing	To introduce the project, inform of engagement activities completed to date / stakeholder feedback, gain feedback on the proposal and visit various PKSW major project locations. Broad support was noted for all BlueScope major projects, including CLIP. Assistant Minister Ayres announced at the meeting that the recent federal government grant awarded to one of PKSW's major project would continue having previously been placed on hold following a change in government.
NSW Minister for Planning and Homes, Anthony Roberts MP	28 September 2022 Briefing	To provide an update on the CLIP and discuss planning approval timelines for various PKSW major projects.

Community

Community Consultative Committee

BlueScope's Community Consultative Committee (CCC) aims to provide a forum for open discussion between BlueScope, community representatives and other stakeholders in relation to the environmental management and performance of operations at PKSW. The CCC is chaired by the Lord Mayor of Wollongong and includes representation from a broad stakeholder group which represents a significant number of residents across local community groups, including:

– NSW Ports
– Wollongong City Council
– Environment Protection Authority
– Industry groups
– Port Kembla Pollution Group
– Community service groups
– Local schools
– Neighbourhood forums
– Area health services
– Healthy Cities Illawarra

The CCC meets four times per year and provides a platform for ongoing consultation with a large portion of the local community. As part of the regular CCC meeting in April 2022, BlueScope provided a short briefing on the CLIP, including various studies undertaken and a presentation of the preferred option. A brief introduction and description of the CLIP was also provided in the 6BF Community information session on 7 October 2021.

Consultation for the EIS

BlueScope undertook a range of direct community consultation activities during the preparation of the EIS, as outlined in Table 7.2.

Table 7.2 Community engagement activities

Stakeholder	Date	Summary
Broader Community (Community information session)	7 October 2021 Online Community Information Session	The community information session was established to provide the broader Illawarra community with information on the No.6 Blast Furnace Reline Project. The information session also noted several other proposed major projects including CLIP and BlueScope's decarbonisation projects. The townhall was attended by hundreds of local community members, businesses, special interest group (environmental) representatives and BlueScope employees. Senior BlueScope leaders facilitated the session which allowed for a dedicated and open Q&A session at the conclusion of the two-hour information briefing. No questions or concerns were raised from attendees regarding CLIP. A recording and presentation of the session is available on BlueScope's website at **https://www.bluescopeillawarra.com.au/pksw-no6-blast-furnace-reline/**
BlueScope Community Consultative Committee (BCCC)	4 April 2022 28 July 2022 Meeting	Members of BlueScope's Community Consultative Committee meeting were informed and updated on the project at the most recent two meetings held 4 April and 28 July 2022. While minimal feedback was provided by members present at both meetings, general comments were made recognising the value of modernising the plate mill to be able to produce plate for wind tower fabrication. Further, positive feedback was shared on the economic benefits the project would provide both during construction and ongoing operation.

Stakeholder	Date	Summary
		BlueScope advised a site visit will be held to proposed locations associated with CLIP and other major projects within the PKSW at the next meeting proposed in October 2022. The BCCC is comprised of a representatives from Wollongong City Council; NSW EPA; Local Schools (Principal, Cringila PS), NSW Ports, Community Industry Group, Neighbourhood Forum 5 and 7, Healthy Cities Illawarra; Inside Industry and Port Kembla Pollution Meeting (PKPM).
Broader Community (Community Open Day)	9, 12 April 2022 Community Open Day	The Community Open Days were established as part of BlueScope's No.6 Blast Furnace Project. BlueScope held two community information sessions to inform the community of the reline project and other major projects proposed at the Port Kembla Steelworks, including CLIP. Senior BlueScope representatives were on hand to talk to representatives of the community about the project and answer any questions. The sessions, advertised broadly in the Illawarra Mercury, were attended by a total of 24 participants and no concerns were raised regarding CLIP. General comments were made by participants recognising the value the project will add to the region in terms of its economic impact and boost to enhance sovereign capability.
Nearby Neighbours (NSW Ports)	14 May 2022 and 3 August 2022 Townhall and briefing	NSW Ports were engaged on the project at key stakeholder briefings. This included at the i3net BlueScope Townhall on 14 May 2022 and at the Ports Land Roundtable meeting held 3 August 2022. No key concerns were raised regarding the project.
Nearby Neighbours (Inside Industry Board via BlueScope/Inside Industry quarterly partnerships meetings)	19 May 2022 18 August 2022 Briefing	BlueScope engaged with members of Inside Industry Board on the project via ongoing quarterly partnership meetings. This included updating representatives on proposed major projects at PKSW. The Board were supportive of the project and other major projects proposed at PKSW. Key considerations noted regarding the project included any potential impact the Inside Industry's public tours during the construction phase. While impacts are unlikely to occur, this feedback has been included for consideration during future stages of the design and proposed construction phases of the project.
PKSW Employees	15 March 2022, 9 June 2022, 1 August 2022 Employee engagement platforms including Workplace and ASP chat.	BlueScope PKSW employees have been engaged on the project on several occasions throughout late 2021 and in 2022. Engagement has largely been focused on providing detail on project as part of the No.6 Blast Furnace Reline Project. The project has been well received with no major concerns raised to date. Updates have been shared via the Company's online engagement platform, Workplace (known as 'Facebook for workplaces') and through ongoing ASP chat sessions, held online with Chief Executive Australia Steel Products, John Nowlan. The ASP chat sessions also enables employees to submit questions during the live chat session and the session is recorded and remains accessible on Workplace for those unable to make the 'live' session. Further briefings will be held throughout each stage of the NSW Government Planning Assessment process.

7.2.3 Key issues raised

The stakeholder and community discussions identified strong support for the project. Many commented on the significant project investment value, job creation, and strengthening of sovereign capability in the Illawarra region.

The stakeholders were asked to identify any issues or areas for clarification as the planning progresses, which were largely consistent in each conversation. A summary of the key issues identified by the community and details of feedback received is summarised in Table 7.3.

Table 7.3 Summary of stakeholder consultation

Topic	Feedback raised	Addressed in this EIS
Traffic and Access	Increase in heavy vehicles and traffic during construction period on key commuter / public roadways.	Potential impacts of the project on traffic and access have been assessed in this EIS. Refer to Section 9.1, which discusses the traffic and transport impacts associated with the project.
Construction and Traffic Management	Potential impact on public and organised tours associated with construction / traffic activities. These include access to site, increased contractors and heavy vehicle movements associated with delivery of material. Management of potential dust and noise generated during construction activity.	Potential impacts to non-BlueScope commercial operations as a result of construction and traffic management has been considered in this EIS. Refer to Section 9.1, which discusses traffic and transport impacts associated with the project. Potential impacts of construction noise and dust has been assessed within the Air Quality Impact Assessment and Noise and Vibration Impact Assessment prepared for the EIS. Refer to Section 8.1 and 0 respectively for a summary of these reports. These reports are presented in full in Appendix D and Appendix E.
Local Procurement / project Resourcing	Potential resourcing challenge to fill key roles due to competing local projects and worker shortage / accommodation availability etc.	Socio-economic impacts are discussed in Section 9.8.
Environmental Changes	Increase in GHG emissions at PKSW associated with updates CLIP. Potential impacts to areas of cultural significance.	Potential impacts associated with GHG emissions has been assessed within the Greenhouse Gas report prepared for the EIS. This is summarised in Section 9.9 and presented in full in Appendix I. Potential impact to Aboriginal Cultural Heritage items are discussed in Section 9.4. NO impacts to cultural heritage items are anticipated.

7.3 Future consultation

Opportunities for members of the community and other stakeholders to engage with BlueScope during the project will be provided through a range of mechanisms, as outlined in Table 7.4.

Table 7.4 Stakeholder engagement mechanisms

Mechanism	Description
Key Stakeholder Briefings	Direct consultation with key stakeholders via one-to-one or one-to-few briefings affords the opportunity to discuss the project in detail and provide feedback and input into the process.
Existing Forums	BlueScope will continue to provide community and other stakeholders updates through existing forums such as the quarterly CCC meetings. Presentations in these forums will provide the attendees with an opportunity to communicate community sentiments regarding project activities and raise any issues or concerns.
News and Social Media	Updates about the project will be regularly posted on BlueScope's social media, and local and national media will be engaged to broadcast stories about the project.
BlueScope in the Illawarra website	Project updates will be made available for members of the public via the BlueScope in the Illawarra website. The website will also allow members of the public to register their interest to stay informed about the project.

7.4 Approach to impact assessment

The framework for the impact assessment has been designed to provide a structured and objective approach to identifying environmental, social and economic impacts, and to developing effective mitigation, management and offset measures. The approach has generally involved:

– Project definition including analysis of the need and alternative methods to source key raw materials following the exhaustion of 3-seam coal from South32.
– Identification of key issues through consultation with key government and community stakeholders.
– Identifying existing environmental, social and economic baseline conditions.
– Completion of impact assessments for the project based on the broad description of the project having regard to the baseline conditions.
– Refinement of the project having regard to the impact assessments.
– Identification of appropriate mitigation, management, and monitoring measures for the identified potential impacts.

The baseline (or existing environment) conditions for the project area and surrounding locality were derived using a combination of desktop and field investigations relevant to each environmental aspect or value. Where possible, the investigations built on previous studies that have been completed over a number of years at PKSW and Port Kembla in recognition of the extent of historical development that has been undertaken in the region.

The impact assessment methodology for each environmental, social and economic value was developed to meet the SEARs for the project issued by DPE and the requirements of the EP&A Act and the EP&A Regulation.

Mitigation and management measures were applied to reduce the level of identified potential impacts. These measures aim to protect the identified environmental values and will be applied as required during the planning and design, construction, and operation phases of the project. A number of monitoring plans will also be developed and implemented to monitor potential impacts associated with the construction of the project.

The SEARs for preparation of the EIS were issued by the DPE on 1 March 2022. An outline of the key issues raised in the SEARs, together with where each issue has been addressed in the EIS is presented in Appendix A.

Consultation with local community representatives has also been undertaken and has assisted in identifying key issues to be considered as part of the assessment process. Issues raised during consultation are outlined in Chapter 8 and have been addressed as part of the EIS where applicable.

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8. Assessment of key impacts

8.1 Air quality

This section describes the potential air quality impacts associated with the construction and operation of the project. It summarises the key findings of the specialist Air Quality Impact Assessment (AQIA) prepared for the project by GHD, which is included in full in Appendix D.

8.1.1 Methodology

8.1.1.1 Overview

The scope of the AQIA broadly included:

- Definition of the existing environment at the project site, including identification of air quality sensitive receptors, and completing a review of available ambient air quality monitoring data for the previous 5 years.
- Review of project information related to sources of emissions to air, including construction methodology, operation of the project and emission controls, process drawings, process flow charts and emission rates.
- Preparation of a site-representative meteorological data set based on review of site-based weather station, and local Bureau of Meteorology data. Meteorological modelling was completed using the Weather Research and Forecast model (WRF) and CALMET models.
- Preparation of an emissions inventory for operation of the project.
- Air dispersion modelling using the CALPUFF model for operation of the project to quantitatively predict ground level pollutant concentrations for comparison against the EPA criteria.
- A qualitative air quality assessment of potentially emission generating construction activities and consideration of management measures to minimise potential air quality impacts at sensitive receptors during project construction activities.
- Discussion of the findings of dispersion modelling and an overview of proposed mitigation measures and controls associated with the project.

A detailed outline of the assessment methodology used in the AQIA is provided in Appendix D.

8.1.1.2 Guidelines and legislation

The AQIA was prepared in accordance with the SEARS and the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2017a) (the Approved Methods) with reference to the following legislation and government guidelines:

- NSW *Protection of the Environment Operations Act 1997* (POEO Act).
- NSW *Protection of the Environment Operations (Clean Air) Regulation 2021* (POEO Clean Air Regulation).
- National Environment Protection Council (NEPC) National Environment Protection (Ambient Air Quality) Measure 2021 (the Air NEPM).
- Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007).
- Technical framework - Assessment and management of odour from stationary sources in NSW (the Technical Framework), NSW Department of Environment and Conservation (DECC 2006).
- Guidance on the assessment of dust from demolition and construction, Institute of Air Quality Management (2016) (IAQM Guidance).

8.1.1.3 Construction assessment methodology

Based on a review of the proposed construction methodology, agency requirements, and identification of emissions to air that could occur during construction, a qualitative-based approach that focused on management was adopted to assess the construction of the project. A risk-based approach in accordance with IAQM Guidance was adopted to assess potential particulate impacts during the construction of the project.

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8.1.1.4 Operation assessment methodology

A quantitative air quality assessment utilising air quality dispersion modelling was undertaken in accordance with the Approved Methods to assess potential worst-case air quality impacts from the operation of the project. Air quality dispersion modelling was undertaken for project sources only.

Potential cumulative air quality impacts with existing industry and facilities in the area were accounted for by including background air quality data recorded from the North Gate (located north of the PKSW) and Scouts Hall (located south of the PKSW) Air Quality Monitoring Stations (AQMS) operated by BlueScope. To account for potential worst-case cumulative impacts from the project, the maximum air quality concentration recorded at North Gate or Scouts Hall AQMS was selected for use in the cumulative assessment.

Potential cumulative air quality impacts with proposed and approved major projects in the area were reviewed on a case-by-case basis, and potential cumulative impacts were incorporated into the assessment were considered appropriate.

8.1.1.5 Air quality species of interest

Air quality pollutants assessed in the AQIA were:

– Total Suspended Particulates (TSP)
– Particulate matter with diameter smaller than 10 microns (PM_{10})
– Deposited dust

A review of the last five years of data shows the annual average levels of particulate matter with a diameter smaller than 2.5 microns ($PM_{2.5}$) were below the ambient air quality goal of 8 µg/m^3 at the three nearest DPE sites (Kembla Grange, Albion Park South and Wollongong) for all years except 2019 which was heavily influenced by bushfires (noting that while 2020 was also impacted by bushfires, data for the 2020 calendar year shows compliance with the ambient air quality goal). Consequently $PM_{2.5}$ emissions from the project were considered relatively minor, such that $PM_{2.5}$ is not considered a critical pollutant. As a result, $PM_{2.5}$ was not included in the emission inventory or dispersion modelling and was not considered further in this assessment.

PKSW emits other air pollutants including common gaseous pollutants, odorous air pollutants and air toxics, however the project is not a significant source of these emissions. Therefore, these pollutants were not included in the assessment as the project will not contribute to cumulative emissions.

8.1.1.6 Emission inventory development

A particulate matter emissions inventory was prepared for the project based on assumed emissions factors and anticipated activity rates. Emission factors were taken from the *National Pollutant Emissions Estimation Technique Manual for Mining Version 3.1* (2012). Anticipated activity rates were provided by BlueScope.

8.1.1.7 Dispersion modelling

A review of the surrounding terrain, air quality emission sources and distance to nearby receptors was undertaken to inform the choice of dispersion model for the assessment. CALPUFF is an advanced non-steady-state, Gaussian puff dispersion model that uses a three dimensions spatially varying wind field that is capable of accounting for complex terrain features and varying wind fields. GHD found CALPUFF to be the most appropriate dispersion modelling software to use for the project.

The CALPUFF dispersion model was used to predict ground-level concentrations from the project utilising a meteorological dataset of one year in duration. The dispersion model was configured to predict pollutant concentrations at identified sensitive receptor locations and for a sampling grid centred on the PKSW site.

8.1.1.8 Meteorology modelling

Local meteorology including long term wind speed and direction, as well as atmospheric stability, influence how air pollutants are dispersed into the local environment. Site specific meteorological data used to drive the dispersion model was generated by use of the WRF and CALMET meteorological models to produce a three-dimensional wind field which also accounts for local variations in the terrain. Prognostic WRF data was used as an ‘initial guess field’ for the CALMET meteorological model.

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A representative year was chosen for modelling purposes based on review of Southern Oscillation Index (SOI) for the past 10 years and an analysis of BoM data recorded at Port Kembla Automatic Weather Station (AWS) for the last 5 calendar years (01/01/2016 – 31/12/2020). The review resulted in the selection of the 2017 calendar year (01/01/2017 – 01/01/2018) as the representative year for modelling purposes.

8.1.1.9 Criteria

Assessment criteria for the project was taken from the Approved Methods (EPA, 2017a). Criteria is presented in Table 8.1.

Table 8.1 Air quality impact assessment criteria

Pollutant	Averaging period	Statistic	Impact location	Impact type	Criteria (µg/m^3)	
					EPA Assessment Criteria	Air NEPM
TSP	Annual	Maximum	Sensitive receptor	Cumulative	90	-
PM_{10}	24 hour	Maximum	Sensitive receptor	Cumulative	50	50
	Annual	Maximum	Sensitive receptor	Cumulative	25	25
Deposited dust	Annual	Maximum	Sensitive receptor	Maximum increase and maximum total	2 g/m^2/month (maximum increase) 4 g/m^2/month (maximum total)	-

8.1.2 Existing environment

8.1.2.1 Regional context

The project is located within an industrial setting. Key air quality attenuators are the PKSW, other industrial premises around Port Kembla, traffic and sea breeze. The wider area is primarily residential, with pockets of commercial land use and community services. Air quality within these areas are primarily attenuated by windblown dust and traffic emissions.

8.1.2.2 Meteorology

The nearest AWS operated by the BoM to the project site include:

– Port Kembla AWS (068253) – 2 km southeast
– Bellambi AWS (068228) – 11 km north
– Albion Park (Shellharbour Airport) (068241) – 15 km southwest

It is noted that long term climate statistics of temperature and rainfall are not available from the closest BoM station (Port Kembla AWS), therefore climate statistics were sourced from the second closest station (Bellambi AWS). Summers are typically warm, with January being the warmest month with a mean maximum temperature of 25ºC. Winters are cool to cold with a mean minimum temperature of 10.2ºC. Rainfall is spread throughout the year, with February and March being the wettest months recording an average of 145 mm and 126 mm falling respectively. July is the third wettest month recording an average of 121 mm of rainfall.

BlueScope's Northgate and Scouts Hall air quality monitoring stations record wind speed and direction. The following observations have been made at these locations:

– The predominant annual average wind directions are from the west
– Lower wind speeds (0.5 – 1 m/s) are rare but can occur from any direction

– The average wind speed is 5.2 metres per second
– Calm conditions (wind speeds less than 0.5 m/s) occur 0.3 per cent of the time

A detailed analysis of the meteorology used in the assessment is provided in Appendix D.

8.1.2.3 Sensitive receptors

The locations of identified sensitive receptors are listed in Table 8.2, which details the universal transverse Mercator coordinates (eastings and northings), receptor type, locality with respect to the project and description.

Table 8.2 Location of identified sensitive receptors

Receptor ID	UTM coordinates (m)		Receptor type	Approximate distance and direction from project site	Approximate distance and direction from nearest ancillary site	Approximate distance and direction from PKSW boundary	Description
	Easting	Northing					
R01	303054	6186079	Residential	3,160 m northwest	1,500 m northwest	410 m northwest	Residence 1
R02	304458	6186662	Residential	2,300 m north	890 m north	180 m north	Residence 2
R03	305835	6187128	Educational	2,140 m north	1,840 m northwest	360 m northwest	Coniston Primary School
R04	301769	6185029	Residential	3,870 m west	2,770 m west	1,630 m west	Unanderra Community Centre
R05	304332	6183457	Educational	1,450 m west	1680 m west	460 m west	Cringila Primary School
R06	307138	6182455	Residential	1,890 m south	1,790 m south	400 m south	Warrawong Community Centre

8.1.2.4 Background air quality

Air quality in the region is heavily impacted by industries, shipping and logistics operations, quarries and coal storage. Windblown dust is also expected to be present from on-site and off-site sources. Adopted background air quality for the pollutants of interest are presented in Table 8.3. A detailed review of the background air quality is provided in Appendix D.

Table 8.3 Adopted background air quality data

Pollutant	Averaging period	Adopted background value
TSP	Annual	56.8 µg/m^3, equal to twice the annual PM_{10} concentration of the adopted background dataset.
PM_{10}	24 hour	Maximum daily value of 49.7 µg/m^3

8.1.3 Potential impacts

8.1.3.1 Construction

Construction of the project will result in some particulate emissions to air, which will vary based on the specific activities being undertaken at any time. The total excavation spoil associated with the works includes 5,000 m^3 from the conveyors, 28,000 m^3 from Berth 113, and spoil generated from piling associated with the works. Excavating, moving and storing this material could generate dust with potential to lead to off-site impacts if not appropriately managed. It is anticipated that some particulate emissions may include contaminants and heavy metals from removal of infrastructure. With dust management measures in place, contaminant emission will be minor and will be controlled at the source.

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Minor vehicle exhaust emissions are expected throughout the construction period, however, sources will be discontinuous, transient, and mobile, and therefore the air quality risk associated with vehicle emissions during construction is low.

An overview of potential emissions to air that could occur during construction of the project is summarised in Table 8.4.

Table 8.4 Summary of potential construction emissions to air

Activity	Overview of emission sources
Stage 1- Relocation of the Coke Loader	
Pre-work and site preparation	– Minor particulate emissions from use of plant/equipment. – Minor particulate emissions from disturbance of loose material during installation of prefabricated and temporary infrastructure.
Berth modifications at Berth 113	– Particulate emissions from excavation and piling works noting some material may have a high moisture content due to its proximity to water. A high moisture content will minimise particulate emissions.
Coke loader relocation.	– Minor particulate emissions from use of plant to relocate conveyors and transfer house. – Minor particulate emissions from disturbance of loose material during installation of new conveyor and transfer house. – Minor particulate emissions from berth modifications.
Demobilisation of construction site	– Minor particulate emissions from use of plant/equipment. – Minor particulate emissions from disturbance of loose material during removal of construction compound and lay down areas.
Stage 2- Installation of a CSU and associated coal conveyors to 4 Area.	
Pre-work and site preparation	– Minor particulate emissions from disturbance of loose material during removal of temporary structures within the proposed work site and establishment of construction facilities.
Commodity clearance from the berth and transfer to CokeMaking	– Particulate emissions from some excavation and piling works noting some material may have a high moisture content due to its proximity to water. A high moisture content will minimise particulate emissions. – Minor particulate emissions from disturbance of loose material during construction of new conveyors and transfer house.
Installation of CSU at Berth 111	– Particulate emissions from reconfiguration of internal roads. – Minor particulate emissions from disturbance of loose material during unloading and positioning of the CSU.
Demobilisation of construction site and commission CSU and conveyors	– Minor particulate emissions from use of plant/equipment. – Minor particulate emissions from disturbance of loose material during removal of construction compound and lay down areas.
Miscellaneous throughout stages 1 and 2	
Use of ancillary facilities and laydown areas	– Minor particulate emissions from use of plant/equipment. – Minor particulate emissions from disturbance of loose material during removal of construction compound and lay down areas.

The assessment did not identify any high risk of dust impacts during construction. Material and plant storage areas (which account for majority of ancillary areas) are not expected to emit significant particulate emissions. Material with potential to release particulate emissions will be stored in designated storage areas.

Potential impacts generated by construction of the project were assessed using a risk based approach in accordance with the IAQM Guidance. The IAQM Guidance recommends a detailed risk assessment be undertaken where there is a human receptor within 350 m, or an ecological receptor within 50 m of the construction footprint, or where there is a human or ecological receptor within 50 m of any haulage routes up to 500 m from the site entrance. The majority of construction activities will occur at the Berths on the eastern portion of the PKSW site which is a significant distance from any identified sensitive receptors (refer to Table 8.2). As there are no sensitive receptors within 350 m of the project site or an ancillary facility, there is a low risk of particulate impacts at sensitive receptors and therefore a detailed risk assessment is not required.

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Emissions will be further mitigated by measures presented in Section 8.1.4.

8.1.3.2 Operation

Operation of the project will be generally consistent with current operation, with the same operational hours and the same type of imported material. The additional volumes of metallurgical coal to be imported will be moved to the stockpiling area by conveyors with no additional truck movement required.

The proposed CSU system is enclosed from the pickup in the ship's hold until the material is discharged to the first receiving conveyor. As the CSU is not lifting a bucket of material over the side of the ship, spillage is almost eliminated. This removes the need for additional controls such as catch tarpaulins or bins to be set up alongside the ship and reduces dust emissions and material spillage resulting in a positive impact.

Once unloaded from ships, material from the CSU will be transferred by conveyor. Generally, conveyors will be enclosed on 3.5 sides to prevent fugitive dust emissions being discharged. Discharge of coal from the conveyor to the coal stockpiles has the potential to generate dust, however a spray system will be in place to reduce dust levels as required by conditions, for example during high winds. A summary of predicted dust emissions from the CSU and conveyor infrastructure is presented in Table 8.5.

Table 8.5 Dust emissions summary

Source	Emission rate (g/s)	
	TSP	**PM_{10}**
CSU	N/A	N/A
C01	0.162	0.064
C02	0.049	0.073
C03	0.049	0.073
C04	0.049	0.073
C05	0.049	0.073
C06	0.162	0.064
Loading coal stockpile	0.625	0.266
Total	**1.14**	**0.69**

Predicted incremental and cumulative particulate concentrations and dust deposition rates generated by the project are presented in Table 8.6. No exceedances of the assessment criteria presented in Table 8.6 were predicted at sensitive receptor locations. Potential cumulative impact is discussed further in Section 9.11.2.1.

Table 8.6 Predicted particulate concentrations and deposition generated by the project

Receptor	Predicted particulate concentrations (µg/m^3) and depositions (g/m^2/month)			
	Incremental (project only)			
	Deposited dust	TSP	PM_{10}	
	Annual	Annual	24 hour	Annual
Criteria	**2**	**90**	**50**	**25**
R01	0.0011	0.01	0.2	0.01
R02	0.0024	0.02	0.3	0.02
R03	0.0046	0.02	0.2	0.03
R04	0.0007	0.01	0.2	0.01
R05	0.0088	0.07	0.9	0.07
R06	0.0039	0.05	0.6	0.06

The AQIA concluded that project will have a minor impact on ambient air quality concentrations within the surrounding environment. The project provides opportunity for BlueScope to implement measures to improve upon current operations and improve dust emissions generated at the site.

8.1.4 Mitigation and management measures

Management and mitigation strategies that will be implemented to manage potential impacts to air quality generated by the project are provided in Table 8.7.

Table 8.7 Air quality management measures

Impact	ID	Measure	Timing
Dust management	AQ1	A dust management plan for use during construction activities will be prepared prior to works commencing.	Pre- Construction
	AQ2	Visual monitoring of construction work during dust generating construction activities or adverse weather conditions.	Construction
	AQ3	During demolition of any contaminated areas, extra measures will be implemented to prevent dust leaving the work area.	Construction
	AQ4	The construction contractor will be required to implement additional precautions to prevent dust leaving the worksite if visible plumes of dust are observed.	Construction
	AQ5	Dust generating activities will be ceased or reduced if a visual plume of dust leaves the site or monitoring shows excessive particulate levels.	Construction
	AQ6	Operations conducted in areas with low moisture content material will be suspended during high-speed wind events or dust suppression will be used.	Construction
	AQ7	Stockpile sizes will be kept to the minimum practical.	Construction
	AQ8	Limit cleared areas of land and stockpiles, and clear only when necessary to reduce fugitive dust emissions.	Construction
	AQ9	Control on-site traffic by following specific routes for haulage and access in accordance with signposted speeds.	Construction
	AQ10	All trucks hauling material on roads external to the PKSW site will be required to be covered and to maintain a reasonable amount of vertical space between the top of the load and top of the trailer.	Construction
Operation air quality management	AQ11	Current dust mitigation measures currently being implemented at PKSW will continue in project operation. These include: – Use of water cannons to provide dust suppression water of the coal stockpiles in 4 Area during periods of high winds. – Use of wheel wash at the exit of 4 Area to reduce wheel generated dust from haulage trucks transporting material around the PKSW site.	Operation
	AQ12	The CSU bucket-elevator unloading device and CSU conveyor system will be enclosed to prevent spillage and reduce dust emissions.	Construction Operation
	AQ13	Enclosure of conveyors as much as practicable to minimise dust emissions from conveyors.	Construction Operation

8.2 Noise and vibration

This section describes the potential noise and vibration impacts associated with the construction and operation of the project. It summarises the key findings of the specialist Noise and Vibration Impact Assessment (NVIA) prepared for the project by GHD, which is included in full in Appendix E.

8.2.1 Methodology

8.2.1.1 Overview

The NVIA has been prepared in accordance with the requirements or relevant legislation, policies and guidelines including:

– Interim Construction Noise Guideline (ICNG) (DECC, 2009).
– NSW Road Noise Policy (RNP) (DECCW, 2011).
– Noise Policy for Industry (NPfI) (EPA, 2017b).
– Assessing Vibration: A Technical Guideline (DEC, 2006a).
– DIN 4150-3 2016: Vibrations in buildings - Part 3: Effects on structures (German Standards, 2016).

The scope of the NVIA broadly includes:

– A description of the existing environment with respect to noise and vibration.
– An assessment of the likely construction noise impacts of the project.
– An assessment of the likely operational noise impacts of the project.
– An assessment of the potential impacts of constructing and operating the project on sensitive receivers.
– An assessment of the likely vibration amenity and structural impacts of the project.
– Recommended measures to mitigate and manage the impacts identified.

Full details of the methodology and noise compliance criteria for construction and operation applied in the assessment are provided in Appendix E.

8.2.1.2 Construction noise assessment

The noise levels associated with construction activities will be dependent upon a number of factors including:

– The intensity and location of construction activities
– The type of equipment used
– Existing local noise sources
– The intervening terrain
– The prevailing weather conditions

Construction noise modelling was undertaken using SoundPLAN 8.2 noise modelling software and is described in more detail in Appendix E. The worst-case construction scenarios have been modelled based on the anticipated construction activities associated with the project, which are presented in Appendix E.

8.2.1.3 Operational noise assessment

Noise sources were mapped based on plans provided by BlueScope for inclusion within the noise model. It has been assumed that all equipment will be operating at 100% capacity during all periods of the day for a full 15-minute period which will provide a conservative assessment. To predict the noise levels at sensitive receivers surrounding the site, the following factors have been included in the environmental noise modelling methodology:

– External noise line sources (e.g. conveyors)
– External point sources (e.g. conveyor drive units)
– Terrain topography
– Absorption from the ground coverage

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– Atmospheric absorption
– Relevant shielding objects (e.g. buildings / noise barriers)
– The potential for noise enhancing meteorological conditions

Acoustic modelling was undertaken using SoundPLAN 8.2 noise modelling software to predict indicative environmental noise levels at the sensitive receivers surrounding the project site during the operation of the facility. Full model parameters are presented in Appendix E.

8.2.1.4 Road traffic noise assessment

A road traffic noise assessment was undertaken to identify any road traffic noise impacts for residences located adjacent to operational or construction traffic access routes. The assessment takes into consideration the following:

– The existing road traffic conditions (pre-construction).
– Road traffic conditions during construction (existing traffic + traffic generation during construction and operation).

Road traffic noise levels during construction and operation were assessed against the RNP road traffic noise criteria to identify any potential noise impacts at residences and whether any receivers qualify for consideration of noise mitigation.

8.2.2 Existing environment

The PKSW site is a multiuse industrial area which facilitates activities such as the production of steel and iron, coke and port activities. The existing noise environment is dominated by industrial noise from premises in Port Kembla, road traffic and rail noise. Access to PKSW is provided by Springhill Road, Five Islands Road and Flinders Street, and then private internal roads in PKSW.

The closest urban developments to PKSW are the suburbs of Cringila, Berkeley, Lake Heights, Warrawong and Port Kembla to the south, and Unanderra, Cobblers Hill, Mount St Thomas, Coniston and Figtree to the north and west.

A review of wind data for the area identified that the strongest winds were from the southwest, west and northwest. These winds were recorded at speeds that are considered to ‘significantly’ enhance how noise travels from source to receptor. Due to PKSW’s location by the coast, these wind directions push offshore and are not expected to generate impacts to residents. Temperature inversions are a feature of the landscape and have been considered in the noise model.

8.2.2.1 Background noise levels

The study area for the noise assessment was defined as approximately 3.5 km from the project site, as noise generated during construction and operation are not anticipated beyond these distances.

Noise monitoring to determine representative background levels was not undertaken during the preparation of the NVIA due to timing with COVID-19 associated lockdown and health risks. As such, an approach consistent with that used for the nearby 6BF reline project (SSI-22545215) was used in lieu of noise monitoring data. The 6BF reline project used background noise monitoring data from a publicly available noise and vibration impact assessment in Port Kembla, being Port Kembla Gas Terminal – Noise and Vibration Impact Assessment (GHD, 2018b) to establish the rating background level (RBL) at residences within the study area. Representative and background noise levels are presented in Table 8.8.

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Rating Background Levels

RBLs have been established based on previous noise monitoring undertaken in the study area and are considered representative of the noise environment for the most-affected residences within each noise catchment area (NCA). These RBLs have been used to establish the construction noise management levels (NMLs) which will form the criteria for this assessment. The most-affected residences can be characterised as urban residential with an acoustic environment which:

– Is dominated by 'urban hum' or industrial source noises
– Has through-traffic with characteristically heavy and continuous traffic lows during peak periods
– Is near commercial and industrial districts

Table 8.8 Representative background and ambient noise levels in the NVIA study area

Monitoring I.D	Location	Rating Background Level (RBL), L_{90} - dBA			Ambient level, L_{eq} - dBA		
		Day	Evening	Night	Day	Evening	Night
L1	117 Gladstone Avenue, Coniston	39	40 (39)	39	52	50	50
L2	16 Merrett Avenue, Cringilla	43	42	45 (42)	51	49	50

Sensitive receivers

Noise sensitive land uses are defined based on the type of occupancy and the activities performed in the area comprising the land use. Noise sensitive land uses include:

– Residential dwellings.
– Classrooms at schools and other educational institutes.
– Hospital wards and operating theatres.
– Places of worship.
– Passive and active recreational areas such as parks, sporting fields, golf courses (although these areas are only considered sensitive when they are in use or occupied).
– Community centres.
– Hotels, motels, caretaker's quarters, holiday accommodation and permanent resident caravan parks.

Offices, retail outlets and other business such as theatres and childcare centres could be considered noise sensitive. However, industrial and commercial premises are not typically considered as particularly noise sensitive and have a relatively high noise criterion. There are 103 potential sensitive receivers within the NVIA study area. Residential areas have been categorised into four discrete NCAs, being:

– NCA01 – The most-affected residences in Wollongong.
– NCA02 – The most-affected residences in Coniston / Mount Saint Thomas.
– NCA03 – The most-affected residences in Cringila.
– NCA04 – The most-affected residences in Warrawong and Port Kembla.

For the purposes of this noise assessment, key residential receivers have been selected for each NCA. If compliance is achieved at these residential receivers, then compliance will be ensured for all other residential receivers for each NCA.

Key residential and non-residential sensitive receivers are presented in Table 8.9 and Table 8.10 and shown on Figure 8.1.

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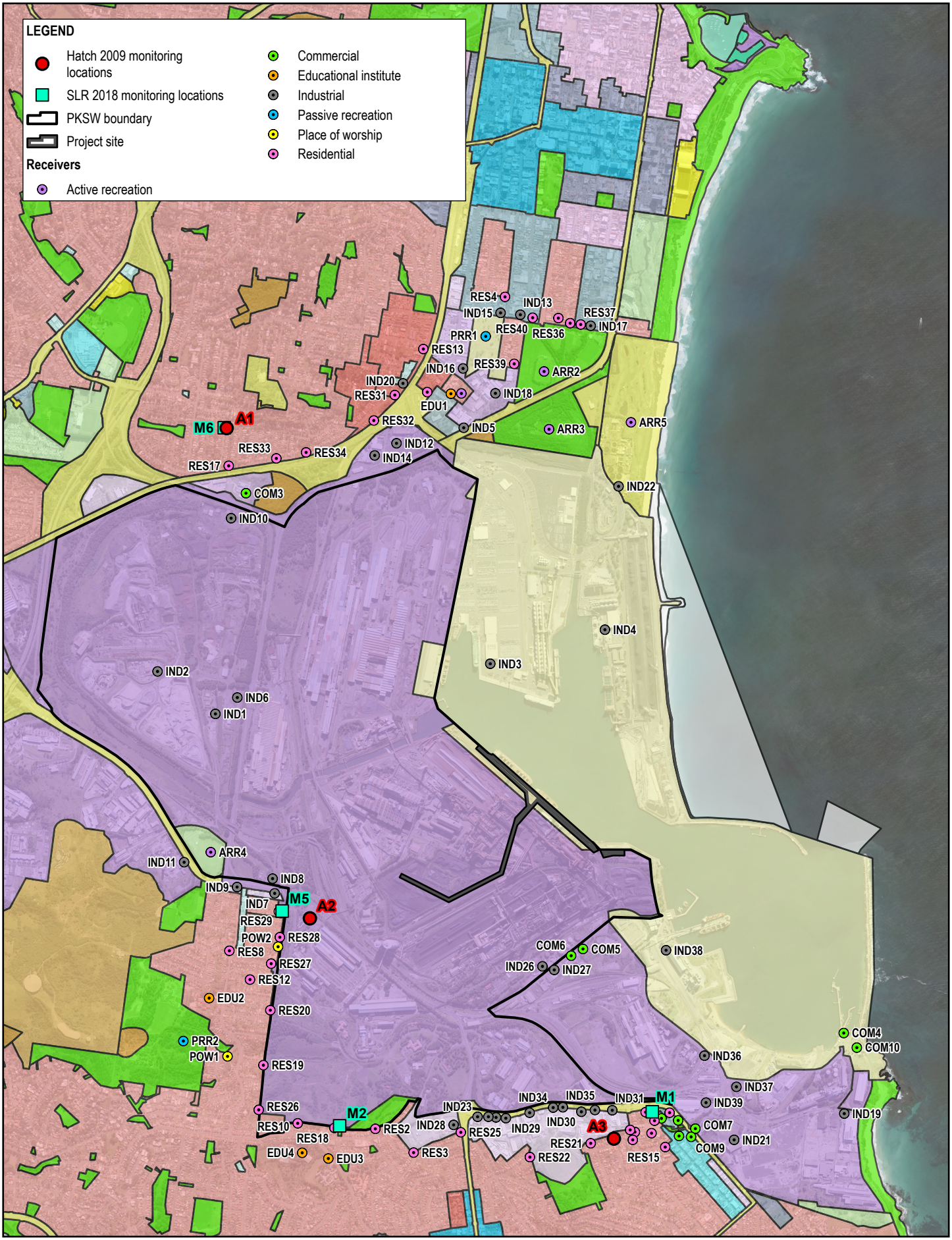
Table 8.9 Key residential sensitive receivers

ID	MGA20 Z56 coordinates		Type	NCA	Description
	x	y			
RES39	306246	6187289	Residential	NCA01	Most-affected residences in Wollongong
RES33	304813	6186719	Residential	NCA02	Most-affected residences in Coniston
RES29	304828	6183990	Residential	NCA03	Most-affected residences in Cringila
RES01	306945	6182674	Residential	NCA04	Most-affected residences in Port Kembla
RES23	305641	6182840	Residential	NCA04	Most-affected residences in Warrawong

Table 8.10 Non-residential sensitive receivers

ID	MGA20 Z56 coordinates		MGA20 Z56 coordinates	Description
	x	y		
ARR1	305928	6187111	Active recreation	Coniston Primary School playground
ARR2	306427	6187243	Active recreation	JJ Kelly Park
ARR3	306457	6186895	Active recreation	Australia's Industry World Lookout
ARR4	304418	6184347	Active recreation	BlueScope Centenary Park
ARR5	306950	6186936	Active recreation	Wollongong Golf Club
EDU01	305865	6187109	Educational institute	Coniston Primary School
EDU02	304408	6183468	Educational institute	Cringila Public School
EDU03	305126	6182501	Educational institute	Warrawong High School
EDU04	304969	6182536	Educational institute	Warrawong Public School
POW01	304519	6183117	Place of worship	Imam Rida As Mosque Cringila
POW02	304823	6183777	Place of worship	Bilal Mosque
PRR01	306075	6187455	Passive recreation	Wollongong Cemetery
PRR02	304253	6183209	Passive recreation	Park in Cringila



Paper Size ISO A4

0 0.25 0.5 0.75 1

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

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GHD

BlueScope Steel (AIS) Pty Ltd
Commodities Logistics Infrastructure Project
Noise and Vibration Impact Assessment

Project site locations, sensitive receivers, planning zones and noise monitoring locations

Project No. **12555409**
Revision No. **0**
Date **19/10/2022**

FIGURE 8-1

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Print date: 19 Oct 2022 - 15:08

Data source: LPI: DTDB, 2019. Metromap Tile Service: 2022; Zoning: DPE, 2019; Monitoring locations: Hatch, 2009, SLR,2018
Created by: dbbanatin

8.2.3 Potential impacts

8.2.3.1 Assessment criteria

The sections below describe the criteria used to undertake the noise and vibration assessment.

Construction noise

The Interim Construction Noise Guideline (ICNG) provides guidance for the assessment and management of construction noise. Construction noise management levels represent noise levels that if exceeded, would require management measures to ensure that significant impacts to sensitive receivers are avoided. The noise affected construction noise management levels are not intended as noise limits, but rather levels at which noise management is required and as such should not be considered as noise limits in the environmental protection license or consent condition. The project specific noise management levels are presented in Table 8.11.

Table 8.11 Project specific noise management levels

Sensitive receiver type	Construction Noise Management Levels, $L_{Aeq(15min)}$					Sleep disturbance (Night)
	Standard construction hours		Outside standard construction hours			
	Noise affected	Highly noise affected	Day	Evening	Night	
Residential NCA01 (Wollongong) and NCA02 (Coniston/Mt. St. Thomas)	49	75	44	44	44	54 $L_{A1(1min)}$
Residential NCA03 (Cringila) and NCA04 (Warrawong / Port Kembla)	53	75	48	47	47	57 $L_{A1(1min)}$
Educational institutions	55 (external)					-
Places of worship	55 (external)					-
Active recreation areas	65					-
Passive recreation areas	60					-

Construction vibration

Vibration is assessed based on the criteria in Assessing Vibration: A Technical Guideline (DEC, 2006a). Vibration criteria for the project was based on BS6472: Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz) and is presented in Table 8.12.

Table 8.12 Acceptable Peak Particle Velocity Values for Human Comfort (BS 6472-2008)

Receiver	Period	Continuous and impulsive vibration guide goals (mm/s)	
		Preferred value	Maximum value
Residential	Day	0.28 (8.6)	0.56 (17.0)
Offices, schools, educational institutes and places of worship	When in use	0.56 (18.0)	1.1 (36.0)
Workshops	When in use	1.1 (18.0)	2.2 (36.0)

Notes: Impulsive goals are shown in brackets – These are most relevant to activities that create up to 3 distinct vibration events in an assessment period, e.g. occasional dropping of heavy equipment, occasional loading and unloading.

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Humans are capable of detecting vibration at levels which are well below those causing risk of damage to a building. Vibration level criteria for the project are presented in Table 8.13.

Table 8.13 Guidance on effect of vibration levels for human comfort (BS 5228.2 – 2009)

Vibration level	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction.
0.3 mm/s	Vibration might be just perceptible in residential environments.
1.0 mm/s	It is likely that vibration at this level in residential environments will cause complaints but can be tolerated if prior warning and explanation has been given to residents.
10 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure.

Vibration has potential to cause structural damage to normal and heritage structures. Guideline values for structural damage are presented in Table 8.14.

Table 8.14 Guideline values for short-term vibration effects on structures (DIN 4150 Part 3)

Line	Type of structure	Guideline values for velocity, mms^{-1}		
		1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz[1]
1	Buildings used for commercial purposes, industrial buildings, and buildings of similar design.	20	20 to 40	40 to 50
2	Dwellings and buildings of similar design and/or occupancy.	5	5 to 15	15 to 20
3	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of great intrinsic value (for example listed buildings under preservation order).	3	3 to 8	8 to 10
Note 1: At frequencies above 100 Hz, the values given in this column may be used as minimum values.				

Operational noise

The operational noise emission from the industrial processes associated with CLIP was assessed against the NPfI discrete criteria to ensure that existing industrial noise levels do not increase because of the project when assessed at the most affected residences. The operational noise criteria for this assessment are provided below in Table 8.15.

Table 8.15 Operational noise criteria

Assessment	Receiver type	Operational noise criteria, $L_{Aeq(15min)}$ dBA	Operational components considered in assessment
NPfI discrete assessment	Residential – NCA01	31	CSU Conveyor and conveyor drive house
	Residential – NCA02		
	Residential – NCA03	41	
	Residential – NCA04	38	

Operational noise criteria for non-residential receivers have been established based on the project amenity noise levels provided in Section 2.4 of the NPfI. These noise limits are based on the recommended amenity noise level minus 5 dB. The operational noise criteria for non-residential receivers are provided below in Table 8.16.

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Table 8.16 Non-residential receiver project amenity noise criteria

Receiver type	Time of day	Recommended amenity noise level L_{Aeq}, dBA	Project amenity noise criteria $L_{Aeq(15min)}$[2], dBA
Educational institute	When in use	45[1]	43
Place of worship	When in use	50	48
Active recreation	When in use	55	53
Passive recreation	When in use	50	48

Note 1: The recommended amenity noise level is provided as an internal noise level. A + 10 dB correction has been applied to convert to an external noise level, based on a 10 dB reduction for a partially open window

Note 2: A + 3 dB correction has been applied to convert the L_{Aeq} noise descriptor to a $L_{Aeq(15min)}$ noise descriptor, as per guidance from the NPfI

8.2.3.2 Construction assessment

Construction scenarios

The project will progress in two main stages, being:

– Stage 1- Relocation of the Coke Loader.

– Stage 2- Installation of CSU and conveyor sequence.

Ten worst-case construction scenarios have been modelled based on the anticipated construction activities associated with the project (refer to Section 5). Equipment associated with each construction scenario, and associated sound power level, is presented in Table 8.17.

Table 8.17 Construction scenario sound power levels

Equipment	Equipment sound power level	Construction scenario (CS) or Laydown area (LD) (dBA)									
		Stage 1				Stage 2					All
		CS01	CS02	CS03	CS04	CS05	CS06	CS07	CS08	CS09	LD
Activity sound power level		116	125	114	114	116	125	125	114	114	114
Concrete pump truck	108		✓	✓			✓				
Excavator	107			✓			✓				
Forklift	113	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Front end loader	113	✓				✓					✓
Piling (impact) (60 hits in 15 mins)	125		✓				✓	✓			
Roller (vibratory)	108		✓	✓			✓				
Truck (> 20 tonne)	107	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Welder	105			✓			✓	✓			
Hand tools (powered)	102										✓
Mobile crane	104	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Impact Assessment

Construction noise modelling was undertaken in the NVIA to predict noise levels at sensitive receiver locations for each construction scenario. The findings of the modelling are presented in Table 8.18, with exceedances of the project specific Noise Management Levels (refer to Table 8.11) during standard hours shaded in blue.

Table 8.18 Predicted construction noise levels, $L_{Aeq(15min)}$ dBA

Receiver ID	Receiver type	NCA	Predicted construction noise level, dBA									
			CS01	CS02	CS03	CS04	CS05	CS06	CS07	CS08	CS09	LD
RES1	Residential	NCA04	35	43	32	33	35	44	43	33	33	35
RES2	Residential	NCA03	38	41	30	36	38	47	41	36	36	34
RES3	Residential	NCA03	36	41	30	34	36	45	41	34	34	33
RES4	Residential	NCA01	28	34	24	26	28	35	36	26	26	26
RES5	Residential	NCA04	35	43	33	33	35	44	44	33	33	33
RES6	Residential	NCA04	38	44	36	36	38	47	47	36	36	36
RES7	Residential	NCA04	35	42	32	33	35	45	43	33	33	34
RES8	Residential	NCA03	45	43	32	43	45	54	43	43	43	39
RES9	Residential	NCA04	37	45	34	35	37	45	45	35	35	34
RES10	Residential	NCA03	34	39	29	32	34	44	40	32	32	31
RES11	Residential	NCA04	35	43	33	33	35	45	44	33	33	33
RES12	Residential	NCA03	40	40	30	38	40	49	42	38	38	34
RES13	Residential	NCA02	27	36	25	25	27	36	37	25	25	28
RES14	Residential	NCA04	35	43	32	33	35	44	43	33	33	34
RES15	Residential	NCA04	33	42	31	31	33	40	43	31	31	31
RES16	Residential	NCA04	36	44	33	34	36	45	44	34	34	34
RES17	Residential	NCA02	29	36	27	27	29	38	39	27	27	45
RES18	Residential	NCA03	37	38	30	35	37	46	41	35	35	36
RES19	Residential	NCA03	34	36	28	32	34	44	39	32	32	31
RES20	Residential	NCA03	38	40	29	36	38	46	40	36	36	33
RES21	Residential	NCA04	37	43	35	35	37	46	46	35	35	36
RES22	Residential	NCA04	36	41	30	34	36	45	41	34	34	33
RES23	Residential	NCA03	39	41	31	37	39	48	42	37	37	37
RES24	Residential	NCA03	46	42	32	44	46	55	43	44	44	40
RES25	Residential	NCA03	39	43	32	37	39	46	43	37	37	34
RES26	Residential	NCA03	35	40	29	33	35	44	40	33	33	33
RES27	Residential	NCA03	40	41	30	38	40	48	41	38	38	36
RES28	Residential	NCA03	45	42	32	43	45	55	44	43	43	38
RES29	Residential	NCA03	45	44	33	43	45	55	44	43	43	40
RES30	Residential	NCA02	31	38	27	29	31	40	40	29	29	30
RES31	Residential	NCA02	29	36	26	27	29	38	38	27	27	33
RES32	Residential	NCA02	30	37	27	28	30	39	40	28	28	33
RES33	Residential	NCA02	30	37	28	28	30	39	40	28	28	40
RES34	Residential	NCA02	30	37	27	28	30	39	40	28	28	42

Receiver ID	Receiver type	NCA	Predicted construction noise level, dBA									
			CS01	CS02	CS03	CS04	CS05	CS06	CS07	CS08	CS09	LD
RES35	Residential	NCA02	32	41	31	30	32	40	41	30	30	36
RES36	Residential	NCA01	27	35	25	25	27	36	36	25	25	24
RES37	Residential	NCA01	27	35	24	25	27	36	36	25	25	25
RES38	Residential	NCA01	28	36	26	26	28	37	37	26	26	25
RES39	Residential	NCA01	28	36	26	26	28	37	38	26	26	27
RES40	Residential	NCA01	27	35	25	25	27	36	36	25	25	26
RES41	Residential	NCA01	27	35	24	25	27	36	36	25	25	24
ARR1	Active recreation	N/A	29	36	26	27	29	38	38	27	27	26
ARR2	Active recreation		28	36	25	26	28	37	37	26	26	26
ARR3	Active recreation		31	40	29	29	31	40	40	29	29	28
ARR4	Active recreation		36	39	29	34	36	45	41	34	34	36
ARR5	Active recreation		29	37	27	27	29	38	38	27	27	26
EDU1	Educational institute		29	37	27	27	29	38	38	27	27	31
EDU2	Educational institute		39	40	29	37	39	48	40	37	37	35
EDU3	Educational institute		32	36	25	30	32	41	37	30	30	29
EDU4	Educational institute		31	31	24	29	31	40	36	29	29	29
POW1	Place of worship		32	34	24	30	32	41	35	30	30	29
POW2	Place of worship		40	38	27	38	40	49	38	38	38	34
PRR1	Passive recreation		27	34	24	25	27	36	35	25	25	26
PRR2	Passive recreation		32	36	25	30	32	41	36	30	30	28

It is predicted that construction noise levels from the CLIP construction activities and laydown area operations will be below the NMLs during all assessment periods and at all residential receivers, except for construction scenario CS06. In the CS06 construction scenario, exceedances of the NMLs are predicted at the following receivers in Cringila (NCA03):

– RES8 – 1 dBA during standard hours, 8 dBA during night period.
– RES24 / RES28 / RES29 – 2 dBA during standard hours, 9 dBA during night period.

These exceedances are based on the worst-case construction equipment being the use of an impact piling rig at a separation distance of approximately 700 metres between the source and the most-affected receiver (RES28/RES29), which is expected to be in use for approximately 3-4 months during CS06. Generally, piling will not be undertaken out of standard hours and this impact will be avoided. Construction noise levels predicted to be generated by CS06 represent a conservative estimate and would generally be lower than predicted levels. Mitigation measures identified in Section 8.2.4 would be implemented during all works to further mitigate noise impacts.

Construction sleep disturbance

Construction works during the night period have the potential to cause sleep disturbance impacts due to maximum noise events, such as impact piling. Modelled sleep disturbance impacts during piling activities are presented in Table 8.19, with exceedances shaded in blue.

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Table 8.19 Predicted construction noise levels, L_{AFMax} dBA

Receiver ID	Receiver type	NCA	Predicted construction noise level, dBA	
			CS06	CS06 (Berth area only)
RES37/38	Residential	NCA01	47	47
RES35	Residential	NCA02	50	50
RES28/29	Residential	NCA03	65	53
RES6	Residential	NCA04	57	53

The results indicate that with no mitigation applied, exceedances of sleep disturbance criteria within NCA03 and NCA04 will occur in the worst-case scenario. Where it is proposed that piling works occur beyond 300 metres of the berth outside standard construction hours, approval from the EPA will be required in accordance with condition L6.3 of EPL 6092. Consultation with affected residences may also be required where piling activity noise levels are more than 5 dBA above the NML outside standard construction hours.

It is predicted that construction noise levels from construction activities and laydown area operations will be below the NML for all non-residential receivers.

The NVIA also assessed construction vibration. A conservative estimate of vibration generated by the project was conducted. A vibratory roller greater than 18 tonnes was chosen as representative equipment which has a human comfort buffer distance of 100 m. No residential receivers are within 100 m of work areas, as such no human comfort impacts are anticipated for construction activities.

Vibratory rolling activities have the potential to exceed the structural damage vibration criteria should these works occur within 20 metres of residences or 40 metres of heritage structures. No residences or heritage structures have been identified within 40 metres of any construction works and as such, no adverse structural damage vibration impacts are anticipated because of the project.

8.2.3.3 Operational assessment

Impact assessment

CLIP is not currently in operation and as such, operational equipment noise levels have been estimated based on previous attended noise measurements at comparable sources (Mandalong Mine, Central Coast NSW). Operational noise source levels are presented in Table 8.20.

Table 8.20 Operational noise source levels

Operational noise source	Noise model source	Source noise level	Number/length	Reference
Conveyor unit drive units, enclosed	Point source	106 dBA	9 m	GHD Mandalong Mine attended noise measurements 2018
Conveyor, enclosed	Line source	96 dBA/m	1,630 m	

The predicted $L_{Aeq(15min)}$ noise levels at each sensitive receiver are presented below in Table 8.21. The assessment has considered the NPfI discrete process criteria for residential receivers, and amenity criteria for non-residential receivers. The noise modelling indicates compliance is predicted at all sensitive receiver locations, with RES8, RES24 and RES29 predicted to receive the highest noise levels of $L_{Aeq(15min)}$ 40 dBA. These most-affected receivers are in NCA03 (Cringila).

Noise contours are shown in Figure 8.2.

Table 8.21 Predicted operational noise levels $L_{Aeq(15min)}$, dBA

Receiver ID	Receiver type	NCA	Predicted operational noise level $L_{Aeq(15min)}$, dBA	Criteria $L_{Aeq(15min)}$, dBA
ARR1	Active recreation	-	27	53
ARR2	Active recreation	-	26	53
ARR3	Active recreation	-	29	53
ARR4	Active recreation	-	34	53
ARR5	Active recreation	-	27	53
EDU1	Educational institute	-	31	43
EDU2	Educational institute	-	33	43
EDU3	Educational institute	-	27	43
EDU4	Educational institute	-	30	43
POW1	Place of worship	-	36	48
POW2	Place of worship	-	37	48
PRR1	Passive recreation	-	31	48
PRR2	Passive recreation	-	31	48
RES1	Residential	NCA04	33	38
RES2	Residential	NCA03	37	41
RES3	Residential	NCA03	35	41
RES4	Residential	NCA01	26	31
RES5	Residential	NCA04	33	38
RES6	Residential	NCA04	35	38
RES7	Residential	NCA04	33	38
RES8	Residential	NCA03	40	41
RES9	Residential	NCA04	34	38
RES10	Residential	NCA03	35	41
RES11	Residential	NCA04	35	38
RES12	Residential	NCA03	36	41
RES13	Residential	NCA02	27	31
RES14	Residential	NCA04	33	38
RES15	Residential	NCA04	31	38
RES16	Residential	NCA04	36	38
RES17	Residential	NCA02	30	31
RES18	Residential	NCA03	36	41
RES19	Residential	NCA03	32	41
RES20	Residential	NCA03	33	41
RES21	Residential	NCA04	35	38
RES22	Residential	NCA04	34	38
RES23	Residential	NCA03	37	41
RES24	Residential	NCA03	40	41
RES25	Residential	NCA03	36	41

Receiver ID	Receiver type	NCA	Predicted operational noise level $L_{Aeq(15min)}$, dBA	Criteria $L_{Aeq(15min)}$, dBA
RES26	Residential	NCA03	34	41
RES27	Residential	NCA03	35	41
RES28	Residential	NCA03	39	41
RES29	Residential	NCA03	40	41
RES30	Residential	NCA02	29	31
RES31	Residential	NCA02	28	31
RES32	Residential	NCA02	28	31
RES33	Residential	NCA02	30	31
RES34	Residential	NCA02	29	31
RES35	Residential	NCA02	31	31
RES36	Residential	NCA01	26	31
RES37	Residential	NCA01	26	31
RES38	Residential	NCA01	28	31
RES39	Residential	NCA01	27	31
RES40	Residential	NCA01	26	31
RES41	Residential	NCA01	26	31

Paper Size ISO A4

0 0.25 0.5 0.75 1 Kilometres

N

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

BlueScope Steel (AIS) Pty Ltd
Commodities Logistics Infrastructure Project
Noise and Vibration Impact Assessment

Operational noise emission
L_{Aeq} noise contours

Project No. **12555409**
Revision No. **0**
Date **19/10/2022**

FIGURE 8-2

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Print date: 19 Oct 2022 - 15:09

Data source: LPI: DTDB, 2019. Metromap Tile Service: 2022; Zoning: DPE, 2019; Monitoring locations: Hatch, 2009, SLR,2018
Created by: dbbanatin

Operational sleep disturbance

The potential for sleep disturbance is considered from short-duration, high level noise events such as:

– Failure of a conveyor bearing, resulting in a SWL of LA1(1mmin) 120 dBA
– Failure of a conveyor drive unit motor, gearbox or bearings, resulting in a SWL of LA1(1min) 120 dBA

It is anticipated that these events would occur very rarely and are not representative of typical operations. These events do have the potential for sleep disturbance impacts if they were to occur at night. The NVIA predicted that sleep disturbance screening criterion is not exceeded at any of the residential receivers from worst-case maximum noise events. The predicted $L_{A1(1min)}$ noise levels are presented in Table 8.22.

Table 8.22 Predicted $L_{A1(1min)}$ noise levels at residential receivers during the night, dBA

Receiver ID	NCA	Predicted operational noise level $L_{A1(1min)}$, dBA	EPL Sleep disturbance noise criterion $L_{A1(1min)}$, dBA
RES1	NCA04	42	55
RES2	NCA03	45	55
RES3	NCA03	43	55
RES4	NCA01	35	55
RES5	NCA04	42	55
RES6	NCA04	44	55
RES7	NCA04	42	55
RES8	NCA03	49	55
RES9	NCA04	42	55
RES10	NCA03	43	55
RES11	NCA04	44	55
RES12	NCA03	43	55
RES13	NCA02	35	55
RES14	NCA04	41	55
RES15	NCA04	37	55
RES16	NCA04	44	55
RES17	NCA02	38	55
RES18	NCA03	43	55
RES19	NCA03	40	55
RES20	NCA03	42	55
RES21	NCA04	42	55
RES22	NCA04	42	55
RES23	NCA03	45	55
RES24	NCA03	50	55
RES25	NCA03	44	55
RES26	NCA03	43	55
RES27	NCA03	44	55
RES28	NCA03	50	55
RES29	NCA03	50	55
RES30	NCA02	35	55

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Receiver ID	NCA	Predicted operational noise level $L_{A1(1min)}$, dBA	EPL Sleep disturbance noise criterion $L_{A1(1min)}$, dBA
RES31	NCA02	35	55
RES32	NCA02	35	55
RES33	NCA02	36	55
RES34	NCA02	36	55
RES35	NCA02	39	55
RES36	NCA01	33	55
RES37	NCA01	33	55
RES38	NCA01	36	55
RES39	NCA01	34	55
RES40	NCA01	33	55
RES41	NCA01	33	55

8.2.3.4 Traffic noise

Criteria

The RNP provides traffic noise target levels for residential receivers in the vicinity of existing roads and are applied to road upgrades. These levels are also applied to construction works to identify potential construction traffic impacts and the potential for reasonable and feasible mitigation measures. Road traffic noise criteria are presented in Table 8.23.

Table 8.23 Road traffic noise criteria, dBA

Development type	Applicability to assessment	Day 7 am to 10 pm	Night 10 pm to 7 am
Existing residence affected by additional traffic on arterial / sub-arterial / collector roads generated by land use developments	– Princes Motorway – Princes Highway – Springhill Road – Masters Road – Five Islands Road – Old Port Road	60 $L_{eq(15hr)}$	55 $L_{eq(9hr)}$
Existing residence affected by additional traffic on local roads generated by land use developments	– Flagstaff Road – Christy Drive	55 $L_{eq(1hr)}$	50 $L_{eq(1hr)}$

If the road traffic noise increase from the construction work is within 2 dBA of current levels then the objectives of the RNP are met and no specific mitigation measures are required. Mitigation should be applied when road traffic noise levels increase by 2 dB and the controlling noise criterion above is exceeded at the façade of the residence.

Impact assessment

The majority of the construction traffic will access the site via the major roads that service the Port Kembla industrial area, including the Princes Motorway and Princes Highway, Shellharbour Road, Springhill Road, Five Islands Road and Masters Road. These roads are arterial or sub-arterial, and currently experience high traffic numbers. The additional traffic generated by the project will not impact existing traffic noise conditions along these busy roads.

Construction access routes will utilise Flagstaff Road and Christy Drive, which are local roads. These local roads are not located near any sensitive residential receivers and as such, no road traffic noise impacts are anticipated along these roads from construction traffic associated with the project.

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The project will retain the existing approximately 20 direct and 10 indirect FTE workers during operation, such that the project will not have impacts on road noise during operation.

8.2.4 Mitigation and management measures

Management and mitigation strategies that will be implemented to manage potential impacts to noise and vibration generated by the project are provided in Table 8.24.

Table 8.24 Noise and vibration management measures

Impact	ID	Measure	Timing
Construction Noise and Vibration Management	NV1	A construction noise and vibration management plan (CNVMP) will be developed once a detailed construction methodology has been prepared. The plan will include: – Summary of the construction methodology. – Updated noise predictions at sensitive receivers if required. – A noise monitoring procedure and program for the duration of works. – Feasible and reasonable mitigation measures to be implemented to mitigated predicted impacts to sensitive receivers that may be noise affected. – A community consultation plan to liaise with the noise affected receivers, including: • Notification to residences a minimum of 7 calendar days prior to the start of high noise generating works, including information such as total building time, what works are expected to be noisy, their duration, what is being done to minimise noise and when respite periods will occur. • A procedure for complaints, including maintaining a complaints register in accordance with existing BlueScope processes.	Pre-construction
Site induction	NV2	All employees, contractors and subcontractors are to receive an environmental site induction. The site induction must at least include: – All project specific and relevant standard noise and vibration mitigation measures – Relevant licence and approval conditions – Permissible hours of work – Any limitations on high noise generating activities – Construction employee parking areas – Designated loading/unloading areas and procedures – Site opening/closing times (including deliveries) – Environmental incident procedures	Pre-construction Construction
At source mitigation measures – pre - construction	NV3	Quieter and less vibration emitting construction methods will be used where feasible and reasonable.	Pre-construction
	NV4	The noise levels of plant and equipment will have an operating sound power lower or similar to the levels presented in Table 8.17.	Pre-construction
At source mitigation measures - construction	NV5	Where practical, noise generating activities with potential to impact any nearby sensitive receivers will be scheduled during standard hours.	Construction
	NV6	Piling will be undertaken during standard construction hours where possible. Where piling is required during the hours of 10 pm and 7 am, works will be limited to an area at a minimum distance of 1,400 metres from the nearest residential receivers. If impact piling works are required during the hours of 10 pm and 7 am and within 1,400 metres of residential receivers, noise monitoring will be undertaken at the source and at the most-affected residential receivers to determine actual noise levels and determine any additional reasonable and feasible mitigation measures to reduce impacts.	Construction

Impact	ID	Measure	Timing
	NV7	As much distance as possible will be placed between the plant or equipment and residences and other sensitive land uses.	Construction
	NV8	Equipment with directional noise characteristics will be oriented away from noise sensitive receivers.	Construction
	NV9	Non-tonal reversing beepers (or an equivalent mechanism) will be fitted and used on all construction vehicles and mobile plant regularly used and for any out of hours work. The use of ambient sensitive alarms that adjust output relative to the ambient noise level will be considered.	Construction
	NV10	Where additional activities or plant may only result in a marginal noise increase and speed up works, the duration of impact will be limited by concentrating noisy activities at one location and moving to another as quickly as possible.	Construction
	NV11	Only the necessary size and power of equipment will be used if available.	Construction
	NV12	Loading and unloading of materials/deliveries will occur as far as practically possible from sensitive receivers.	Construction
	NV13	The use of engine compression brakes will be limited in proximity to residences.	Construction
	NV14	Vehicles will be fitted with a maintained Original Equipment Manufacturer exhaust silencer or a silencer that complies with the National Transport Commission's 'In-service test procedure' and standard.	Construction
	NV15	Equipment will be regularly inspected and maintained to ensure it is in good working order. The condition of mufflers will also be checked. Equipment will not be operated until it is maintained or repaired, where maintenance or repair would address the annoying character of noise identified.	Construction
Out of hours work	NV16	All construction activities should be undertaken during standard construction hours, with the exception of the following activities (as specified in Table 2 of the ICNG): – The delivery of oversized plant or structures that police or other authorities determine require special arrangements to transport along public roads. – Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm. – Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hour. – Public infrastructure works that shorten the length of the project and are supported by the affected community. – Works where a proponent demonstrates and justifies a need to operate outside the recommended standard hours. In the context of this project, the following activities could be considered appropriate to be conducted outside standard construction hours: – The delivery of oversized plant of structures. – Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm. – Large crane lifts taking advantage of calm conditions. – Work required to be completed within tidal ranges. – Piling works at acceptable locations where the NML for noise sensitive receivers is not exceeded.	Construction
	NV17	An out of hours works procedure will be developed as part of the construction environmental management plan for the project. This will include a detailed construction noise and vibration assessment for the potential construction activities proposed to occur out of hours.	Construction

Impact	ID	Measure	Timing
	NV18	Out of hours movements will be minimised where possible. The need for out of hours work will be justified in the CEMP from the project and assessed against the noise requirements of the ICNG.	Construction
	NV19	Approval in writing from the EPA will be sought for construction activities outside of the standard hours of construction per EPL 6092 requirements.	Construction
	NV20	An out of hours works application form for any works outside of the approved working hours for the project will be required where high-intensity construction equipment is proposed to be used, for submission to the EPA. These include, in accordance with license condition L6.2 of EPL 6092: – Pile driving – Jack hammering – Warning sirens – Similar high-intensity noise sources	Construction
Noise validation	NV21	To check noise model predictions are representative of CLIP noise emission at sensitive receivers, noise validation measurements will be undertaken at intermediate locations in the path between source equipment and receivers. Nearfield source measurements will also be undertaken in order to confirm source noise levels and refine the noise model if required.	Operation
	NV22	If compliance noise measurements indicate that operational noise levels are above noise predictions, mitigation measures to conveyors, conveyor drive houses and the CSU may be considered for noise reduction, such as: – Low noise bearing alternatives for conveyors where suitable. – Upgraded construction of enclosures for conveyor and conveyor drive units. – Local shielding around identified noise components of the CSU.	Operation
Operational noise management plan	NV23	An operational noise management plan will be developed to minimise the risk of adverse noise impacts during the operation. It will be refined throughout the design process taking into account: – The relevant licence conditions. – Conditions of approval (to be confirmed). – The Noise Policy for Industry. – Australian Standards 1055 Acoustics – Description and measurement of environmental noise. – Approved methods for the measurement and analysis of environmental noise in NSW – currently in draft form. – Conclusions of verification noise monitoring prior to operations commencing. – The operational noise management plan should include: • Operational noise management measures to be implemented. • A complaints handling protocol as per existing BlueScope process.	Operation

8.3 Hazard and risk

This section describes the hazards and risks associated with the construction and operation of the project. It summarises the key findings of the specialist hazard and risk assessment prepared for the project by GHD, which is included in full in Appendix H.

8.3.1 Methodology

The process of assessment as outlined in R&H SEPP and *Applying SEPP 33* (DoP, 2011a) was followed to determine the potential hazards and risks of the project. This included the following:

1. Preliminary risk screening – *Applying SEPP 33* requires a screening process to be undertaken to determine whether a project is a 'potentially hazardous industry' or 'potentially offensive industry':
   - The preliminary risk screening process concentrated on the storage of specific dangerous good (DG) classes that have the potential for significant off-site effects. The assessment involved the identification of classes and quantities of all DGs to be used, stored or produced on site with an indication of storage locations. The quantities of DGs were then assessed against the *Applying SEPP 33* threshold quantities. If any of the *Applying SEPP 33* threshold quantities are exceeded, then the project is potentially hazardous, and a preliminary hazard analysis (PHA) is required.
   - The screening process also considered whether the project will be a 'potentially offensive industry' based on expected air and noise emissions.
2. Hazard identification – following screening, the R&H SEPP requires a determination as to whether the project poses significant risk or offence. This includes identification of potential hazards to highlight any risks associated with the interaction of the project with the surrounding environment:
   - The hazard identification was a desktop qualitative assessment and involved documenting possible events that could lead to a possible off-site incident.
3. Preliminary Hazard Analysis (PHA) – the preliminary risk screening determined that the project is a 'potentially hazardous industry'. A PHA was therefore required to be completed in accordance with *Hazardous Industry Planning Advisory Paper No.6 – Guidelines for Hazard Analysis* (DoP, 2011b) and *Multi-Level Risk Assessment* (DoP, 2011c) to determine the risk to people, property and the environment. Criteria of acceptability set out in *Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Safety Planning* (HIPAP No 4) (DoP, 2011d) were used to determine whether the project is classified as a 'hazardous industry'. *Applying SEPP 33* identifies three levels of PHA based on the level of risk associated with the project. The three levels of PHA are:
   - Level 1 – if low potential for harm is identified, a qualitative PHA is completed.
   - Level 2 – if medium potential for harm is identified, a semi-quantitative PHA is completed.
   - Level 3 – if high potential for harm is identified, a quantitative PHA is completed.

   Based on the results of the preliminary risk screening and hazard identification, a Level 1 PHA was undertaken for the project.

8.3.2 Potential impacts

Construction

A summary of the chemicals that will be used and/or stored on-site during construction, including the maximum expected quantity and DG classification, is provided in Table 8.25. During construction, minimal storage of chemicals and no stockpiling of chemicals will occur, with DGs delivered under a just-in-time usage method. The screening did not identify any exceedances of threshold quantities specified in *Applying SEPP 33* (DoP, 2011a).

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Table 8.25 Construction dangerous goods screening

Chemical / product	UN #	DG class	Packing group	Expected storage quantity	Applying SEPP 33 combined storage threshold	Exceedance of SEPP 33 threshold	Comments / assumptions
Paint	1950	2.1	-	20L = 20kg	500kg	Does not exceed threshold	Use of aerosol-based paints for outline markings etc. of construction activities. It is assumed that there are a small number of spray cans stored on site at any one time, and additional paint is brought on site as required.
Acetylene	1001	2.1	-	100kg			Use of acetylene required for welding activities. It is assumed that minimal quantities are stored on site and only 100kg of acetylene stored in cylinders is present at any one time. Additional cylinders are brought on site as required.
Cleaning fluids	1987	3	III	5L = 4.4kg	5 tonnes	Does not exceed threshold	Cleaning fluids (e.g. hand sanitiser) required for personnel and vehicle washing. Only small quantities of cleaning fluids will be required on site during the construction phase.
Solvents	1307	3	III	40L = 35kg			Use of solvents for cleaning during heavy-duty construction activities. It is assumed that there are a small number of containers stored on site at any one time.
Degreasers	1268	3	III	40L = 34kg			It is assumed that there are a small number of containers stored on site at any one time.
Oxygen gas	1072	5.1	-	100kg	5 tonnes	Does not exceed threshold	Use of oxygen gas for oxyacetylene welding activities. It is assumed that minimal quantities are stored on site and only 100kg of oxygen stored in cylinders are present at any one time. Additional cylinders are brought on site as required.
Diesel[2]	3082	9 (C1)	III	20,000 L = 17 tonnes	N/A[3]	Does not exceed threshold	Use of diesel required for construction vehicles / machinery and / or tools. It is assumed that it will be stored in a separate bund and located away from any Class 3 DGs. No other fuel storage e.g. for worker vehicles is included, as existing petrol stations will be utilised.

[2] Petrol may be used instead of diesel depending on the type of vehicles / equipment used for construction. Given that the SEPP 33 threshold for diesel is lower than that of petrol, it was used in this assessment as a conservative assumption. The use of petrol in the same quantities as those estimated for diesel would not trigger SEPP 33

[3] Class C1 liquids are not considered to be a potentially hazardous material if they are stored in a separate bund or are the only flammable liquid present. If stored with other flammable liquids (e.g. 3-I, 3-II or 3-III), they are then treated as Class 3-III as they may contribute to a fire. In this project, even if diesel was stored with the cleaning fluids (3-III), the SEPP 33 threshold would not be exceeded. It is assumed that the diesel in this project would be stored in a separate bund and away from any other Class 3 DGs.

Chemical / product	UN #	DG class	Packing group	Expected storage quantity	Applying SEPP 33 combined storage threshold	Exceedance of SEPP 33 threshold	Comments / assumptions
Concrete	*Not a DG*			As required mixing truck deliveries	*Not a DG*		Use of concrete for construction.
Concrete admixtures	*Not a DG*			As required mixing truck deliveries	*Not a DG*		Use of concrete admixtures, such as curing agents, for construction.
Fertiliser	*Not a DG*			As required deliveries during landscaping	*Not a DG*		Use of fertiliser for final site restoration and landscaping. It is assumed it will only come to site as required or stored in small volumes prior to use.
Herbicides	*Not a DG*			1,000L	*Not a DG*		Project may include the removal of vegetation in the area (use of herbicides required for this activity). It is assumed that one intermediate bulk container will be stored on site and additional small quantities will be brought on site as required.
Hydraulic oil/ fluid	*Not a DG*			200L	*Not a DG*		Use of hydraulic fluids / oils for gates. Delivered in 200L drums.
Oil	*Not a DG*			200L = 172kg	*Not a DG*		Use of oil required for construction tools / equipment e.g. lubrication oils, engine oils. It is assumed that this is stored in a 200L drum.

Operation

The berths at PKSW are used for the transfer on and off site of a range of materials, including iron ore, limestone, metallurgical coal, and coke. The coke which is exported via the berths can be further classified into the following:

– Lump (>25mm) and nut (10mm to 25mm), which are used to fuel the blast furnace and as sources of carbon for the production of reducing gas in the smelting process.
– Breeze (<15mm), which is used as a fuel for the Sinter Plant's sintering process.

These materials are all currently handled through the existing Ship Unloaders and other materials handling infrastructure at the PKSW so the project is not introducing any new materials to site. The import, internal transfer, storage and handling of these materials is business as usual for the PKSW. A summary of materials stored and used during operation is presented in Table 8.26.

Table 8.26 Summary of materials stored or processed during operation

Chemical / product	Health hazards and physical properties	Environmental hazards	Flammability	DG	Comments
Coke Carbon 80 - 90% Crystalline silica <2.5% Sulphur 0.1 - 1%	May cause irritation to respiratory system or gastric tract if inhaled or ingested. Contact with skin or eyes may cause mechanical irritation. Crystalline silica is a known Group 1 Carcinogen to humans.	Recommended to keep from entering waterways, drains, and sewers.	Combustible, will burn if exposed to fire	No	The formation of coke dust may result in dust explosions.
Metallurgical coal Carbon >90 - <100% Water 5 - 15% Silicon dioxide <3% Oils, recycled tars, and greases <1% Sulphur <0.5%	May cause irritation to respiratory system or gastric tract if inhaled or ingested. Contact with skin or eyes may cause mechanical irritation. Inhalation may aggravate pre-existing upper respiratory and lung disorders. May contain crystalline silica, which is a known Group 1 Carcinogen to humans.	Recommended to keep from entering waterways, drains, and sewers.	Combustible	No	The formation of coal dust may result in dust explosions.

Neither metallurgical coal nor coke are classified as DGs according to the Australian Code for the Transport of Dangerous Goods by Road and Rail (7th edition). However, both coke and metallurgical coal may provide opportunities for dust explosions or fires. As such, no further DG screening of these materials is required as per the R&H SEPP or *Applying SEPP 33*. However, due to the potential for dust explosions and fires, potential scenarios were discussed as part of the Hazard Identification (HAZID) process.

Transport

It is assumed that during construction of the project, there will be low volumes of DGs stored in the construction compound. Therefore, the transportation volumes of chemicals during construction are considered to be minimal. The transport screening thresholds for construction of the project are shown in Table 8.27. Based on this, the *Applying SEPP 33* transport thresholds for construction of the project are not exceeded.

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Table 8.27 Transport screening threshold figures for construction of the project

DG Class	Chemical / product	Combined quantity (as per Table 5.1)	Combined transport movements (annual)	Transport movements threshold (annual)	Exceedance of Applying SEPP 33 threshold
2.1	Paint, acetylene	120kg	12[4]	>500	Does not exceed threshold
3 – III	Cleaning fluids/ Solvents/ degreasers	73.4kg	12[4]	>1,000	Does not exceed threshold
5.1	Oxygen	100kg	12[4]	>500	Does not exceed threshold
9 – III (C1)	Diesel	17 tonnes	52[5]	>1,000	Does not exceed threshold

No new DGs are expected on-site during standard operation. As such, no transport screening is required.

Hazard identification

The results of the HAZID associated with the project are presented in Table 8.28 which includes safeguards required to contain the risk scenarios or, at a minimum, control them to an acceptable level. Results of the HAZID found that the risks most likely to cause off-site impact are:

– Damage to bunker fuel pipeline during construction activities
– Coal and coke dust located on site conveyors
– Ship movements in port during operations

Recommended safeguards for each of the hazard scenarios have been included in Table 8.28 which contain, or control each of the hazards to an acceptable level.

Table 8.28 HAZID table

Hazard scenario	Phase	Causes	Consequences	Potential for off-site impact	Identified / recommended safeguards
1 – Damage to bunker fuel pipeline during construction activities	Construction	Change in pipeline location due to the rail extension at Berth 113	Fire or explosion at the berth causing multiple injuries or fatalities	Yes	– Construction Management Plan to include isolation and evacuation of the bunker fuel pipeline. – Fire Management Plan to include the event of a fire at the bunker fuel pipeline. – Update of relevant PKSW emergency response plans.
2 – Coal and coke dust located on site conveyors	Operation	All five "dust explosion pentagon" pre-requisites are met (i.e. ignition, confinement of dust, oxygen, presence of small dust particles, high concentration of dust particles)	Dust explosion causing injury or single fatality	Yes	– Designs and safeguards are pre-existing and well established. – Coal is Run Of Mine with moisture content reducing likelihood of fire. – Procedures for the wetting of dust areas prior to hot works taking place. – Reduction of dust accumulation through regular housekeeping.

[4] It is assumed that delivery of paint, acetylene, solvents, cleaning fluids and oxygen to the site occurs once per month during the construction period
[5] It is assumed that the delivery of diesel to the site occurs once per week during the construction period

Hazard scenario	Phase	Causes	Consequences	Potential for off-site impact	Identified / recommended safeguards
					– Smoking prohibited where coal dust is nearby. – Elimination of fully enclosed spaces where coal and coke are located, where possible.
3 – Impact to wharf infrastructure by ships	Operation	Pilot error	Damage to wharf	Yes	– Project not introducing larger ship sizes. – Use of licensed pilots.
4 – Impact to port infrastructure by ships	Operation	Channel size too small Pilot error	Damage to navigational aids Disruption of port activities due to grounding of ship	Yes	– Project not introducing larger ship sizes. – Use of licensed pilots.
5 – Fuel/ ballast spill from ships	Operation	Damage/ corrosion of fuel storage compartments Operational error	Environmental damage	Yes	– Existing environmental management plan and regulation pursuant to EPL.

Summary of Hazard Scenarios

From the HAZID process, five scenarios were identified to have potential for impacts. These are detailed below in Table 8.29.

Table 8.29 Hazards with potential for onsite or off-site impact

Hazard	Comments	Onsite/ Off-site
1 – Damage to bunker fuel pipeline during construction activities leading to a fire or explosion at Berth 113 causing multiple injuries or fatalities.	During construction activities, there is potential for the bunker fuel pipeline to be damaged resulting in a loss of containment. If exposed to a source of ignition, a fire or explosion may occur. Due to the berth's proximity to the border of PKSW, there is a potential for off-site impact. Industry standard construction management and utility relocation management will provide adequate controls to manage this risk suitably.	Off-site
2 – Coal and coke dust located on site conveyors leading to a dust explosion causing injury or a single fatality.	Dust explosions are explored in greater detail below.	Off-site
3 and 4 – Impact to wharf and port infrastructure by coal ships leading to damage to wharf and navigational aids, and disruption of port activities due to grounding of ship.	During operations, there is the potential for the new ship movements to impact existing wharf and port infrastructure. This may cause delays to other shipping activities in the Port. The project will not be introducing any larger ship sizes and BlueScope already satisfactorily manages shipments at their berths. Existing ship movement management, in conjunction with existing requirements from the Port Authority of NSW, will provide adequate controls to manage this risk suitably.	Off-site
5 – Fuel/ ballast spill from coal ships leading to environmental damage.	During operations, there is the potential for the new ship movements to spill fuel and/or ballast. This may cause environmental damage within the Port. BlueScope already satisfactorily manages shipments at its berths. Existing spill management, in conjunction with existing requirements from the Port Authority of NSW, will provide adequate controls to manage this risk suitably.	Off-site

Dust explosions

A dust explosion takes place when combustible airborne dust particles are ignited resulting in a high-pressure airwave. This airwave can disturb other dust in the area causing them to become airborne resulting in subsequent dust explosions. The following items are part of the “dust explosion pentagon” and must all be present for a dust explosion to take:

1. Delayed ignition source capable of igniting the suspended dust cloud (e.g. hot surface, flame, sparks)
2. Confinement of the dust cloud by full or partial enclosure
3. Enough oxygen to exceed the Limiting Oxygen Concentration (LOC)
4. Combustible dust particles small enough to burn rapidly when ignited
5. Dispersion of dust particles at a concentration above the Minimum Explosible Concentration (MEC)

BlueScope currently manages coal dust explosion hazards at the PKSW, including the Berths. There is no history of coal dust fires or explosions. The coals being conveyed by the CLIP infrastructure is washed (moisture content of 8% - 12%) Run of Mine (ROM) coal and is not in a ground or dried state while transported by the infrastructure at the Berths. BlueScope will continue to manage the new material handling systems in a consistent manner, using existing engineering and management methods.

8.3.3 Summary of assessment

The results indicate that the screening thresholds for DG storage and transportation during construction and operation of the project, as per the requirements of the SEARs, are not exceeded however, the project is deemed ‘potentially hazardous’ due to the possibility for dust fires and explosions. The PHA found that the hazards with potential off-site impact can be suitably controlled using the safeguards defined in Table 8.30.

The hazard identification and analysis demonstrate that CLIP can be designed, constructed, and operated in a manner that will meet the relevant regulations, standards and policies and minimise hazardous impact to the public.

8.3.4 Mitigation and management measures

Management and mitigation measures that will be implemented to minimise the hazards and risks of the project are provided in Table 8.30.

Table 8.30 Hazard and risk management measures

Impact / Aspect	ID	Measure	Timing
Hazard and risk	HR1	Prior to construction starting, a site Construction Management Plan will be completed. The Construction Management Plan will include: – Procedures of isolation and evacuation of the fuel pipeline during relocation and fire management, including fire events at the bunker fuel pipeline. – A construction hazard assessment, identifying identify the proposed methodology of the site construction and/ or installation for hazardous situations. The detailed methodology will indicate the potential hazards and the control measures required to mitigate risks to as low as reasonably practicable during the construction stage. – A risk register produced from the construction hazard assessment which will be treated as a live document to be regularly reviewed during the construction phase. Any information considered to be relevant to the operational phase will be carried forward in the risk register.	Pre-construction
	HR2	Existing conveyor design and safeguards will be utilised.	Pre-construction Construction

Impact / Aspect	ID	Measure	Timing
	HR3	Existing emergency management procedures will be updated where relevant.	Pre-construction Construction Operation
	HR4	Inspection and maintenance regime for conveyor systems will be implemented during operation.	Operation

8.4 Water and hydrology

This section describes the potential water quality impacts associated with the construction and operation of the project. It summarises the key findings of the specialist Water Impact Assessment (WIA) prepared for the project by GHD, which is included in full in Appendix I.

8.4.1 Methodology

The scope of the WIA broadly included:

– Review of potential surface and groundwater impacts of the project
– Characterisation of water quality discharges, including quality and quantity of all pollutants from the project
– Documenting details of the stormwater and wastewater management systems
– Review of the existing site water balance

8.4.1.1 Guidelines and legislation

The WIA was prepared in accordance with the SEARS with reference to the following legislation and government guidelines:

– Water Management Act 2000
– NSW Marine Water Quality Objectives in NSW (DEC, 2006b)
– Storing and Handling Liquids: Environmental Protection (DECC, 2007)
– Managing Urban Stormwater: Soils and construction – Volume 1 (Landcom, 2004)
– Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018a)
– Australian and New Zealand - Toxicant Default Guideline Values For Sediment Quality (ANZG, 2018b)
– Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2000)
– National Environmental Protection (Assessment of Site Contamination) Measure 1999, as amended in 2013 (NEPC, 2013)
– NSW Floodplain Development Manual (2005)
– Australian Rainfall and Runoff (ARR, 2019)

8.4.1.2 Assessment criteria

Assessment criteria for the WIA was taken from the National Water Quality Management Strategy (NWQMS). The NWQMS provides a national framework for improving water quality in Australia's waterways. The main policy objective of the NWQMS is to achieve sustainable use of the nation's water resources, protecting and enhancing their quality, while maintaining economic and social development. There are a number of national guideline documents under the NWQMS that aim to provide a consistent approach to the management of significant water quality issues. Those of relevance to the project and this water quality impact assessment are summarised below:

– Management of water quality for natural and semi-natural water resources is guided by the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018 or Water Quality Guidelines).
– Management of groundwater quality is guided by the National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (AG, 2013).

NWQMS are applied in conjunction with the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000), which were superseded by the revised ANZG 2018 Water Quality Guidelines.

Relevant water quality criteria for the project are presented in Table 8.31.

Table 8.31 Relevant water quality criteria

Water quality parameter	DGVs (ANZG 2018)[6], [7]				NSW water quality objective
Aquatic ecosystems					
Biological					
Frequency of algal blooms	Not listed				No change from natural conditions
Bioaccumulation of contaminants	Not listed				No change from natural conditions
Physico-chemical and nutrients					
Dissolved oxygen	90-110 % saturation				Not listed
pH	8.0-8.4				Not listed
Temperature	80th %ile of reference system*				Not listed
Turbidity (TSS proxy)	0.5-10 NTU				0.5-10 NTU
Ammonia as nutrient stressor	20 µg/L[8]				Not listed
Total Nitrogen	120 µgN/L				<120 µg/L
Total Phosphorous	25 µgP/L				<25 µg/L
Biochemical Oxygen Demand	80th %ile of reference system*				Not listed
Chemical Oxygen Demand	80th %ile of reference system*				Not listed
Chlorophyll-a	1 µg/L				Not listed
Toxicants					
LOSP	80% LOSP	90% LOSP	95% LOSP	99% LOSP[9]	N/A
Ammonia (NH_3)	1700 µg/L	1200 µg/L	910 µg/L		Not listed
Cyanide (CN)	14 µg/L	7 µg/L	4 µg/L		Not listed
Cadmium (Cd)	36 µg/L	14 µg/L	5.5 µg/L	0.7 µg/L	Not listed
Chromium (VI) ($Cr6^+$)	85 µg/L	20 µg/L	4.4 µg/L		Not listed
Copper (Cu)	8 µg/L	3 µg/L	1.3 µg/L		<1.3 µg/L
Lead (Pb)	12 µg/L	6.6 µg/L	4.4 µg/L		<4.4 µg/L
Zinc (Zn)	43 µg/L	23 µg/L	8 µg/L		<15 µg/L
Mercury (Hg) (inorganic)	1.4 µg/L	0.7 µg/L	0.4 µg/L	0.1 µg/L	Not listed

[6] Values, targets and actions in these guidelines are not mandatory, but support a nationally-agreed framework for water quality planning and management.
[7] DGVs for groundwater ecosystems have not been developed as part of the 2018 ANZG. It is noted that generally, the Water Quality Guidelines should apply to the quality of both surface water and of groundwater, since the community values which they protect relate to above-ground uses (e.g. irrigation, drinking water, farm animal or fish production and maintenance of aquatic ecosystems). The 2013 Australian Government groundwater guidelines do not provide guideline values for toxicants in groundwaters, but rather provide guidance on how existing DGVs for other community values might be applied, or where new guideline values might need to be derived, in order to inform the setting of appropriate water quality objectives (ANZG, 2018).
[8] Default trigger value for physical and chemical stressors for southeast Australia for slightly disturbed ecosystems ANZECC 2000
[9] DGVs presented for toxicants that can bioaccumulate only

8.4.2 Existing environment

8.4.2.1 Surface water

The PKSW site is generally flat and resides upon a base of artificial fill, including dredged sand and mud, rocks and local soil materials. The project site is generally sealed, with small areas of exposed soil and drains into the Ironmaking East Drain (IMED) and the Raw Materials Handling area. The IMED discharges to, Allans Creek and subsequently the Inner Harbour via the No. 2 Blower Station Drain, and during prolonged rain events can discharge directly into the Inner Harbour.

Allans Creek is a heavily modified waterway measuring approximately 30 m to 35 m in width with less than two metres of water depth at lowest astronomical tide in the vicinity of PKSW (Australian Hydrographic Service Chart AUS194). Allans Creek is classed as Good Freshwater Fish Community Status and Allans Creek and the Inner Harbour are Key Fish Habitats (DPI, 2016). As a result, both are considered sensitive receiving environments and consideration has been given to strategies to avoid or minimise impacts to these waterways.

Allans Creek is the predominant source of freshwater inflow into Port Kembla Harbour and is subject to elevated temperature industrial discharges. As a result, water temperatures within the Inner Harbour are generally one to two degrees warmer than sea temperatures beyond the entrance to the harbour. Port Kembla's Inner Harbour is considered a relatively low energy environment, with relatively low discharges from creeks and drains and relatively little wave energy propagation into the Inner Harbour. Sediment movement within the Inner Harbour is largely controlled by shipping movements and dredging activities including sweep-bar operations.

Water quality within Allans Creek and Port Kembla has been historically impacted by urban and industrial discharges as well as ongoing port activities. These past activities led to contamination of marine sediments, groundwater and harbour waters.

The most recent water quality monitoring data within Port Kembla has been collected by AIE as part of the Port Kembla Gas Terminal Construction Water Quality Monitoring Program under EPL21529. At the time of WIA preparation, data had been collected between June 2021 and July 2022 at assigned locations. In some instances, background data from locations at the entrance to Port Kembla Outer Harbour and Allans Creek has exceeded the DGV's for aluminium, copper, chromium, lead, and zinc, however, no exceedances have been recorded in relation to a number of contaminants that have been historically reported as being problematic within Port Kembla Harbour such as cadmium and arsenic (GHD, 2022a).

8.4.2.2 Hydrology and stormwater management

The site is relatively flat and four to 6 metres above sea level. PKSW is located above the 1 per cent Annual exceedance probability (AEP) level.

Stormwater management is undertaken across the PKSW site, including the BlueScope leased berths, in accordance with EPL 6092. Drainage at the PKSW is via Main Drain and No. 2 Blower Station Drain, which flow into Allans Creek. Allans Creek is the predominant source of freshwater inflow into Port Kembla Harbour, with a catchment area of 41 km^2. Industrial activities (including PKSW) discharge water into the creek. There are also several smaller constructed drains servicing the PKSW site, which drain into Allans Creek and the Inner Harbour.

8.4.2.3 Site water balance

PKSW sources industrial and domestic water from Sydney Water, which is Australia's largest water utility provider and which is owned by the NSW Government. All water supplied by Sydney Water is from appropriately authorised sources. Approximately 600 m^3 per day of potable water is used at PKSW.

PKSW uses industrial water comprised of both recycled water and unfiltered Avon Dam water. Recycled water comprises over 85% of the current industrial water mixture and is sourced from the Wollongong Water Recycling Plant. The dual recycled / dam water supply provides the reliability required for the steel manufacturing process, and Sydney Water is able to adjust supply volumes to reflect PKSW's site needs. Domestic water is a less significant water input to PKSW, comprising less than 3% of the total industrial and domestic water consumption and is a minor component of the overall domestic water reticulation network across the Illawarra region. Approximately 26,000 m^3 per hour of seawater from the Outer Harbour is used at PKSW for saltwater cooling. This water is returned to the Inner Harbour after use. A diagram of the existing site water balance prepared during the WIA is shown in Figure 8.3.

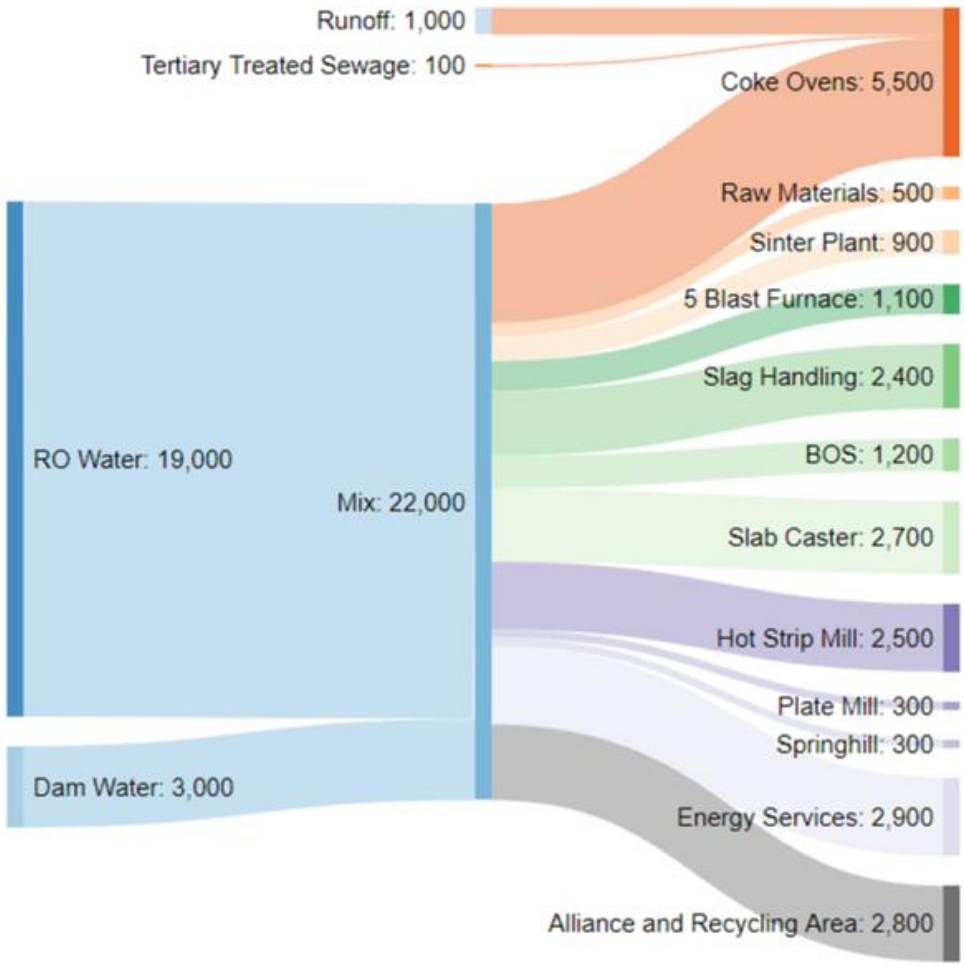

Figure 8.3 Existing site water balance at PKSW

PKSW currently operates under a Water Stewardship Plan (Plan) which sets out the catchment and identifies water reduction and improvement opportunities at the PKSW site. The Plan has been developed using the International Water Stewardship Standard as a basis and in collaboration with various stakeholder groups. As a Water Steward, BlueScope is committed to sustainable water management for the PKSW site, in addition to contributing to efforts within the catchment and region.

8.4.3 Potential impacts

8.4.3.1 Construction

Potential risks to water resources during the construction phase of the project are excavation, stockpiling, construction works and vehicle movement. Specific risks related to water quality include:

– Release of sediment or poor-quality stormwater into drains and waterways that is impacted by excavation works and other construction activities
– Potential mobilisation of existing contamination within soils via surface water or groundwater
– Spills of hydrocarbons during relocation of the existing bunker fuel line operated by Park Fuels
– Spills of hydrocarbons and other chemicals from construction plant and machinery

All construction activities are proposed to take place in previously disturbed areas. Laydown areas will be managed using existing water management controls in place across the PKSW site. Soil disturbance associated with the project has limited potential to cause localised soil erosion, therefore erosion risk is considered relatively low as the site is flat, and predominantly sealed.

Given the industrial land use of the site, it is expected that a portion of excavation works may encounter areas of contamination during construction. Contaminated sediment may generate surface water impacts if wind or rain directs contaminated sediment into the drainage systems or waterways. There is potential for accidental spillage or leaks of hydrocarbons or chemicals during works or from any stored hazardous materials in the compound areas, which may also generate surface water impacts. The volumes of potential spillages would be relatively minor so are not anticipated to result in a significant impact. Contamination is discussed further in Section 9.2.1 and 9.2.2.

Mitigation measures to reduce construction impacts to water quality are presented in Table 8.32. Mitigation measures presented in Table 9.6 will also reduce the risk of surface water impacts.

8.4.3.2 Operation

Water quality impacts

There are no process water discharges to the Harbour from this project. The new CSU to be constructed as part of the project is enclosed and will not be lifting buckets of material over the side of the ship, such that the potential for spillage and dust emissions during unloading will be minimised. This removes the need for additional controls such as catch tarpaulins or bins to be set up alongside the ship. To mitigate the risk of cross-contamination of coal and iron ore which has the potential to impact the ironmaking process, a 40 kL industrial water bucket will be installed at Berth 111 to enable cleaning of the CSU between material types. In addition, several high and low-pressure industrial water cleaning facilities, cameras and sprays will be included on the CSU to clean the buckets, conveyor transfers, conveyor returns and scrapers.

Return waters from these cleaning facilities will be collected and reused until it is no longer suitable for washdown purposes. Approximately six times per year, the water will be drained from the bucket wash and reused in dust suppression and fines capture activities at the Raw Materials Handling area (refer Figure 5.1). This area has no external discharge, as fines recovered from the cleaning facilities contain valuable raw materials and will be added, as currently occurs, in the raw material stockpiles that ultimately used to produce iron at the blast furnace.

The coal transfer conveyor is enclosed on three sides to prevent spillage and dust emissions. The tripper conveyor is used to transfer the coal from the conveyor system to the 4 Area stockpile and is unable to be enclosed. As such, industrial water sprays will be used to suppress dust emissions along this conveyor. Minimal volumes of water will be used as needed to control dust but without excessively wetting the material. As a result, no external release of industrial water is expected from conveyor dust suppression sprays.

Within 4 Area, a mixture of stormwater, industrial water and truck wash overflow will be used for dust suppression of stockpiles as occurs for current operations. The truck wash will use industrial water which will be discharged to new sediment ponds. The sediment ponds in turn will be periodically discharged to the Coke Ovens Recovery Basin which is a two-stage collection basin that allows solids in the water to settle out so the resulting clear water can be reused in the coke ovens with no external discharge under typical conditions. During wet weather events, water from the Coke Ovens Recovery Basin can be directed to No. 2 Blower Station Drain if capacity exceeds coke ovens water requirements.

The project will allow maximised use of the deepest berth, Berth 111, to accommodate use of the larger class of Capesize ships and fully loaded Panamax ships. In addition, the installation of the higher capacity unloading equipment will reduce total berthing and wharfing time. No significant changes to water quality impacts are expected to occur as a result of the proposed additional vessel visits given that no dredging is required to accommodate the vessels and there will be no change to the maximum vessel size, berthing, refuelling, de-ballasting or biosecurity arrangements.

More generally, BlueScope currently implements the following stormwater management and spill mitigation measures:

– EPA compliant bunding of all hazardous chemicals
– Spill kits readily available
– These measures will continue to be implemented during operation of the project

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Water management and flooding

The Berths are graded towards the Raw Materials Handling area where stormwater and potential spills can be managed away from the harbour environment. Some existing roads have formal stormwater drains that direct stormwater flows to containment areas. The erosion risk is considered relatively low as the site is flat, and predominantly sealed with concrete or bitumen.

The Sinter Plant area behind Berth 113 has a series of yard drains that direct stormwater to the Effluent Station tank which pumps to a clarifier that is treated with flocculant. The clarifier overflows to the IMED which provides a secondary settling opportunity before water is pumped to the No.2 Blower Station Drain. This approach provides numerous opportunities to capture stormwater and any spills that may occur, reducing the risk of water quality impacts.

In relation to flood risk, any increase in impervious area as a result of the project will be negligible and therefore no increase in stormwater peak flows or flood risks is predicted. The CLIP project sites are not identified as being vulnerable to flooding.

Operational site water balance

During operation of the project, BlueScope will continue to source industrial and domestic water from the existing sources identified in Section 8.4.2.3. Accordingly, water use during the operation of the project will be sourced from an appropriately authorised and reliable supply and does not trigger water licencing requirements.

No significant change is expected to the existing site water balance.

8.4.4 Mitigation and management measures

Management and mitigation strategies that will be implemented to manage potential impacts to water and hydrology impacts generated by the project are provided in Table 8.32.

Table 8.32 Water and hydrology mitigation measures

Impact	ID	Measure	Timing
Construction erosion and sediment	E1	Prior to construction commencing, a site-specific Soil and Water Management Plan (SWMP) will be prepared. The plan will include arrangements for managing wet weather events, specific controls and environmental inspection requirements. The SWMP will include an Erosion and Sediment Control Plan (ESCP) which will be prepared in accordance with the Blue Book -Managing Urban Stormwater: Soils and Construction (4th edition, Landcom, 2004) and Volume 2 (DECC, 2008).	Pre-construction
	E2	The ESCP will detail the erosion controls used for the project and where they will be established. The ESCP will include site specific measures to: – Prevent sediment moving off-site and sediment laden water entering any watercourse, drainage lines, or drain inlets. – Prevent mixing of soils. – Ensure soils are replaced in their pre-existing configuration during rehabilitation where possible. – Reduce water velocity overland and capture sediment on site. – Minimise the amount of material transported from site to surrounding pavement surfaces. – Divert clean water around excavations where practical – Install measures and site entry and exit points to minimise movement of material onto public roads.	Pre-construction
	E3	Erosion and sediment controls will be established prior to works commencing on site.	Pre-construction

Impact	ID	Measure	Timing
	E4	Erosion and sediment controls will be inspected on a regular basis and replaced when their function is compromised.	Construction
	E5	Soil from excavation generated will be reused where applicable. Excess spoil not required or able to be reused onsite will be disposed of appropriately as per the EPA's Waste Classification Guidelines (2014).	Construction
	E6	Vehicles will be restricted to existing access routes where practical.	Construction
	E7	Disturbed areas will be returned to pre-existing condition following the completion of construction, where practicable.	Construction
Operational water management	E8	Water monitoring programs under licencing or approval conditions will continue during operation.	Operation

9. Assessment of other impacts

9.1 Traffic

9.1.1 Existing environment

Road hierarchy

Roads within NSW are categorised in the following two ways:

– By classification (ownership)
– By the function that they perform

Classification and function definitions are described in the following sections.

Road classification

Roads are classified (as defined by the *Roads Act 1993*) based on their importance to the movement of people and goods within NSW (as a primary means of communication). The classification of a road allows TfNSW to exercise authority over all or part of the road. Classified roads include Main Roads, State Highways, Tourist Roads, Secondary Roads, Tollways, Freeways and Transitways.

For management purposes, TfNSW has three administrative classes of roads. These are:

– **State roads** – Major arterial links throughout NSW and within major urban areas. They are the principal traffic carrying roads and are fully controlled by TfNSW with maintenance fully funded by TfNSW. State Roads include all Tollways, Freeways and Transitways; and all or part of a Main Road, Tourist Road or State Highway.
– **Regional roads** – Roads of secondary importance between State Roads and Local Roads which, together with State Roads provide the main connections to and between smaller towns and perform a sub arterial function in major urban areas. Regional roads are the responsibility of councils for maintenance funding, though TfNSW funds some maintenance based on traffic and infrastructure. Traffic management on Regional Roads is controlled under delegation by local government. Regional Roads may be all or part of a Main Road, Secondary Road, Tourist Road or State Highway; or other roads as determined by TfNSW.
– **Local roads** – The remainder of roads are council-controlled roads. Local Roads are the responsibility of local councils for maintenance funding. TfNSW may fund some maintenance and improvements based on specific programs (e.g. urban bus routes, road safety programs). Traffic management on Local Roads is controlled under the delegation by local government.

Functional hierarchy

Functional road classification involves the relative balance of the mobility and access functions. TfNSW define four levels in a typical functional road hierarchy, ranking from high mobility and low accessibility, to high accessibility and low mobility. These road classes are:

– **Arterial roads** – generally controlled by TfNSW, typically no limit in flow and designed to carry vehicles long distances between regional centres.
– **Sub-Arterial roads** – can be managed by either TfNSW or local council. Typically, their operating capacity ranges between 5,000 and 20,000 vehicles per day, and their aim is to carry traffic between specific areas in a sub region or provide connectivity from arterial road routes (regional links).
– **Collector roads** – provide connectivity between local roads and the arterial road network, and typically carry between 2,000 and 10,000 vehicles per day.
– **Local roads** – provide direct access to properties and the collector road system, and typically carry less than 2,000 vehicles per day.

A map of the key roads within the study area and their respective classifications is presented in Figure 9.1. The key roads are discussed further in the following sections.

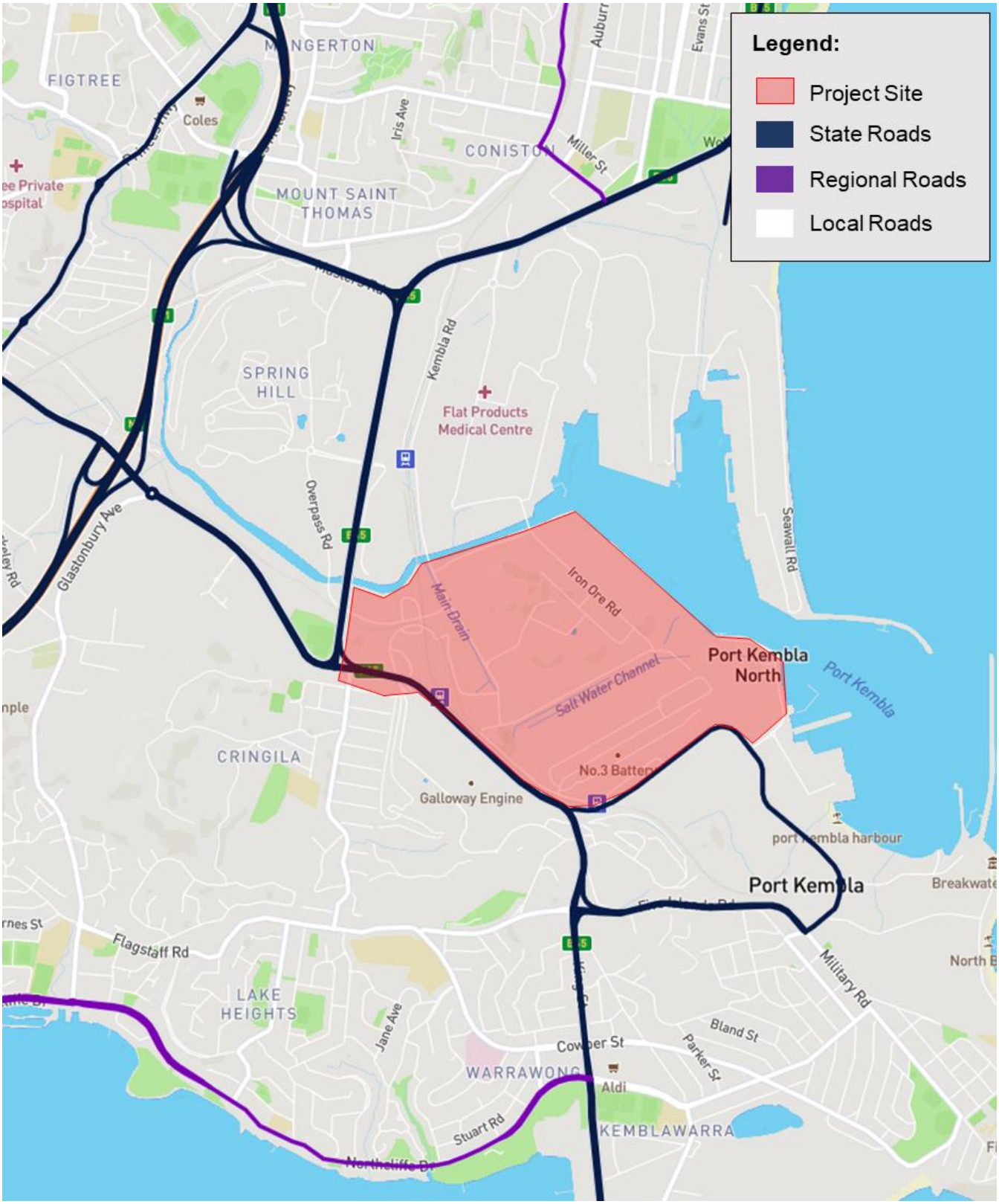

Figure 9.1 Road classification within study area

*Source: **NSW Road Network Classifications, TfNSW**, modified by GHD*

9.1.1.1 Road characteristics

This section summarises key roads around the PKSW.

Springhill Road

Springhill Road (typical carriageway shown in Figure 9.2) is a state arterial road and forms part of the B65, which connects Wollongong Central Business District and Port Kembla. It runs in an approximately northeast to southwest alignment between Corrimal Street and the signal-controlled intersection with Masters Road. To the south of Masters Road, Springhill Road runs in an approximate north to south alignment and forms the northern approach to a signal-controlled intersection with Five Islands Road. Springhill Road provides access to mainly industrial and port related land uses, including access roads to PKSW, which are accessed via signal-controlled intersections.

The key features of Springhill Road are outlined in Figure 9.2.

Figure 9.2 Springhill Road, viewed westwards from BlueScope North Gate

Image Source: Google Street View

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Table 9.1 Springhill Road key features

Feature	Description
Carriageway	Sealed dual carriageway with a raised centre median, with three traffic lanes in each direction.
Parking	Parking and stopping is restricted.
Speed Limit	80 km/h, which changes to 60 km/h to the north of Port Kembla Road.
Pedestrian Facilities	Footpaths are available: – Shared path along the southern side of the road to the east of Masters Road and along the eastern side of the road to the south of Masters Road. – Along the northern side of the road between Bridge Street and Tom Thumb Road. – Signal controlled pedestrian crossings are provided at all signal controlled intersections.
Bicycle Facilities	Shared paths are available: – Along the southern side of the road to the east of Masters Road and along the eastern side of the road to the south of Masers Road. – Along the western side of the road between Boral Asphalt access and Five Islands Road.
Public Transport	Bus stops are located on both sides, with bus routes: 37, 51, 53, 57, 65 operating from these stops.

Source: Google maps, modified by GHD

Five Islands Road (B65)

Five Islands Road (typical carriageway shown in Figure 9.3) is a state road, which forms part of the B65 between Wollongong and Port Kembla. It forms a signal-controlled intersection with Springhill Road and Flinders Street and provides a connection between the Princes Motorway and Port Kembla. It provides access to the PKSW via Cringila Car Park Road, Emily Road and Flagstaff Road.

The key features of Five Islands Road are outlined in Table 9.2.

Figure 9.3 Five Islands Road, viewed eastwards towards Springhill Road

Image Source: Google Street View

Table 9.2 Five Islands Road key features

Feature	Description	
Carriageway	Sealed dual carriageway with a raised centre median, with three traffic lanes in each direction.	 *Source: Google maps, modified by GHD*
Parking	Parking and stopping are restricted throughout the alignment.	
Speed Limit	80 km/h.	
Pedestrian Facilities	Footpaths are provided on both sides of the road at the following locations: – Between Springhill Road and Wattle Street. – Between Spring Road and the railway line overpass.	
Bicycle Facilities	A shared path is provided along the northern side of the road between Springhill Road and Flinders Street.	
Public Transport	Cringila Station is located on the northern side of Five Islands Road. Two bus stops are located approximately 45 metres to the south of Cringila Railway Station, with bus routes 27SC, 51 and 53 operating from these bus stops.	

Old Port Road / Flinders Street and Christy Drive

OId Port Road (shown in Figure 9.4) is classified as a state road and provides access to industrial and port related land uses within the southern part of Port Kembla. At its southern end it forms a roundabout intersection with Foreshore Road and further to the south becomes Darcy Road. At its southern end, Darcy Road forms the minor approach to a priority “Stop” controlled intersection with Five Islands Road and Military Road. Old Port Road and Flinders Street provide access to Christy Drive which allows for access to the southern part of the project area. Christy Drive is a no through road with one lane in each direction.

The key features of Old Port Road are outlined in Table 9.3.

Figure 9.4 Old Port Road, viewed southwards from Flinders Street

Image Source: Google Street View

Table 9.3 Old Port Road key features

Feature	Description	
Carriageway	Single sealed carriageway with one lane in each direction.	
Parking	Unrestricted parking.	
Speed Limit	60 km/h speed limit.	
Pedestrian Facilities	A shared path is provided along the eastern side of the road to the north of Foreshore Road.	
Bicycle Facilities	A shared path is provided along the eastern side of the road to the north of Foreshore Road.	
Public Transport	Port Kembla Station is located to the west of Old Port Road, south of the intersection with Foreshore Road. One bus stop is located adjacent to the Port Kembla Station. Bus routes 34, 43 and 65 operate from this bus stop.	

Source: Google maps, modified by GHD

9.1.2 Potential impacts

9.1.2.1 Construction

Construction traffic generation

The construction of the project is expected to generate:

– Up to 100 light vehicles per day, comprising of contractors and construction personnel vehicles, which will result in 200 light vehicle movements per day (100 arrivals and 100 departures). These vehicles are expected to arrive between 5:00 am to 8:00 am and depart between 4:00 pm to 6:00 pm, although some movements will be spread across all work hours.
– It is estimated that around ninety to 95% of the expected light vehicle movements would be directed to the project area via the exiting BlueScope access road located at the confluence of Flinders Street and Old Port Road.
– The remaining 5% of light vehicle movements are assumed to enter and exit via the North Gate or other PKSW entrances.

Traffic impacts

A detailed analysis of the operation of the existing road network was undertaken for BlueScope's No. 6 Reline project (SSI- 22545215) as contained in *Blast Furnace No. 6 Reline Project Traffic Impact Assessment* (GHD, 2022b). That assessment reviewed existing road network performance on key roads in regards to their Volume Capacity Ratio (VCR). The VCR is a measure of the level of congestion on a road given the traffic volume and road capacity. When the VCR reaches 1, this indicates that the road is operating at 100 % capacity. In regard to the key roads impacted by this project it was found that:

– Old Port Road / Flinders Street – Has a functional capacity of 900 vehicles per lane, per hour, and currently operates with a VCR of 0.10 for both northbound and southbound.
– Five Island Road – Has a functional capacity of 1,200 vehicles per lane, per hour, and currently operates with a VCR of between 0.38 and 0.50 for northbound and southbound respectively.

Based on a worst-case number of vehicles at the height of construction activities of 100 light vehicles per day all accessing construction activities via the Old Port Road entrance, this indicates that there is ample capacity within the local road network to handle construction traffic. The project is not anticipated to generate any material impact on the local road network during construction.

The Blast Furnace No. 6 Reline Project Traffic Impact Assessment (GHD, 2022b) also included an analysis of current intersection performance at key intersections on the local road network. All assessed intersections, including Five Islands Road and Emily Road, and Five Island Road and Flagstaff Road, where found to be operating at levels of service A or B as defined in Table 9.4. This indicates that these intersections are currently demonstrating good operation with the proposed amount of construction traffic unlikely to result in a change to the current level of service.

Table 9.4 Level of Service Criteria for intersections

Level of Service (LoS)	Average Delay per Vehicle (seconds/veh)	Traffic Signals, Roundabouts	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control modes	At capacity, requires other control mode
F	> 70	Over Capacity Unstable operation	Over Capacity Unstable operation

Source: Guide to Traffic Generating Developments (Roads and Maritime Services 2002)

Oversize and overmass vehicles

PKSW can be accessed by the following heavy vehicle routes approved for use by vehicles up to 26m B-double equivalent:

– Springhill Road
– Five Islands Road
– Flinders Street
– Old Port Road
– Masters Road (via Springhill Road)
– Princes Motorway (via Five Islands Road or Masters Road)

It is likely that certain specialist plant, equipment or materials may require the use of oversize or overmass (OSOM) vehicles. Where required, OSOM permits will be obtained from TfNSW and licensed haulage contractors engaged to manage OSOM movements.

Car parking

As with traffic impacts, once the project is operational, worker numbers are expected to return to approximately pre-existing levels. Workers will utilise the existing car parks with the PKSW once operational. No impact to off-site or on road carparking is expected during operations.

Public transport

The construction of the project will not impact train or bus services operating in the vicinity of the project site. The traffic generated by the construction of the project is expected to have negligible impacts to public transport services.

Active transport

The construction of the project would not impact pedestrian or bicycle facilities.

9.1.2.2 Operation

Traffic impacts

During operation, it is anticipated that workforce requirements will not change significantly from existing operations requiring approximately 20 direct and 10 indirect FTE workers. Therefore, ongoing operation traffic impacts will be consistent with the existing operation.

Car parking

As with traffic impacts, once the project is operational, worker numbers are expected to return to approximately pre-existing levels. Workers will utilise the existing car parks with the PKSW once operational. No impact to carparking is expected during operations.

Public transport

The operation of the project will not impact train or bus services operating in the vicinity of the project site. The traffic generated by the operation of the project is expected to have negligible impacts to public transport services.

Active transport

The operation of the project will not impact pedestrian or bicycle facilities.

9.1.3 Mitigation and management measures

Management and mitigation measures that will be implemented to minimise the traffic and transport impacts of the project are provided in Table 9.5.

Table 9.5 Traffic management measures

Impact / Aspect	ID	Measure
Construction Traffic	TT1	A Construction Traffic Management Plan (CTMP) will need to be prepared prior to the commencement of works. The CTMP will provide: – Measures to minimise the impact of the construction vehicle traffic on the overall operation of the road network. – Measures to provide continuous, safe, and efficient movement of traffic for both the general public and construction workers. – Details regarding installation of appropriate advance warning signs to inform users of the changed traffic condition. – A description of the construction vehicles and the volume of these construction vehicles accessing the construction site. – Information regarding access arrangements and a description of the proposed external routes for vehicles, including the construction vehicles, accessing the site. – That all staff and subcontractors engaged on site will be required to undergo site induction. The induction will outline the requirements on the CTMP, including site access routes, environmental and occupational health and safety responsibilities, emergency procedures, potential carpooling opportunities and vehicle height restriction under the power lines, among others.
Traffic management measures	TT2	Key stakeholders, including owners/operators of adjacent lands and emergency service providers, will be notified of any changes to the traffic management arrangements of public roads prior to the commencement of works.
	TT3	The construction site access will be reviewed during design development to consider the turn path required for the construction vehicles.
	TT4	Construction works to occur within the standard hours defined by the Interim Construction Noise Guideline (DECC, 2009) where practical. Some out of hours work may be required to undertake certain tasks as described in Section 5.7.
	TT5	Truck drivers will be directed to follow the predetermined haulage routes.

Impact / Aspect	ID	Measure
	TT6	Workers required to undertake works or traffic control will be suitably trained and hold the required accreditation to carry out works on site and will also be site inducted.
	TT7	Protection will be provided to workers and road users through advanced warning of roadworks, speed changes, safety barriers with adequate offsets and deflection allowance, where necessary.
	TT8	Site access will be restricted to authorised project personnel and existing employees on site.
	TT9	Roadwork speed zones must be logical, credible, and enforceable. They should only be used where they are self-enforcing or will be enforced. Roadwork speed zones will be used with traffic control signs and devices and should not be used in place of more effective traffic controls. They will be used only while road works are in progress or the lower speed road conditions exist.
	TT10	The following environmental requirements should be adhered to: – All vehicles transporting loose materials on public roads will have the entire load covered and/or secured to prevent any large items, excess dust or debris depositing onto the roadway during travel to and from the site, including but not limited to construction rumble strips/wheels wash at the site egress location. – Vehicles operating to, from and within the site shall do so in a manner, which does not create unreasonable or unnecessary noise or vibration. – Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like.

9.2 Soils, geology and groundwater

9.2.1 Existing environment

9.2.1.1 Geology and soils

A review of the 1:100,000 Geological Map of the Wollongong – Port Hacking Sheets 9029, 9129 indicates that the project site is underlain by Quaternary sediments described as quartz and lithic fluvial sand, silt and clay.

A search of the DPE eSpade soil and land information database was undertaken on 11 February 2022 (DPE, 2022). The project site and wider PKSW is mapped as Disturbed Terrain soil landscape (9029xx) occurring within other landscapes. The PKSW is underlain by artificial fill, including dredged sand and mud, rocks, and local soil materials, with bedrock exposed in some places. Demolition rubble, industrial and household waste are also present in fill under the PKSW. Land within the PKSW is not undermined. The project site is generally void of soil and covered in hard, impervious bitumen surfaces. Any remaining soil or sediments present are highly disturbed thin coverings overlying fill material. Key limitations of the disturbed soils are mass movement hazards, subsidence, and impermeable soils.

Historically, the project site was low lying swampland, with soils predominantly including silty sands and clay. The area was progressively filled during the 20th century to accommodate industrial activities with the swampland filled with blast furnace slag, open hearth slag and coal washery rejects (Egis, 2001). The project site surface is flat and generally sealed. Any remaining soil or sediments present on the site are highly disturbed thin coverings overlying fill material.

Various investigations (Egis, 2001; GHD, 2004; GHD, 2009; JBS&G, 2016, GHD, 2018c) have identified the following underlying geology:

– Fill material 0 to 6 metres below ground level (bgl): Variable quality and composition of slag material, dredged sands and coal wash materials of varying thicknesses, generally in the order of 4 to 6 metres deep and of high permeability.
– Estuarine sediments 6 to 15 metres bgl: including interbedded sands, silts, clays and muds of variable thicknesses.
– Deeper bedrock materials are reported as present at depths from 19 metres bgl as weathered latite underlain by sandstone in some areas.

9.2.1.2 Acid sulphate soils

Review of acid sulphate soil (ASS) risk mapping (DPE) indicates that the project site is classified as disturbed terrain at an elevation of greater than four metres. Areas classified as disturbed terrain may include filled areas, which often occur during reclamation of low lying swamps for urban development. The potential for ASS to occur in such areas is not known. However, as the terrain contains filled areas resulting from the reclamation of Tom Thumb Lagoon, which is mapped as having a high probability of acid sulphate bottom sediments, it is probable that some acid sulphate soil material may be present below the layers of fill at the site.

Estuarine sediments within Allans Creek and the Inner Harbour are mapped as having a high probability of occurrence of ASS. As the site contains filled areas resulting from the reclamation of Tom Thumb Lagoon, it is possible that some ASS material will be present, particularly in the estuarine sediments underlying fill material. Previous sediment investigation's undertaken in the wider area (GHD, 2018a) have found ASS within natural sediments at various depths, sometimes as shallow as 2.5 metres, however no ASS was found within fill materials.

9.2.1.3 Groundwater

The site's aquifer system can be summarised as comprising two primary aquifers overlying bedrock:

– A combined fill / shallow estuarine aquifer (the estuarine component of which comprises mostly sands and silts), underlain by.
– A deeper estuarine aquifer (predominantly comprising estuarine clays and muds) (JBS&G 2016).

Groundwater recharge predominantly occurs from rainfall infiltration and infiltration of water used for operational purposes, including dust suppression water (used primarily on raw materials stockpiles) and drainage waters. Groundwater recharge may also occur via the deeper (bedrock) aquifers (GHD, 2009).

Groundwater flow at the site generally trends in an easterly direction toward the Inner Harbour. However, topography, subsurface geology, and unlined surface water drainage channels result in localised variations to this trend, particularly along the perimeter of the site and adjacent to Allans Creek. The central portions of the site, characterized by extensive deposits of graded fill and deeper clay deposits, exhibit much flatter and more uniform hydraulic gradients (GHD, 2004).

Previous investigations (GHD, 2004; GHD, 2009; JBS&G, 2016; Senversa, 2019) indicated that on-site groundwater is generally shallow, ranging from approximately 1 to 8 metres bgl, and encountered within fill materials overlying the less permeable alluvial deposits.

9.2.1.4 Contamination

A search of contaminated land records and records of sites notified to the Environment Protection Authority (EPA) was conducted on 11 February 2022. The PKSW is listed as a contaminated site by the EPA. The site has had four notices issued to it, the last being in March 2018, which was a notification to cease the Voluntary Management Plan for the site on the basis that regulation of the site under the Contaminated Land Management Act 1997 (CLM Act) is no longer warranted. Ongoing management of site contamination occurs under EPL 6092.

9.2.2 Potential impacts

9.2.2.1 Construction

The project will require excavations and ground disturbance, particularly in the early stages of construction. Excavation will be required for footings of the proposed infrastructure. With the exception of piling disturbance to natural material below the level of fill is unlikely and therefore ASS are unlikely to be encountered during construction of the project. The detailed design process will confirm whether driven or bored piles have the potential to disturb ASS.

When ASS is disturbed and exposed to oxygen, the soils can form sulphuric acid that can then leach into the surrounding area. As the site is predominantly sealed, acid sulphate soils that are uncovered are unlikely to have impacts to surrounding soils and water provided that they are contained. Installation of piles will have potential to disturb a small volume of potential ASS beneath the level of fill at the site, which can be managed in accordance with an Acid Sulphate Soil Management Plan.

Vehicle movements may also disturb the ground, however, as the majority of the site is currently sealed, disturbance is expected to be minimal. Soil disturbance associated with the project has limited potential to cause localised soil erosion. The erosion risk is considered relatively low as the site is flat, and predominantly sealed with concrete or bitumen and the level of disturbance will be minor. Potential erosion and sedimentation impacts will be managed through the implementation of appropriate controls with reference to Managing Urban Stormwater: Soils and Construction Volume 1 (The ‘Blue Book’; Landcom, 2004).

Given the industrial land use of the site and the results of previous soil investigations, there is potential to encounter previously unidentified contamination during construction. The project will involve some ground disturbing works, which may lead to contaminated material being exposed. The potential for such exposure to impact the health of the construction workforce, or for exposed material to move beyond the project site during strong winds and rain, is considered low given the minor nature of ground disturbing works. The risk of exposure or mobilisation of contaminants from any isolated contaminated areas or unexpected finds will be managed during construction with an unexpected contamination finds procedure in the Construction Environmental Management Plan (CEMP).

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During construction, there will be a requirement for a number of fuel-powered vehicles and equipment as well as some chemicals and lubricants. There is potential for accidental spillage or leaks of hydrocarbons or chemicals during works or from any stored hazardous materials in the compound areas. While this would present a negative impact, the volumes of potential spillages would be relatively minor so are not anticipated to result in a significant impact. Mitigation measures including the preparation of an incident emergency spill plan will be developed and implemented before any construction commences to manage this risk.

9.2.2.2 Operation

Following construction of the project, disturbed areas will be restabilised and resealed where required for operational use. The project is not expected to have ongoing erosion and sedimentation impacts during operation.

Operational activities have the potential to impact on soils through spills or leaks of hydrocarbons and chemicals. All chemical/fuel storage and loading areas will be bunded or otherwise contained. Spill management procedures currently implemented to manage any spills will continue. Potential contamination impacts due to inappropriate storage or chemical/fuel spills are therefore considered unlikely.

Potential impacts to groundwater during the operational phase will have negligible, if any, change from those associated with BlueScope's existing operations which relate to the quantity and quality of groundwater recharge from infiltration of rainfall and water used for dust suppression.

9.2.3 Mitigation and management measures

Management and mitigation measures that will be implemented to minimise the impacts, if any, generated by ASS or contamination are provided in Table 9.6. These measures are to be implemented in conjunction with those in Table 8.32, which aim to mitigate the impacts of erosion and sediment control.

Table 9.6 Soils, geology and groundwater management measures

Impact / Aspect	ID	Measure	Timing
Acid Sulphate Soils	S1	If ASS are disturbed during excavations, they will be managed as per the Acid Sulphate Soils Manual (ASS MAC, 1998).	Construction
Contamination	C1	An incident emergency spill plan will be detailed in the CEMP.	Pre-construction
	C2	Spill response kits will be provided on site and will be located in a clearly defined location.	Construction
	C3	Plant and machinery will be inspected regularly to ensure that they are in sound working order.	Construction
	C4	If soils that appear to be contaminated are exposed during construction of the project, works will cease in the area until further investigation can be undertaken. The following factors are indications of potential contamination on site: – Stained or discoloured fill – Hydrocarbon or chemical odour. Contaminated soils requiring disposal will be classified under the Waste Classification Guidelines (EPA,2014) prior to disposal.	Construction
	C5	All chemical/fuel storage and loading areas will be bunded or otherwise contained.	Construction, Operation
	C6	All plant personnel that may encounter chemicals/fuels will be trained in required handling procedures.	Construction, Operation

9.3 Biodiversity

9.3.1 Methodology

Given the highly disturbed nature of the project site, an application to DPE – Biodiversity Conservation Division (BCD) for a Biodiversity Development Assessment Report (BDAR) waiver was made during the project scoping phase. BCD subsequently granted a BDAR Waiver for the project on 14 February 2022. A copy of the BDAR waiver is attached at Appendix H.

Subsequent to the issuing of the BDAR waiver, further project design refinement identified the need for a number of trees to be removed in proximity to the Berths to facilitate the construction and operation of the project. A separate assessment of the tree to be cleared was undertaken. This is also attached at Appendix H. This assessment included:

– A review of previous studies from projects undertaken around Port Kembla
– A review of aerial photography and photographs of trees to be removed
– A review of design drawings
– A field survey undertaken on 29 September 2022

This report is summarised in this section and is attached in Appendix H.

9.3.2 Existing environment

The project is located in the Illawarra Interim Biogeographical regionalisation of Australia (IBRA) sub region. The Illawarra subregion is characterised by vegetated cliff faces on coastal escarpments and barrier systems. The Illawarra subregion forms part of the Sydney Basin Bioregion. The Sydney Basin Bioregion extends north of Batemans Bay to Nelson Bay, and as far west as Mudgee, occupying approximately 4.53 % of NSW land area. The project is located in the Lake Illawarra Barrier Mitchell Landscape. This landscape is substantially altered by urban and industrial development but will originally have had a very similar structure and composition to the Seven Mile Barrier Landscape (DECC, 2008b). General elevation ranges from 0 to 25 metres, with local relief of 5 metres.

9.3.2.1 Terrestrial environment

The environment within the PKSW site is highly modified for industrial purposes. The PKSW site is predominantly cleared, covered by operational facilities such as buildings, plant, roads and storage buildings. The project site is mapped as cleared-urban/industrial within regional vegetation mapping (DPE, 2015, 2016) with remaining vegetation limited to planted tree species and opportunistic weeds. The planted street trees within the project site and remaining exotic vegetation are unlikely to reflect a historical near-natural state due to the highly disturbed nature of the project site, and therefore are unlikely to fall within a plant community type. No karst, caves, crevices, cliffs and other geological features of significance occur within the project site. Man-made structures are also unlikely to provide habitat.

The project site is not connected to any habitat which may be utilised as corridors for flora and fauna species, and therefore does not contribute to habitat connectivity. There are no Coastal Management SEPP wetlands or proximity area, nationally important wetlands or internationally important wetlands within the site. The project site is approximately 6 kilometres from large patches of native vegetation.

9.3.2.2 Aquatic environment

The hard substrates within Port Kembla consist of infrastructure such as break walls, piles and quay walls around the perimeter of the port. Previous studies identified that intertidal regions are dominated by the Sydney rock oyster (*Saccostrea glomerata*), with oyster limpets (*Patelloida mimula*) and sea squirts (*Cunjevoi pyura)* also present. The subtidal zone (down to 2 metre depth) generally consists of encrusting bryozoan (*Watersipora subtorquata*), polychaete tubeworms (predominantly *Hydroides elegans*), compound ascidians (*Botrylloides leachii*), solitary ascidians (*Styela plicata*) and blue mussels (*Mytilus galloprovincialis*) (Worley Parsons, 2012). Large hydroids, arborescent bryozoans (*Bugula flabellata* and *Bugula stolonifera*), small sponges and barnacles are also common in in the sub-tidal zone. Substrates are heavily silted beyond two metres depth (Worley Parsons, 2012). Introduced species account for 50% of the hard substrate assemblages in Port Kembla (Johnston, 2006). Biofouling communities identified during field investigations in 2018 were generally consistent with previous surveys of the area (GHD, 2018b).

The seabed within the Inner Harbour consists of fine, unconsolidated silt expanses with large decapod burrows. Historically, patches of seagrass (*Halophila ovalis*) have been recorded within the Inner Harbour, however were not recorded in surveys undertaken in 2012 (Worley Parsons, 2012) and 2018 (GHD, 2018b).

The berth area drains to infiltration basins prior to release to the Port Kembla Inner Harbour. Other areas of the project such as the conveyor alignment drain into Main Drain and Allans Creek, before draining into the Inner Harbour. Main drain is an unlined drain approximately 15 metres wide which provides minimal habitat for aquatic fauna. Allans Creek is a natural catchment of approximately 30 km^2 to the west. Allans Creek and the Port Kembla Inner Harbour are mapped as Key Fish Habitat.

9.3.2.3 Flora and fauna

A search of the DPE BioNet Atlas for records of threatened species listed under the BC Act and EPBC Act (DPE, 2022b) was undertaken on 11 February 2022. Threatened species previously recorded within 10 kilometres of the site are listed in Appendix H.

The project area and wider PKSW site is generally cleared of vegetation and almost entirely sealed. Vegetation within the project site is planted in mostly linear groups. Tree species presents include Norfolk Island Pine (*Araucaria heterophylla*); Oleander (*Nerium oleander*); Pohutukawa (*Araucaria heterophylla*); Port Jackson Fig (*Ficus microcarpa var. hillii*), Hybrid Bottlebrush (*Ficus microcarpa var. hillii)* and Swamp Oak *(Casuarina glauca).* These species are not native to the area, except for the Swamp Oaks and the Port Jackson Fig.

Planted groundcover species include Spiny-headed Mat-rush (*Lomandra longifolia*); Blushing Bindweed (*Convolvulus erubescens*) and Coral plan (Russelia equisetiformis). Annual Weeds include Panic Veldtgrass (*Ehrharta erecta*), Flax-leaf Fleabane (*Conyza bonariensis*); Annual Trampweed (*Facelis retusa*); Catsear (*Hypochaeris radicata*); Smooth Catsear (*Hypochaeris glabra*) and Common Sowthistle (*Sonchus oleraceus*)

No listed flora species have been recorded near the project site. A review of the Atlas of Groundwater Dependent Ecosystems (BOM, 2021b) indicated that no known groundwater dependant ecosystems (GDEs) are located within the project site.

Fauna previously recorded near the project site were common native birds such as Nankeen Kestrals (*Falco cenchroides*), Silver Gulls (*Chroicocephalus novaehollandiae*) and introduced species such as rabbits (*Oryctolagus cuniculus*). Marine bird species may also visit the site periodically.

A known population of Green and Golden Bell Frog (*Litoria aurea*) occurs within the greater PKSW site. The closest habitat that has been mapped for this population is located approximately 1.6 kilometres northeast of the berth area. The Green and Golden Bell Frog is listed as endangered under the BC Act and vulnerable under the EBPC Act. Known Green and Golden Bell Frog habitat and associated corridors within the PKSW are shown in Figure 9.5. The probable corridors for this population include the rail line from Coniston to Port Kembla railway station, Plate Mill and the Steelhaven site.

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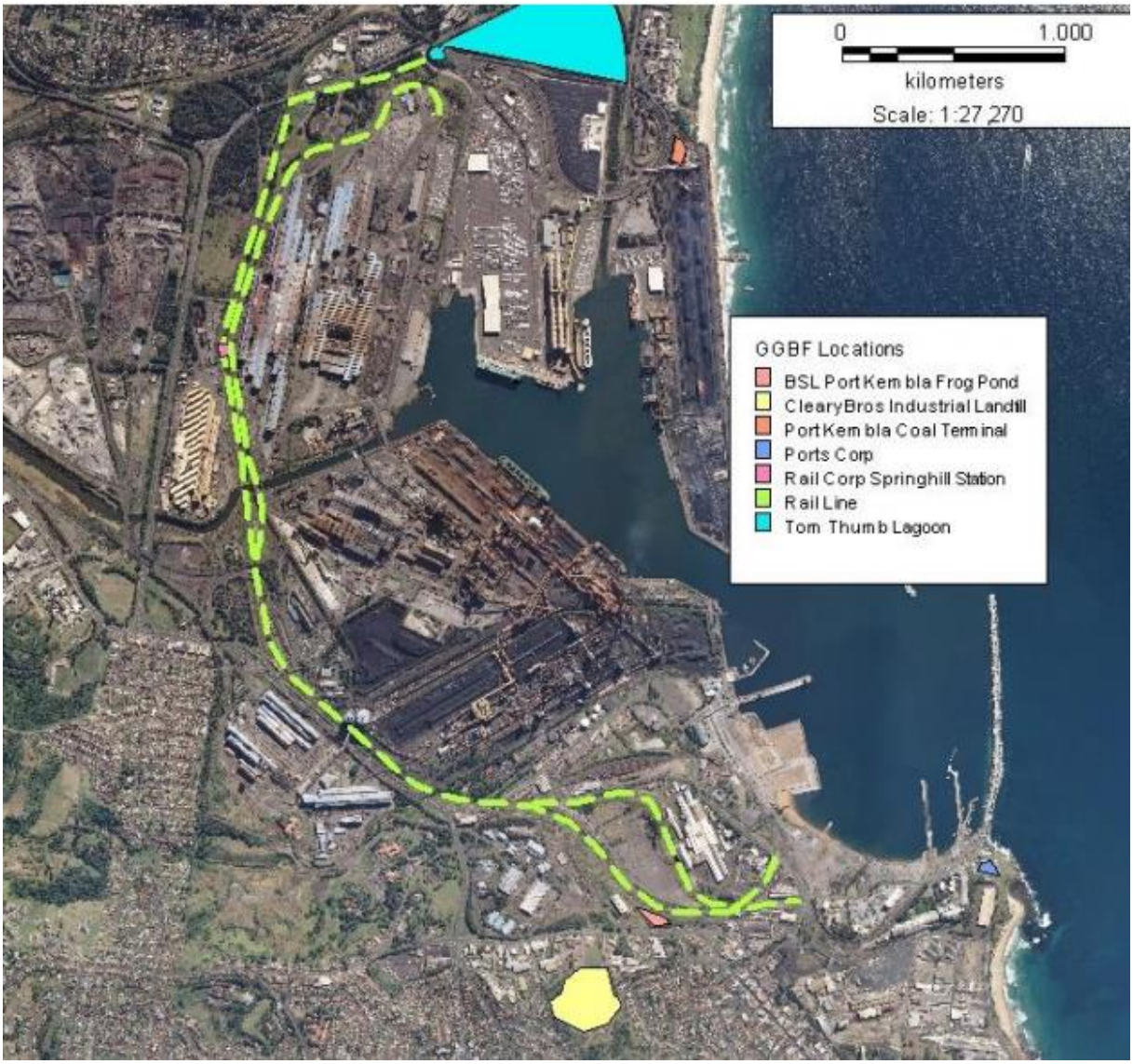

Figure 9.5 Green and Golden Bell Frog potential habitat and habitat corridors (BlueScope, 2020)

The Green and Golden Bell Frog prefers habitats with dense vegetation, particularly plants that form tussocks as they provide good cover from predators. Examples of preferable flora for habitat include Spiny Mat Rush (*Lomandra longifolia*), Common Reed (*Phragmites australis)*, *Bolboschoenus caldwelii* and *Juncus* species. The species is generally found in close proximity to standing water bodies, which it requires for breeding. The species may be found amongst human refuse including bricks, fibre cement, waste concrete and piles of sheet iron. Habitat connectivity is reliant on wet areas between places of preferable habitat, such as rivers, culverts, swales and ephemeral waterways (DECC, 2008c).

9.3.3 Potential impacts

9.3.3.1 Construction

The project site is highly disturbed and does not contain listed flora species or habitat that would support listed flora species. 39 planted trees are required to be cleared to construct the project. These trees are located at the northeast end of Christy Drive. These trees are predominantly a mix of non-native species or native cultivar species which are not indigenous to their planted location. Given the highly disturbed nature of the site, lack of remnant native vegetation, and lack of connectivity to wildlife corridors, removal of these trees would not have a significant impact. The Tree Clearing Assessment concluded that the BDAR waiver granted on 14 February 2022 is still valid. Clearing of these trees would be mitigated by compensatory planting generating negligible net change to biodiversity at the PKSW following completion of the project.

The Green and Golden Bell Frog has been recorded within the southern area of the PKSW site and the species is known to inhabit highly disturbed areas. The presence of the Green and Golden Bell Frog is managed across PKSW in accordance with site manual MA-ENV-03-03 Management of Threatened Species, the Green and Golden Bell Frog (BlueScope, 2020). The nearest areas of suitable habitat for this species are approximately 1.6 kilometres from the project site. No artificial ponds will be removed or modified. Impacts to this species as a result of the project are therefore considered unlikely.

Listed threatened or migratory bird species have been recorded in the vicinity of the project site and may visit the site temporarily while moving between off-site foraging areas in the locality. Any species which may use flight paths over the project site will be limited to bird and bat species which are accustomed to the existing noise and light from the active PKSW and associated works in the surrounding industrial area. The project will temporarily increase impacts from noise and light, however, is unlikely to interfere with existing flight paths used by protected animals over the project site.

The Inner Harbour is located adjacent to the project site. The Inner Harbour was previously Tom Thumb Lagoon, however much of the lagoon has been reclaimed for industrial use. The waters of the Inner Harbour may be used as occasional foraging habitat by threatened bird species. The Inner Harbour is mapped as Key Fish Habitat (DPI, 2007); however, it is a highly developed and utilised marine environment that is known to support few fish species. These species have been identified as common across the region and do not include any threatened species (GHD, 2018). The project will not involve removal of marine vegetation and there will be no impacts on fish passage. The marine environment is unlikely to be directly impacted during construction as mitigation measures will be implemented to prevent sediment or contaminants entering waterways.

Operation

Discharges to the harbour will occur from docked ships from de-ballasting. These discharges currently occur under existing operations and do not pose risks to contamination or water quality impacts. During operation of the project, discharges would continue to be undertaken in accordance with Commonwealth Government guidance in accordance with the Australian Ballast Water Management Requirements (Australian Government, 2017). The CSU and associated facilities are not expected to discharge to the Inner Harbour.

The project will not modify significant habitat or wildlife corridors. Operational impact to biodiversity would be negligible.

9.3.4 Mitigation and management measures

Management and mitigation strategies that will be implemented to manage biodiversity impacts generated by the project are shown in Table 9.7.

Table 9.7 Biodiversity mitigation and management measures

Impact	ID	Measure	Timing
General biodiversity	B1	– Measures proposed in the SWMP will be implemented to ensure appropriate sediment control measures are put in place to ensure run-off during construction does not result in indirect impacts to surrounding habitats. – Construction machinery will be cleaned prior to entering and leaving site to ensure weed propagules are not transported. – Clearing will of trees will be restricted to the trees identified in the Tree Clearing Report. – Laydown areas will be placed on existing hardstand, and where possible, as far away from drainage lines and places where surface water can pool. – These measures will be implemented in the CEMP and may be revised at any time to manage potential environmental impacts.	Pre-construction Construction
Green and Golden Bell Frog	B2	All measures outlined in *Management of Threatened Species, The Green and Golden Bell Frog, Litoria Aurea (BlueScope, 2020)* will be implemented during construction of the project.	Construction

Impact	ID	Measure	Timing
	B3	All workers will be trained in the procedures outlined in *Management of Threatened Species, The Green and Golden Bell Frog, Litoria Aurea (BlueScope, 2020)* and their responsibilities under the BC Act and EPBC Act in the project induction. This will also be discussed periodically during the toolbox talks or though group refresher training sessions.	Construction
	B4	If a Green and Golden Bell Frog is found in the project site or laydown area, work in the vicinity will cease immediately. Work will not recommence until clearance from a qualified ecologist can be provided. Following confirmation of the sighting of Green and Golden Bell Frog either by a local ecologist or by means of identification using the Green and Golden Bell Frog Audit / Inspection Checklist, the sighting must be registered with the EPA and NSW BioNet Species sightings via the web or telephone.	Construction
Unexpected species discovery	B5	If other endangered species are discovered on the project site or in laydown areas, work will cease in the vicinity and a qualified ecologist will be employed to assess the discovery. Additional mitigation measures presented by the ecologist will be incorporated into the CEMP. Work in the area will not commence unless clearance is given by the ecologist.	Construction

9.4 Aboriginal heritage

9.4.1 Existing environment

9.4.1.1 Environmental setting

Prior to industrial development, the project site was part of the Tom Thumb Lagoon estuary. The estuary was comprised of an estuarine channel, saltmarsh and tidal mudflats which covered an area of approximately 500 hectares. The estuary would have been bounded by a sand barrier at the mouth with a large, moderately deep, central basin influenced by fluvial processes (GHD, 2007).

Prior to European settlement, the wider area surrounding the project site would have supported a variety of habitats, including wetland, saltmarsh, coastal scrub, hilly scrub and forested plains. The landscape would have supported a wide range of fauna, including molluscs, fish, birds and macropods. The abundance of these species, as well as edible flora, meant the area provided the local Aboriginal people with a resource rich environment (GHD, 2018c).

9.4.1.2 Ethnohistory

The project site is located within the traditional lands of the Wodi Wodi, part of the wider Dharawal language group. Early European settlers recorded gatherings of Aboriginal people at Tom Thumb Lagoon and Spring Hill. Settlers recorded Aboriginal people camping and fishing around the shores of the lagoon and an estimated 100 people gathering for a corroboree at Spring Hill. Aboriginal camps around the lagoon were documented to have continued until 1914. Aboriginal resource gathering and commercial fishing occurred in the area until the early 1940's (GHD, 2018c).

Port Kembla has remained a place of residence for many Aboriginal families. Spring Hill, west of the former Tom Thumb Lagoon and northwest of the PKSW, includes some areas that are relatively undisturbed but were previously used for industrial purposes and recreation. The local Aboriginal community has recreational access to this area. Fig trees in the area are culturally important to the local Aboriginal people, being traditional meeting places and having associations with woman's business. The area immediately surrounding two large fig trees in Spring Hill was converted into a recreational reserve in 2007 and 2008. Works included landscaping, revegetation and erection of a shelter. The reserve is frequently visited by the local Aboriginal community and includes memorials to deceased community members (GHD, 2018c).

The project site is located in the administrative boundaries of the Illawarra Local Aboriginal Land Council (LALC). Consultation was undertaken with the Illawarra LALC to assist in identifying the cultural heritage values of the project site (see Section 7).

9.4.1.3 Heritage significance

Prior to industrialisation, it is possible that the PKSW site may have contained Aboriginal artefacts or sites, given the resource rich surrounding environment. Dredging and reclamation of the site during the construction of the PKSW in the 1920s has extensively disturbed the site.

The main areas of potential Aboriginal heritage significance are around Spring Hill, approximately 1.5 kilometres to the northwest of the project site, in areas that have not been subject to previous disturbance associated with industrial development. These include an area known as The Horse Paddock, an area of Crown land and areas of land in the reserve along Springhill Road that are remnant landforms at the margins of the former Tom Thumb Lagoon. Surviving land surfaces are likely to have potential for Aboriginal cultural material, likely in the form of middens, stone artefacts, and scarred trees (where mature native vegetation has survived) (GHD, 2018c).

An extensive search of the Aboriginal Heritage Information Management System (AHIMS) (see Appendix J) identified no recorded Aboriginal sites within the project site. The nearest recorded Aboriginal site is in the vicinity of Spring Hill (Site ID 52-2-3618), comprising an open camp site consisting of two flaked stone artefacts located on the crest of a hill in disturbed context. The AHIMS coordinates place the site on the western side of Springhill Road, approximately 1.6 kilometres northwest of the berth area. This site is approximately 150 m east of Laydown Area 5 and 6.

Hill 60 Illowra Battery Landscape Area is located approximately 2.4 kilometres southeast of the Berths operational and construction area and is listed on the State heritage register. Hill 60 and its environs is listed as containing a rare suite of Aboriginal heritage sites which demonstrate the evolving pattern of Aboriginal cultural history and the Aboriginal land rights struggle. The curtilage of this item includes AHIMS site 52-2-1290 (shell, artefact).

9.4.2 Potential impacts

The PKSW site does not contain known Aboriginal items or sites. The project will be undertaken on heavily disturbed, reclaimed lands. Excavations into natural material are not anticipated to be required to construct the project and therefore the likelihood of unexpectedly encountering Aboriginal heritage items is low.

No previously recorded Aboriginal sites will be impacted by construction and operation of the project.

9.4.3 Mitigation and management measures

Management and mitigation strategies that will be implemented to manage potential impacts to Aboriginal Heritage shown in Table 9.8.

Table 9.8 Aboriginal heritage management measures

Impact	ID	Measure	Timing
Unexpected Aboriginal heritage finds	AH1	In the event of an unexpected find of potential Aboriginal object/s (or suspected item), work will cease in the area and DPE notified. Works will not recommence until continuation is authorised by DPE.	Construction

9.5 Historic heritage

9.5.1 Historic context

The project site has been subject to a number of past land uses prior to the establishment of the PKSW. During the 1800's the locality was used for cedar cutting, farming, cattle breeding, hotel and estate development, recreational commons and a racecourse. Industrialisation within the locality began in 1882, when the Mount Kembla Coal and Oil Company established a private jetty and rail link. Port operations continued expanding throughout the 19th century and into the early 1900s.

Over the following decades more land was acquired for port development. Port Kembla Rail Line was constructed in 1916 along the western boundary of Tom Thumb Lagoon. Spring Hill Road was also formalised around this time. Dredging and reclamation occurred in the 1930s, during which time the PKSW was constructed on land south of Allans Creek. The mill began operation in 1930 under the ownership of the Australian Iron and Steel Company, which would later merge with Broken Hill Proprietary (BHP) in 1935. Following the merger, BHP entered into an agreement with the State Government to further expand operations around Tom Thumb Lagoon. The expansion of the BHP steel works included the reclamation of 73 acres along the western edge of Tom Thumb Lagoon. The reclamation program raised land by approximately seven metres, which required 2.3 million m^3 of fill material, predominately sourced from Port Kembla sand dunes and dredge material from Tom Thumb Lagoon.

The industrialisation boom during the 1950s and 1960s led to large scale land modification across the locality. The resulting industrial development required extensive modification of the natural drainage systems in the area, with Allans Creek being heavily modified and rerouted around the border of the industrial estates. Drainage along Springhill Road and the former Tom Thumb Lagoon were similarly modified. While steel operation areas have remained largely unchanged since the 1960s, works on the Inner Harbour berths and terminals continued well into the 1980s, 1990s and to the present day (GHD, 2018d).

9.5.2 Existing environment

The following sources were searched on 11 February 2022 and 14 February 2022 to identify any historic heritage items located within or near the project site:

– Australian Heritage Database
– NSW State Heritage Register
– Wollongong LEP 2009
– Transport and Infrastructure Ports SEPP

The nearest historic heritage item is the locally listed Commonwealth Rolling Mills, which is approximately 1.2 kilometres southeast of the project site. This feature is listed on the T&I SEPP. The NSW State Heritage Register listed (State heritage listed) Hill 60 Illowra Battery Landscape Area, which includes Hill 60, Fisherman's Beach, Boilers Point and MM Beach, is located approximately 1.7 kilometres southeast of the project site.

An item known as the Galloway Steam Engine is located on the PKSW site and is a registered item with the National Trust of Australia. The Galloway Steam Engine is a three-crank geared reversing rolling mill system engineered by Galloways Ltd of Manchester, England in 1917. The engine was purchased by Australian Iron and Steel Pty Ltd in 1928 and installed in the first rolling mill at Port Kembla. The Galloway Steam Engine was the first steel rolling mill engine in Port Kembla and has played a large role in the history of the PKSW. The engine was taken out of service in December 1982. This item is still present on site, in the No. 1 Open Hearth located south of Five Islands Road, approximately 700 m south of the project site.

The National Trust of Australia lists those buildings, sites, items and areas, which, in the Trust's opinion, fall within the following definition:

– Those places which are components of the natural or the cultural environment of Australia, that have aesthetic, historic, scientific, or social significant or other special values for future generations as well as the present community.

Listing on National Trust of Australia's register does not convey any statutory requirements.

9.5.3 Potential impacts

No listed items of historic heritage were identified within the project site or near laydown areas. Given the distance between the project site and the closest item (Commonwealth Rolling Mills, approximately 1.3 kilometres south east), no impacts to historic heritage items are anticipated.

The Galloway Steam Engine is also located away from the project area and away from laydown areas. No impacts to this item are anticipated.

9.5.4 Mitigation and management measures

Management and mitigation strategies that will be implemented for the listed and potential (unlisted) heritage items located within the study area are provided in Table 9.9.

Table 9.9 Historic heritage management measures

Impact	ID	Measure	Timing
Unexpected finds	HH1	In the unlikely event that unexpected historical (non-Aboriginal) archaeological remains are discovered during works they will be managed with reference to the standard protocols and procedures of Section 146 of the *Heritage Act 1977*.	Construction

9.6 Visual amenity

9.6.1 Existing environment

A range of land uses are present within the locality including Wollongong CBD, residential areas, the University of Wollongong, Port Kembla, Lake Illawarra, and the conservation areas of the Illawarra Escarpment. The Illawarra Escarpment, located to the west of the project site, provides a natural visual catchment boundary to Wollongong and Port Kembla.

Built form within the locality includes the industrial and port areas of Port Kembla and the area below the Illawarra Escarpment, with views towards the coast. Residential areas generally consist of low to medium density housing, contrasting with the multi-storey (up to 16 storey) mixed development within the Wollongong CBD.

Natural features within the locality include Mount Keira and the Illawarra Escarpment. The Illawarra Escarpment is characterised by its continuous elevated cliff line and plateau contrasting with the coastal plain below. Lake Illawarra is the major waterbody in the area and is fed by a series of small creeks from the escarpment to the coast. Some of these creeks form part of the Allans Creek catchment.

The project site is located within PKSW. PKSW consists of a variety of open-structure plants, exhaust stacks, equipment, operational buildings, storage areas, internal roads and storage tanks. Two canals, Main Drain and Allans Creek, flow through the site. Visual features around the site include Tom Thumb Lagoon and Port Kembla Harbour, grain and coal export facilities, manufacturing premises and truck depots. PKSW is visible from distant public vantage points, such as local lookouts and highways, as well as from the surrounding residential areas and arterial roads.

The project site is located on the PKSW berths, which is an industrial and special use area adjacent to the Inner Harbour. PKSW is located next to other industrial developments such as grain and coal export, manufacturing premises and truck depots. The current arrangement at the PKSW berths is shown in Figure 9.6 to Figure 9.8.

Figure 9.6 PKSW Berths – view north (Source: BlueScope)

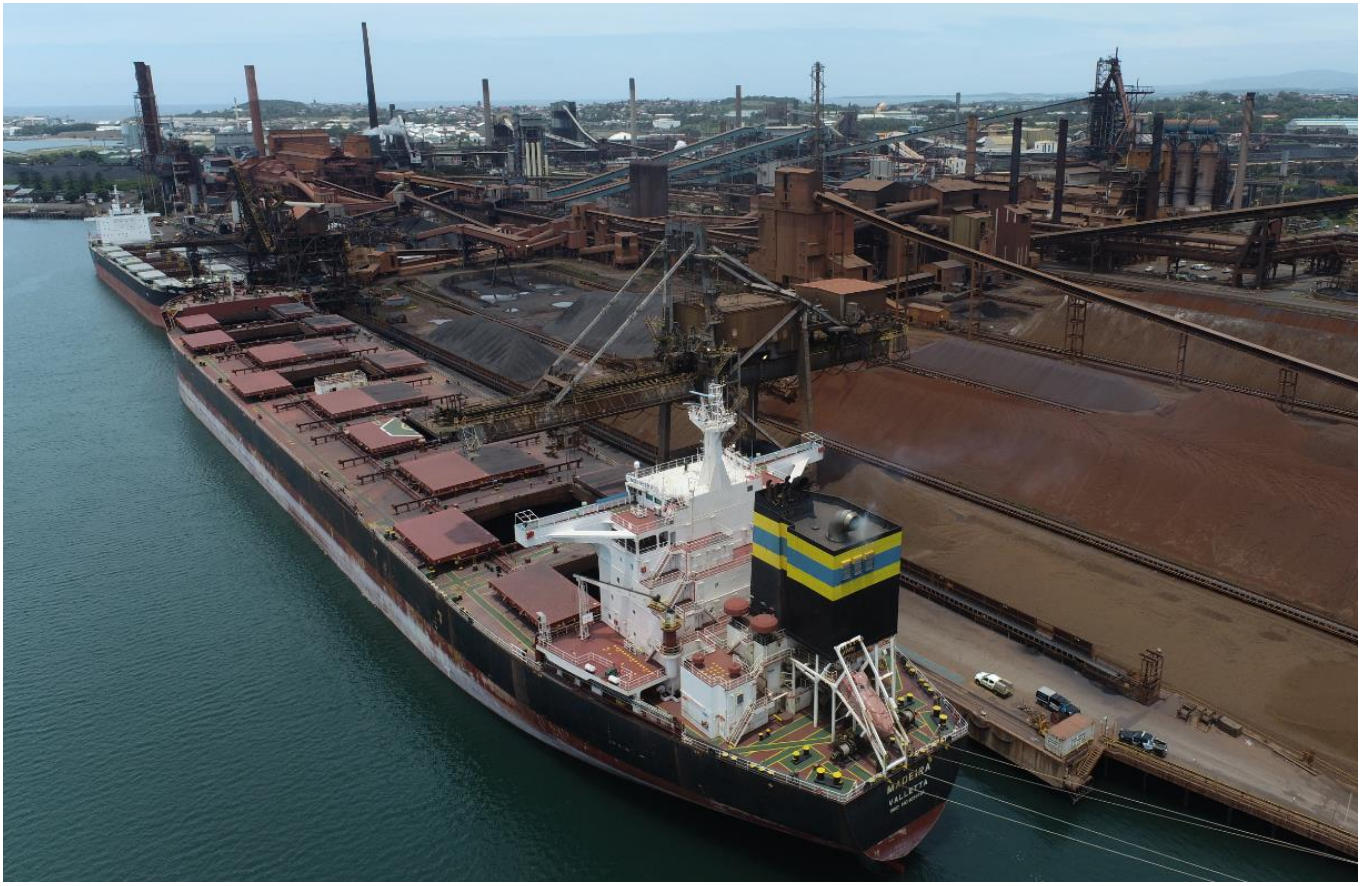

Figure 9.7 PKSW Berths – view south (Source: BlueScope)

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Figure 9.8 PKSW Berths – view alongside (Source: BlueScope)

9.6.2 Potential impacts

Construction

Five key viewpoints (VP) towards the project were identified. These points are from around the PKSW site and represent key visual catchments.

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View point 1: Mount Kiera

Criteria	Comments
Location	VP1 is located at Mount Keira Lookout, approximately 7 kilometres northwest of the project site and at an elevation of approximately 560 metres. Mount Keira Lookout includes a visitor carpark, lookout and walking track, and is within a national park.
View direction	Southeast.
Description of existing view	VP1 is representative of visitors to Mount Keira Lookout stopping to enjoy the views up and down the coastline. VP1 provides a panoramic view of the study area, capturing residential areas on the foothills, the Wollongong CBD to the left, Port Kembla harbour to the centre, and Lake Illawarra to the distant right. Built form types and scale variations are discernible between different uses such as the tower buildings in the city, finer grain suburban areas, and larger scale industry around the harbour.
Anticipated Change to View	Construction: There will be a temporary presence of construction plant over Stage 1 and Stage 2 of the project. As the project will be located within the PKSW, and given the distance between it and VP1, visual impact will be negligible. Operation: The rearrangement of the Berths and construction of the CSU will occur at existing berth locations. The CSU may be visible from VP1, however as it is contained within the PKSW, visual impacts will be negligible. Conveyor infrastructure will be integrated into existing infrastructure at the site and will not be seen from VP1.
Sensitivity to Change	The sensitivity to change is High due to the high value placed on the view.
Magnitude of Change	The magnitude of change is Negligible. The project will be consistent with its immediate environment and will not encroach other significant views visible from VP1.
Significance of Impact	Negligible.

View point 2: Flagstaff Hill

Criteria	Comments
Location	VP2 is located at the lookout above the carpark near the Wollongong Head Lighthouse, approximately 4.8 kilometres northeast of the project at an elevation of approximately 20 metres. The Wollongong Lighthouse and Flagstaff Hill Park forms part of a natural rocky headland adjacent to Wollongong CBD and beach and is a popular tourist destination.
View direction	Southwest.
Description of existing view	VP2 represents views experienced by visitors to the Flagstaff Hill Park and Wollongong Head Lighthouse. VP2 is a long distant view southwest along the coastline. The foreground is dominated by the carpark. To the middle ground, the ocean and beach shoreline can be seen, with tall pine trees and multi-storey towers of Wollongong to the right. Port Kembla industrial area features in the mid-distance, with features of the PKSW being clearly seen. The Illawarra Escarpment is pictured in the distance.
Anticipated Change to View	Construction: The project will see a temporary presence in construction plant and equipment within the existing PKSW site. The Port Kembla Coal Terminal provides screening of the project site. Construction equipment will not be visible from this viewpoint. Operation: The CSU will be visible from VP2, however as it will be contained within the existing industrial setting of the PKSW it is unlikely to have a significant impact on this view. The relocation of the Coke Loader may also be visible but will not have a significant impact on this view. Ship locations within the Inner Harbour will remain consistent with the existing environment.
Sensitivity to Change	The sensitivity of change is High as this is a major tourist lookout location adjacent to the Wollongong CBD.
Magnitude of Change	The magnitude of change is Negligible as the project will be contained within an existing industrial setting.
Significance of Impact	Negligible

View point 3: Mount St Thomas

Criteria	Comments
Location	VP3 is located at the park on Television Avenue, approximately 2.5 kilometres north west of the project site at an elevation of approximately 70 metres.
View direction	Southeast.
Description of existing view	VP3 represents views experienced by users of the parkland to the north of the project site. It is also representative of some residential views in the area. VP3 looks out over park land and residential housing towards the northern Port Kembla industrial area. PKSW is partially obscured by vegetation to the right of the view.
Anticipated Change to View	Construction: The increase in construction plant and equipment within the existing PKSW will not be visible as it will be screened by the sinter machine, mills and 6BF. Operation: The CSU will be visible from this location. Conveyors and other relocated infrastructure will not be visible during operation. All works will be contained within the PKSW site.
Sensitivity to Change	The sensitivity of change is Moderate as surrounding residents will experience long viewing periods.
Magnitude of Change	The magnitude of change is Low. The CSU will be visible from this location, however as it will be contained within the existing PKSW where similar infrastructure is already established, visual impacts will generally remain as current.
Significance of Impact	Minor.

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View point 4: Cringila

Criteria	Comments
Location	VP4 is located at the intersection of Steel Street and Lake Avenue in Cringila, approximately 2 kilometres southwest of the project site at an elevation of approximately 40 metres. Cringila is a residential suburb with single-storey dwellings on relatively undulating topography and extensive views to the steelworks at Port Kembla. This viewpoint is representative of the closest viewpoint to the PKSW for residential receivers.
View direction	Northeast.
Description of existing view	VP4 represents views from nearby residential properties at a similar elevation. The view looks out over residential properties towards the PKSW site. Infrastructure at PKSW of chimneys and sheds dominates the centre and left of the view extending across the horizon line, with 5BF and 6BF clearly visible however, the project site is not visible from this viewpoint. Electrical poles are dominant vertical foreground elements in the view.
Anticipated Change to View	Construction: Construction work associated within Stage 1 will not be visible from this viewpoint as it will be screened by existing infrastructure. Some elements of Stage 2, such as the conveyors on the western side of 6BF, may be visible from this viewpoint. Operation: The operation of the project will have a limited impact on receivers, as most elements of the project are unlikely to be seen from this viewpoint.
Sensitivity to Change	The sensitivity to change is Moderate as residents will experience long viewing periods at a distance from the project site.
Magnitude of Change	The magnitude of change is Negligible, as most elements of the project are unlikely to be seen from this viewpoint.
Significance of Impact	Negligible.

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View point 5: Lake Heights

Criteria	Comments
Location	VP5 is located on a footpath within an open space area on Flagstaff Road Lake Heights, approximately 2 kilometres southwest of the project site at an elevation of approximately 50 metres. This view is characteristic of the low to medium density residential development located between the industrial port and Lake Illawarra.
View direction	Northeast.
Description of existing view	VP5 represents views from nearby residences at a similar elevation. The view comprises Flagstaff Road residences to the right, sited at an elevation overlooking the open space area towards the port. The centre of the view to the fore and middle ground comprises low shrubs and grasses within the open space valley, exposing clear views towards the PKSW. Large scale vertical and horizontal sheds, chimneys and silos are visible. The Illawarra Escarpment and ocean form a blue backdrop to the view.
Anticipated Change to View	Construction: Construction plant and equipment will be partially screened from residential receivers by other buildings on PKSW during both stages of the project. Given that the project is separated by a distance of 2 kilometres, any remining view changes will have negligible impact. Operation: The CSU may be partially visible during operation. Other elements of the project are anticipated to be obscured by existing buildings at the PKSW.
Sensitivity to Change	The sensitivity to change is Moderate as residents may experience long viewing periods at a distance from the project site.
Magnitude of Change	The magnitude of change is Negligible, as the project will be relatively unseen in operation. Elements that may be visible are consistent with the existing land use.
Significance of Impact	Negligible.

Summary of impacts

Alterations to the visual landscape due to the presence of construction plant and vehicles are expected to be generally screened from view by regional topography, existing buildings, and vegetated areas in the locality. Where visible, they will not cause a significant visual impact. During operation, the project may be visible from some viewpoints, however as it is consistent with the existing land use, visual impacts are expected to be low to negligible.

9.6.3 Mitigation and management measures

The following management and mitigation strategies will be implemented to reduce the impact to visual amenity on surrounding receivers are shown in Table 9.10.

Table 9.10 Visual amenity management measures

Impact	ID	Measure	Timing
Visual amenity – construction works	LV1	Temporary boarding, barriers, traffic management and signage will be removed when no longer required.	Construction
	LV2	Roads providing access to the site and work areas will be maintained free of dust and mud as far as reasonably practicable.	Construction
	LV3	Materials and machinery will be stored neatly during construction works.	Construction
	LV4	Ensure any temporary lighting required during the construction period is sited and designed to avoid light spill into the surrounding area.	Construction
	LV5	Utilise existing site features as screening when positioning plant where practical.	Construction
Light spill	LV6	Lighting to be designed installed and operated in accordance with *Australian Standard 4282-1997 Control of the Obtrusive effects of outdoor lighting.*	Detailed design and operation.

9.7 Land use and property

9.7.1 Existing environment

9.7.1.1 Regional context

The project is located in Port Kembla in the Wollongong LGA and Illawarra region of NSW and is approximately 2.5 kilometres south of the Wollongong CBD. Port Kembla lies in the coastal plain which is bounded to the west by the Illawarra Escarpment and to the east by the Pacific Ocean. The major land uses within the area surrounding the PKSW, extending from the harbour to the escarpment, are low density residential development, public recreation areas, commercial premises, agriculture, mining and manufacturing.

The port of Port Kembla is located between the Pacific Ocean and the Port Kembla industrial area. The Inner Harbour, specifically developed as an all weather shipping port, covers 60 hectares with 2.9 kilometres of commercial shipping berths. Other berths in the Inner Harbour include the car import/general cargo and container facility, the grain terminal, and the coal terminal. Development around the Inner Harbour include the PKSW, fertiliser production facilities and petroleum hydrocarbon storage and wholesaling. The Outer Harbour includes the common user terminal and bulk liquids facility. Port Kembla industrial area is serviced by internal electricity, water and gas.

The closest urban developments to the PKSW are the suburbs of Cringila, Berkeley, Lake Heights, Warrawong and Port Kembla to the south, Unanderra, Mount St Thomas, Coniston and Figtree to the north and west. These suburbs are generally comprised of low-density residential developments that were initially developed as housing for workers employed by heavy industry. Schools, medial facilities, businesses, and outdoor recreation areas are also present in these areas, as identified in Table 9.11.

Table 9.11 Summary of surrounding land use

Suburb	Description of key land use	Distance from project site
Cringila	Residential, public recreation, industrial, environmental management.	1.7 kilometres west
Berkeley	Residential, public recreation, industrial, commercial, environmental management, place of worship, cemetery.	3.9 kilometres southwest
Lake Heights	Residential, public recreation, commercial	3.1 kilometres southwest

Suburb	Description of key land use	Distance from project site
Warrawong	Residential, public recreation, industrial, commercial and tourism.	1.9 kilometres southwest
Port Kembla	Residential, public recreation, industrial, commercial, environmental conservation.	1.6 kilometres south to nearest areas outside the PKSW site.
Unanderra	Residential, public recreation, industrial, commercial, education establishment, cemetery and tourism.	2.3 kilometres west
Springhill	Industrial,	1.2 kilometres northwest
Figtree	Residential, public recreation, industrial, commercial, environmental management, environmental conservation.	3.1 kilometres northwest
Mount St Thomas	Residential, public recreation	2.4 kilometres northwest
Coniston	Residential, public recreation, commercial, industrial	1.8 kilometres northwest

9.7.1.2 Project site

The PKSW site is a multiuse industrial area which includes storage, manufacturing, port berths, private internal roads, and offices. The project is partially located on Lot 1 DP 606434 (see Figure 2.2), which is owned by BlueScope and is zoned IN3 – Heavy Industrial under the T&I SEPP. The project meets the definition of a heavy industry in accordance with the T&I SEPP and is consistent with the objects of the land zoning.

The project will also be carried out on Lot 71 DP1182824 and Lot 72 DP1182824. Both of these lots are the subject of a 99-year lease from the NSW Government to NSW Ports. BlueScope operations on Lot 71 DP1182824 are carried out under a month-to-month license from NSW ports. Operations on Lot 72 DP1182824 occur under lease from NSW Ports.

The construction footprint, inclusive of laydown areas and ancillary facilities, will be contained within the Lots outlined above.

9.7.2 Potential impacts

The project will be predominantly located on land owned by BlueScope, and therefore no land acquisition (temporary or permanent) will be required. Works on Lot 71 DP1182824 and Lot 72 DP1182824 will need to be undertaken in consultation with NSW Ports and in accordance with relevant land access agreements.

There may be some internal restrictions on access and land use within the PKSW during construction of the project, however this will only be to different operational areas within the PKSW that are managed by BlueScope. During construction, some areas at the Western end of Christy Drive will be temporarily leased from NSW Ports and fenced to provide a safety barrier to the public during construction as well as laydown and equipment storage areas. There is also potential for additional space in this area to be leased from NSW Ports if the need arises.

Whilst some changes to the arrangement of the Berths will occur, no changes to land use are expected during operation as the berth is an existing feature of the site and operational activities will be generally consistent with current operation. Overall impacts to the land uses associated with berth operations would be positive as the efficiency of the Berths is improved as a result of the project. The PKSW site is predominantly serviced by private utility assets within the site. The project will require modification of some of these onsite services, such as water and power. This will be managed by BlueScope to minimise disruptions to existing activities on site. The project will require a minor modification to the bunker fuel line operated by Park Fuels.

Construction and operation of the project has the potential to indirectly impact land use and public amenity:

– Air quality (refer to Section 8.1)
– Noise and vibration (refer to Section 8.2
– Traffic (refer to Section 9.1)
– Visual amenity (refer to Section 9.6)
– Waste management (refer to Section 9.10)

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Following the implementation of the mitigation measures outlined in each of these sections, impacts to land use and public amenity will be negligible.

9.7.3 Mitigation and management measures

The management and mitigation strategies that will be implemented to reduce the impact to land use on surrounding areas are shown in Table 9.12.

Table 9.12 Land use management measures

Impact	ID	Measure	Timing
Land use	LU1	A CEMP will be developed to manage and mitigate impacts generated by the construction of the project.	Pre-construction Construction
	LU2	BlueScope will coordinate project activities to minimise the impact to land use and services within the PKSW site.	Construction
Property	P1	BlueScope will consult with NSW Ports prior to works on Lot 71 DP1182824 and Lot 72 DP1182824.	Pre-construction

9.8 Social and economic

9.8.1 Existing environment

The project is located within the Wollongong LGA. The key economic metrics for the Wollongong LGA (idcommunity, 2022 and ABS, 2021a) are summarised in Table 9.13.

Table 9.13 Wollongong community statistics

Key statistics	Value
Gross regional product	$12.67 billion
Residents	214,564
Employed residents	107,676
Unemployment rate (2022)	4.8%
Local businesses	14,141
Largest industry (by employment)	Health care and social assistance
Output of primary metal and metal product manufacturing (2020/21)	$2,282 million
Population forecast	278,744 (2041)

PKSW is located in the suburb of Port Kembla, which is approximately 2.5 kilometres south of the City of Wollongong. The population of Port Kembla was recorded as 5,088 in the 2021 census. This comprised 1,356 families, with an average of 1.7 children per family (for families with children). Children aged 0 - 14 made up 18.2 per cent of the population and adults over 65 made up 17.7 per cent of the population. 3.4 per cent of the population identified as Aboriginal and/or Torres Strait Islander. The median weekly household income was $1,308. Industry of employment data collected by the 2021 census was not publicly available at the time of EIS preparation. In the 2016 census, iron smelting and steelmaking made up 3.3% of the suburb's workforce (ABS, 2021b).

The social locality for the basis of this assessment is defined as the suburb of Port Kembla and the suburbs immediately surrounding the site that will be most impacted by the project. These suburbs are Cringila, Berkeley, Lake Heights, Warrawong, Unanderra, Cobblers Hill, Mount St Thomas, Coniston and Figtree. In addition to residences and businesses, key places of social value within these suburbs include:

– Schools (both primary and secondary)
– Medical facilities
– Religious buildings and places of worship
– Community facilities (such as public halls, libraries and museums)
– Outdoor recreational facilities (beaches and parks)
– Sporting clubs
– Places of local significance, such as heritage sites or from which there are iconic views

Impacts to the wider Wollongong LGA have also been considered.

9.8.2 Potential impacts

An assessment of the project's potential to result in social and economic impacts has been undertaken in accordance with the *Department's Social Impact Assessment Guideline – State significant projects* (SIA Guideline) (DPE, 2021c). Pursuant to the SIA Guideline's social impact assessment, scoping was undertaken as an initial phase during the preparation of the Scoping Report for the project. During the scoping phase it was identified that the project was likely to result in negligible social impacts, with any such impacts occurring only during the construction phase. Construction activities will be predominantly confined to the existing PKSW site.

9.8.2.1 Stakeholder engagement

A wide range of stakeholder groups was consulted during the preparation of the EIS, ranging from local government, business, special interest groups and neighbourhood forums. Full details of the stakeholder engagement undertaken, matters raised, and how they have been addressed in this EIS are provided in Section 7.

9.8.2.2 Amenity Impacts

Construction

During construction, the project has the potential to generate noise emissions from a variety of sources, including:

– Berth modifications
– Coke Loader relocation
– Installation of the CSU
– Delivery, unloading, storage and loading of materials and waste
– Movement of heavy vehicles to and from the project site
– Construction traffic on local roads
– Excavation
– Piling activities

Whilst these activities have the likelihood to reduce amenity for some residents, they will be infrequent, and of short duration. In general, the location of the project within the PKSW provides a natural buffer to public areas as industrial noises are already characteristic of the existing environment. Appropriate management measures including consulting with the community have been recommended in Section 8.2 to manage these impacts.

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The project will generate some amount of dust during construction. The Air Quality Impact Assessment (refer to Section 8.1) concluded that dust generation, with the proposed management measures applied, will result in minor impacts to public amenity. Construction emissions of dust and other particulate matter will vary significantly based on the specific activities being undertaken at any time. Vehicle movement at laydown areas may also produce some amount of dust. Impacts will be small and localised. Much like noise, the location of the project within PKSW provides a buffer from the site to places of community value. The strongest winds in the area are also generally from the southwest, west and northwest. This means that in conditions in which fugitive dust is most likely, it will be blown away from residences and from places of community value.

Traffic and transport impacts during construction will be limited to an increase in light and heavy vehicle traffic on the road network during construction. The traffic assessment (refer to Section 9.1) showed construction traffic impacts will be minimal.

Operation

Operation of the project will generate noise and dust emissions as described in Sections 8.1 and 8.2. The predicted increases in emissions levels for the project are considered minor and will have a negligible impact on the amenity of the places of community value surrounding the site.

At some viewpoints, minor changes to views of the site may occur as a result of the project, however impacts to visual amenity from viewpoints of community value will be negligible. The area has been industrial in nature for decades and the project is located within the existing PKSW, such that any visual impacts will be consistent with those currently experienced.

Sections 9.9 outlines the limited range of circumstances in which increases in emissions levels for the project are predicted. These will be minor and are considered negligible to the amenity of community value surrounding the site.

Social infrastructure impacts

Social infrastructure refers to community and individual support services. As discussed in the sections above, the project will generate some impacts in regard to noise and dust during operation. The extent of these impacts is considered negligible, given the distance between the project and social infrastructure services.

Social and economic benefits

As discussed in Section 4.1, South32 has notified BlueScope that from 2028, South32 will not be able to supply coal critical to steel making. Existing operations at the PKSW generate approximately $6.5 million and make up about 24 per cent of the regional output per annum. Construction of the CSU will secure a suitable source of input commodities to enable the long tradition of steelmaking in the Illawarra to continue. The continued operation of the PKSW will facilitate the retention of approximately 4,500 jobs at the site itself (both BlueScope employees and full-time contractors on the site) and support in the order of 10,000 jobs in total in the region and across NSW.

The continued operation of flat steel products at the PKSW will supply approximately 2.2 million tonnes to a wide range of infrastructure projects. The security of having a local source for steel will be of importance to the NSW economy, particularly due to the projects identified as being important as part of the NSW COVID-19 Recovery Plan (NSW Government 2020). Local steelmaking is also critical to Australia's sovereign manufacturing capability.

BlueScope also makes a significant contribution to the local community through its role as a joint partner in the BlueScopeWIN Community Partners Program which provides grants for community projects. As of mid 2022, the program has been in place for over eight years, funding over 400 projects and investing over $4 million. BlueScope also sponsors local organisations such as Lifeline South Coast, Community Cancer Link, and Legacy, amongst others.

As part of BlueScope's First Nations Framework strategy, BlueScope works with a number of Indigenous organisations, including procurement agencies, to increase indigenous employment opportunities. BlueScope will look for ways to facilitate indigenous employment as part of the project.

Social and economic categories

The *Social Impact Assessment Guideline – State significant projects (SIA Guideline) (*DPE, 2021c) sets out eight categories of potential social impact. Socio-economic impacts of the project are described below for construction (Table 9.14) and operation (Table 9.15).

Table 9.14 Social impact categories – Construction assessment

Category	Assessment	Level of impact
Way of life	The project will generate a number of construction jobs for skilled labourers in the region.	Minor, positive
Community	The utilisation of local staff and services will have a positive impact on the community. The continuation of steelmaking in the region is a positive contribution to Australia's supply chain security and a potential source of local pride.	Minor, positive
Accessibility	The project will be contained within PKSW and will not impact traffic routes or accessibility.	Neutral
Culture	The project is not expected to have an impact on heritage items (Aboriginal and Non-Aboriginal). The project will also not impact access to significant sites and activities. BlueScope will continue to provide indigenous employment opportunities as part of its First Nations Framework strategy.	Neutral
Health and wellbeing	As discussed above, the project may generate dust and noise impacts during construction. Dust generation related to the proposed construction activities is well understood and can be easily managed through the application of standard measures as outlined in Section 8.1.3 and 8.2.3.	Minor, negative
Surroundings	The project will have a minor impact on the air quality of the surrounding environment during construction as described above.	Minor, negative
Livelihood	The project will generate jobs and employment opportunities for the local community during construction of the project.	Minor, positive
Decision making systems	During the preparation of this EIS, the community was consulted. The outcomes of consultation were considered when preparing the EIS to ensure that the community has been properly engaged. This process has been undertaken in accordance with accepted regulatory processes. The project will not impact on future decision making systems.	Neutral

Table 9.15 Social impact categories – Operation assessment

Category	Assessment	Level of impact
Way of life	The project will contribute to the viability of steelmaking at PKSW. The operation of the project will be consistent with the existing operation of PKSW. No additional impacts to way of life are anticipated.	Major, positive
Community	Steelmaking has a rich history at PKSW and is something for which the Illawarra Region is well known. There are many families who have had several generations work at the PKSW site. The project will enable steelmaking to continue and enable more generations of local families to seek employment at the PKSW. During consultation for the project, the community raised concerns regarding the greenhouse gas and energy impacts of the project. BSL has set a target to reduce the Scope 1 and 2 GHG emissions of its steelmaking sites by 12 per cent by 2030 relative to 2018, and a goal to achieve net zero GHG emissions by 2050. A detailed discussion of the strategies to meet this target and goal, and the factors upon which their achievement depends, is presented in Sections 9.9.	Major, positive
Accessibility	The project will not change existing site access arrangements or generate a significant amount of traffic to change the existing road network.	Neutral

Category	Assessment	Level of impact
Culture	As the project will be undertaken within existing industrial land on a previously developed site, no impacts to cultural heritage (Aboriginal and non-Aboriginal) are expected.	Neutral
Health and wellbeing	The project will enable more modern technology to be implemented into steelmaking activities, though the implementation of ship unloading and conveying infrastructure that produce less dust than current methods. Potential hazards identified for the CLIP activities can be suitably controlled to minimise on-site and off-site risks which are considered to be acceptable for the nature of the project.	Minor, positive and negative
Surroundings	The project will be undertaken on previously developed land and enable the continuance of existing operations. As discussed in Section 8.3, the project will generate negligible emissions which are unlikely to cause significant impact to the surrounding environment. Ecological impacts to the surroundings are not expected to be significant, given the already heavily industrialised setting.	Minimal, positive and negative
Livelihood	PKSW is a significant employer for residents of the greater Wollongong area. The project will enable operations to continue, with the current value of those operations being about $6.5 billion or 24 per cent of regional output per annum. The continued operation of PKSW will facilitate the retention of approximately 4,500 jobs at the site itself (both BlueScope employees and full-time contractors on the site) and support in the order of 10,000 jobs in total in the Illawarra region and across NSW.	Major, positive
Decision making systems	The operation of the project will allow existing operations on the PKSW site to continue. Community engagement will continue to be implemented following completion of the project to inform future decisions at the PKSW.	Neutral

9.8.3 Mitigation and management measures

The management and mitigation strategies that will be implemented to reduce social and economic impacts on surrounding areas are shown in Table 9.16.

Table 9.16 Social and economic management measures

Impact / Aspect	ID	Measure	Timing
Investment and employment	SE1	A contracting and procurement strategy focusing on maximising local content and implementation of BlueScope's First Nations Strategy for indigenous employment will be implemented where possible d to support local employment and business opportunities during construction. During operation, the project will seek to work with interested local parties to fulfil workforce requirements.	Construction, operation
Community engagement	SE2	The project will include a comprehensive, multi-stakeholder engagement program to inform decisions regarding the project.	Construction
	SE3	A Community Consultative Committee (CCC) will continue to be operated by BlueScope for PKSW.	Construction
	SE4	BlueScope will provide a contact number and email address for the community to provide comments on throughout the project.	Construction
Amenity	SE5	BlueScope will ensure that measures discussed in other sections that reduce environmental impacts are implemented effectively for the duration of the project.	Construction, operation.

9.9 Greenhouse gas and energy

This section describes the greenhouse gas and energy impacts associated with the construction and operation of the project. It summarises the key findings of the Greenhouse Gas (GHD) Report prepared for the project by GHD, which is included in full in Appendix I.

9.9.1 Methodology

9.9.1.1 Overview

The GHG report involved the development of a greenhouse gas emissions inventory as well as identifying appropriate emission reductions opportunities for the project. The scope included:

– Identification of GHG emission sources during construction and operation.
– Quantification of fuel, electricity, or other activity data for each emission source.
– Identification of appropriate emission factors (typically, NGER (Measurement) Determination emission factors are being used as a reference source).
– Calculation of emissions for each activity and each stage.
– Determining the total project GHG emissions.

9.9.1.2 Guidelines and legislation

The GHG Report was undertaken in accordance with the relevant sections of the following documents for the purposes of defining appropriate methods for quantification of emissions from individual sources:

– *NGER (Measurement) Determination 2008* (as amended), *National Greenhouse and Energy Reporting Regulations 2008* and *NGER Act 2007,* Commonwealth Department of Environment and Energy.
– National Greenhouse Accounts (NGA) Factors workbook, Commonwealth Department of Industry, Science, Energy and Resources 2021.
– Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (GHG Protocol) (World Business Council for Sustainable Development and World Resources Institute, 2015).

These guidelines are considered representative of good practice GHG accounting in Australia and are applicable to the project. In addition to the quantitative assessment of GHG emissions the following strategic and policy documents have also been reviewed in relation to the projects alignment to international, national, state and local GHG strategies:

– Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (2021).
– Paris Agreement under the United Nations Framework Convention on Climate Change (2016).
– Australian Government. (2021). Australia's Long-term Emissions Reduction Plans.
– NSW Government. (2020). Net Zero Plan. Stage 1: 2020-2030. Net Zero Plan Stage 1: 2020-2030, NSW Environment, Energy and Science.
– Wollongong City Council (2020) Climate Change Mitigation Plan 2020.
– Wollongong City Council (2020) Sustainable Wollongong 2030.
– BlueScope (2021) Climate Action Report (BlueScope, 2021a).
– BlueScope (2021) Sustainability Report 2020/21 (BlueScope, 2021b).

9.9.1.3 Greenhouse gas and global warming potentials

Types of GHG considered in the GHG assessment and the corresponding global warming potential (GWP) for each GHG are listed in Table 9.17. GWP is a metric used to quantify and communicate the relative contributions of different substances to climate change over a given time horizon. The GWPs from the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment report and section 2.02 of the *National Greenhouse and Energy Reporting (NGER) Regulations 2008*, updated July 2021, were used in the GHG Report.

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Table 9.17 Greenhouse gases and 100-year global warming potentials

Greenhouse gas	Global warming potential
Carbon dioxide (CO_2)	1
Methane (CH_4)	28
Nitrous oxide (N_2O)	265
Sulphur hexafluoride (SF_6)	23,500

9.9.1.4 Emission sources

The following sources of emissions have been considered in this assessment:

– Construction phase emission sources:
  - Scope 1 and 2 emissions from fuel and electricity used during construction of the new continuous ship unloader (CSU) facility and relocated facilities to Berth 113 (machinery, construction vehicles, and ancillary facilities such as site sheds and generators).
  - Fuel for transport of major plant and equipment to site.
  - Landfill emissions resulting from the construction waste.
  - Worker commuting.
– Operational phase emission sources:
  - Fuel and electricity use from operation and maintenance of the new CSU, new conveyors, truck unloading facility and truck wash area.
  - Worker commuting.

Emission sources not included within the scope of the assessment were:

– Scope 3 emissions, other than emissions described above.
– Emissions that are likely to be negligible including:
  - 39 trees are proposed for removal as a result of these works. The emissions associated with the removal of these trees are considered negligible.
  - Emissions associated with combustion of fuels used in minor quantities such as LPG, gasoline, solvents, oils, and greases.
  - Emissions associated with the leakage of hydrofluorocarbons. The project may use negligible quantities of hydrofluorocarbons for refrigeration and air conditioning during construction of the project, however, these quantities would be negligible. Refrigerants used in air conditioning during operations are also assumed negligible.
  - Scope 3 emissions associated with off-site wastewater treatment (all wastewater from the workers' accommodation will be discharged to the sewerage system).
  - Emissions from sulphur hexafluoride or perfluorocarbons – these substances are not proposed to be used or stored as part of the project.
  - Emissions associated with decommissioning.
– Coal transport from Appin to BlueScope has been excluded as this is outside the boundary of this project.
– Fuel used by ships transporting coal to Port Kembla.
– Fuel used by ships while at the Berths.

9.9.2 Existing environment

9.9.2.1 PKSW existing operational emissions

PKSW currently operates as an integrated iron and steel plant utilising Blast Furnace ironmaking and Basic Oxygen Furnace steelmaking (BF-BOF operating model). The plant is co-located with hot rolling mills for plate and coil and has adjacent manufacturing facilities for cold rolling, coated products, flat products and welded beams. The current berth arrangement supplies raw materials as part of the integrated operation.

BSL reports annually on its total Australian net energy consumption and GHG emissions under the NGERS Act in accordance with the methodology prescribed by the *National Greenhouse and Energy Reporting (Measurement) Determination 2008* (Measurement Determination). The Measurement Determination recognises the complexity of measuring GHG emissions from an integrated steelworks (that is, the various processes used to make steel are interdependent). The GHG emissions from PKSW, as well as its energy use and consumption, are included in BSL's report.

The Measurement Determination provides a specific methodology to determine emissions arising from the use of coke as a carbon reductant (called a carbon mass balance approach) which involves:

– Calculating the carbon content of fuels and other carbonaceous inputs.
– Calculating the carbon content in products leaving the activity (that is, of an integrated steelworks) during the relevant year.
– Calculating the carbon content in waste by-products leaving the activity during the relevant year, other than as an emission of greenhouse gas.
– Calculating the carbon content in the amount of the change in stocks of inputs, products and waste products held within the boundary of the activity during the relevant year.

This approach is used to determine the majority of GHG emissions from PKSW, which arise from the use of metallurgical coal in the iron and steelmaking process, comprising approximately 92 per cent of total GHG emissions from PKSW in any one year. The Measurement Determination does not require an allocation of GHG emissions to different plant areas within the integrated steelworks.

In financial year 2021, PKSW emitted a total of 6,868,848 tonnes of carbon dioxide equivalent (tCO_2-e), comprised of:

– Scope 1 emissions: 6,260,763 tCO_2-e
– Scope 2 emissions: 608,085 tCO_2-e

The GHG emission intensity of steelmaking at PKSW (tCO_2-e per tonne of crude steel produced) reported for FY2021 was 2.14 tCO_2-e per tonne of crude steel produced.

BSL is a member of the World Steel Association (Worldsteel) and also participates in Worldsteel's climate action data collection program. In FY2020, the average GHG emissions intensity of steelmakers reporting to Worldsteel using BF-BOF technology was 2.33 tCO_2-e per tonne of crude steel produced. During this period, the GHG emissions intensity of steelmaking at PKSW was 2.21 tCO_2-e per tonne of crude steel produced, comparing favourably to the average reported by Worldsteel. For FY2020, PKSW was within the top quartile of reporters for integrated steel plants (i.e. lowest emitters), using the Worldsteel calculation methodology (based on ISO 14404 series).

9.9.3 Potential impacts

9.9.3.1 Construction

Emission sources

Construction of the project will generate emissions associated with the following activities:

– Fuel use from on-site equipment and plant during construction
– Fuel use for light and heavy site vehicles

– Fuel use for on site electricity generation
– Emissions associated with welding
– Emissions associated with construction waste in landfill
– Grid electricity use for construction activities and site office
– Worker transport
– Materials and waste transport

Emissions generated from these activities are based on the assumptions in Table 9.18.

Table 9.18 Construction emission data input and assumptions

Source / parameter	Assumptions and emission factors
General	The construction period has been defined as 28 months for Stage 1 and 24-28 months for Stage 2, approximately 10 hours per day, 6 days per week. All concrete batching is assumed to occur off-site.
Construction equipment fuel use	Fuel use for construction equipment was estimated based on the construction staging details and list of plant associated with each activity as provided by BlueScope. The fuel use for each type, size and capacity of equipment was multiplied by the quantity of equipment being used in that phase and hours of use, then summed to get the total diesel usage across the construction period. Equipment includes cranes, excavators, front end loaders, elevated work platforms, rollers, piling rigs, forklifts, concrete trucks and other trucks.
Diesel from site vehicles	The number of heavy and light vehicles used internally on site were assumed as 13 and 10 respectively. The fuel consumption of these vehicles was sourced from the Australian Bureau of Statistics (ABS) Survey of motor vehicles, which was multiplied by the assumed vehicle use.
Diesel for onsite electricity generation	It is assumed that 26 kW of onsite electricity generation is required for the duration of the construction works, which will be provided by a diesel generator.
Waste	Permanent spoil from the excavation of the conveyors (estimated as 5,000m^3) and Berth 113 (estimated as 28,000 m^3). This waste generates emissions once in landfill and has been assessed as such conservatively, noting the BlueScope will seek to maximize the reuse of any spoil generated onsite.
Welding Acetylene	Acetylene gas will be used for welding and cutting during demolition, modifications and construction of new structures. The quantity of acetylene used was estimated based on the size of the project and the required construction activities.
Electricity (site office and construction works)	The grid electricity required for construction activities has been assumed as 77 kW, for lighting and power tools. The grid electricity required for the site office has been assumed as 39 kW.
Diesel (worker commuting)	There will be up to 64 car trips per day over the construction period, for contractors and construction workers accessing the project. All vehicles were conservatively assumed to be diesel, traveling from Wollongong to Port Kembla (~10 km). Fuel use for passenger vehicles is from the ABS Survey of Motor Vehicle Use in Australia (ABS, 2020).
Transport (material and waste)	Quantities of steel and asphalt have been sourced from the BlueScope project design team. The quantity of reinforced concrete and aggregates is unknown, and has been assumed based on the size of the project and works required. The emissions factor for materials transport has been sourced from the Australian National Life Cycle Inventory Database (AusLCI), for a lorry >16 t. Materials and waste is assumed to travel to/from Wollongong.

The total greenhouse gas emissions during construction are estimated at 9,440 tCO_2-e. The construction works are expected to be complete in 36 months, meaning an average of 3,150 tCO_2-e per year. Emissions from construction waste in landfill are the largest source of emissions during the construction phase, accounting for 29% of emissions. This is followed by emissions from diesel fuel use for stationary plant (24%) and grid electricity use (11%). A full emissions inventory is presented in Table 9.19.

Table 9.19 Construction phase greenhouse gas emissions

Emission Source	Activity	Quantity	Unit	Emissions (tCO_2-e)			
				Scope 1	Scope 2	Scope 3	Total
Diesel - Stationary	Construction plant	830	kL	2,260			**2,260**
Diesel - Light Vehicles	Light site vehicles	320	kL	860			**860**
Diesel - Heavy Vehicles	Heavy site vehicles	270	kL	720			**720**
Diesel - Stationary	Electricity Generation onsite	180	kL	480			**480**
Petrol - Stationary	Small plant petrol	50	kL	120			**120**
Waste (C&D)	Construction waste	13,500	t	2,700			**2,700**
Acetylene	Welding	50,000	m^3	100			**100**
Grid Electricity	Site office	620	MWh		500		**500**
Gride Electricity	Construction works	1,240	MWh		1,000		**1,000**
Diesel - Light Vehicles	Worker Commuting	240	kL			650	**650**
Transport - Rigid Truck	Materials & Waste Transport	39,200	t			50	**50**
			Total	**7,240**	**1,500**	**700**	**9,440**

The project provides some opportunity for total emissions to be reduced. Key opportunities that may be implemented during construction are presented in Section 9.9.4.

9.9.3.2 Operations

Operation of the project will generate emissions associated with the following activities:

– Fuel use from operational equipment
– Fuel use for operational maintenance
– Electricity for operational equipment
– Worker transport

Emissions generated from these activities are based on the assumptions in Table 9.20.

Table 9.20 Operation emissions data input and assumptions

Source / parameter	Assumptions and emissions factors
General	The site operating hours are 24 hours per day, 365 days per year.
Operational fuel use	Approximately 25 trucks are required for operation. The number of trucks is multiplied by their assumed use on site and the emissions factor for rigid trucks from the ABS Survey of motor vehicles.
Maintenance diesel	Maintenance diesel is assumed to be 2% of operational maintenance, based on the size of the project and the operational equipment.
Worker transport	An operational workforce of 20. All staff are assumed to travel from the Wollongong area. The emissions factor is for light vehicles from the ABS Survey of motor vehicles.
Operational Electricity	The list of operational equipment has been provided by BlueScope, however final equipment selections have not been made, and expected electricity consumption of equipment is not available. The electrical consumption of the CSU has been assumed based on similar equipment data sheets.

Source / parameter	Assumptions and emissions factors
	The electrical equipment of the conveyors has been assumed based on similar conveyor electricity consumption data. Electricity required for the truck wash area is assumed negligible. Maintenance electricity is assumed negligible.

Operational emissions are on average 15,300 tCO_2-e per year during the operations period. The majority of operational emissions are Scope 2 emissions from electricity consumption by the CSU and conveyors (97.4%). Project emissions are small in comparison to PKSW's total emissions and are negligible compared to annual emissions in NSW and Australia, at 132 MtCO2-e in 2018 and 502 $MtCO_2$-e in 2021 respectively. A full emissions inventory for operation is presented in Table 9.21.

Table 9.21 Operation phase greenhouse gas emissions

Emissions Source	Activity	Quantity	Unit	Emissions (tCO_2-e)			
				Scope 1	Scope 2	Scope 3	Total
Diesel - Stationary	340	0	0	340	340	340	**340**
Diesel - Stationary	10	0	0	10	10	10	**10**
Electricity from grid	0	14,900	0	14,900	14,900	14,900	**14,900**
Diesel - Light Vehicles	0	0	50	50	50	50	**50**
			Total	**350**	**14,900**	**50**	**15,300**

9.9.4 Mitigation and management measures

Management and mitigation strategies that will be implemented to manage and reduce GHG generation associated with the project are shown in Table 9.22.

Table 9.22 Greenhouse gas management measures

Impact / Aspect	ID	Measure	Timing
Construction GHG emissions	GHG1	All plant and equipment used during the construction works will be regularly maintained to comply with the relevant exhaust emission guidelines.	Construction
	GHG2	Sustainable procurement practices will be adopted where feasible.	Construction
	GHG3	Where reasonable and feasible, measures to be implemented by contractors will include, but not be limited to: – Construction materials sourced locally where possible. – Construction materials with high recycled content, such as supplementary cementitious materials in concrete, reclaimed asphalt pavement in asphalt and post post-consumer recycled content in steel will be procured for the project where practical. – Construction materials that are low maintenance and durable will be sourced where practical. – Plant and equipment will be switched off when not in constant use and not left idling. – Plant and equipment brought onsite will be regularly serviced and energy efficient vehicles or equipment will be selected where available. – Any plant and equipment that is not working efficiently (e.g. emitting excessive smoke) will be repaired or replaced as soon as possible. – Construction works will be planned to ensure minimal movement of plant and equipment, including barges. – Opportunities for the reuse/recycling of other construction and demolition waste materials to be investigated and included in construction management plans, where feasible.	Construction

9.10 Waste management

9.10.1 Existing environment

The general approach to waste management for the project will be in accordance with the waste hierarchy defined in the *Waste Avoidance and Resource Recovery Act 2001*. In accordance with the hierarchy, waste will in the first instance be avoided through avoidance of unnecessary resource consumption. When waste is produced, options to recover the waste will be observed including options for reuse, reprocessing, recycling and energy recovery.

Consistent with BlueScope's policies to promote a circular economy, waste will only be disposed of as a last resort where other options have been investigated and are not practicable. As stated in BSL's FY22 Sustainability Report, manufacturing processes at all BSL sites are optimised to minimise the use of resources, reduce waste, and reuse or convert waste materials into other valuable products. Where practical BSL aims to use co-products and waste products, from both their own operations and other sources, as substitutes for virgin raw materials. Besides the commercial benefits, this contributes to the circular economy, reducing greenhouse gas emissions, preventing waste materials from going to landfill and supporting their use in sectors beyond the iron and steel industry.

BSL's waste minimisation efforts are aided by the long lifespan of steel and its ability to be reused without losing any of its structural properties. In 2021, BSL recovered and recycled 46% of its scrap steel, thereby reducing waste. BSL is also actively converting waste into value-added inputs for other sectors.

A range of waste streams generated at the PKSW are treated or processed at the premises in accordance with EPL 6092, Condition L5 as applicable to the project, and existing waste management plans.

The majority of these waste streams are either reused or recycled via a range of resource recovery activities authorised by EPL 6092. Any waste streams not covered by EPL 6092 are disposed or recycled off-site at appropriately licensed facilities. Waste generation from the current ship unloading infrastructure includes waste materials generated from regular maintenance activities such as scrap metal and parts. Any materials which come off conveyors such as at transfer points are collected and returned to stockpiles.

9.10.2 Potential impacts

Construction

Construction of the project will result in the generation of waste through demolition and construction activities of the project. Quantities of key waste streams are included in Table 9.23. This table is based on conservative or nominal estimates of the key waste streams and is not intended to be exhaustive.

Table 9.23 Waste generation

Waste stream	Anticipated quantity (tonnes)
Demolition waste	100 t
Spoil	Excavation Conveyors: 5,000 m^3 Berth 113: 28,000 m^3 Permanent Spoil: Conveyors: 4,000 m^3 Berth 113: 5,000 m^3 Remainder returned to ground.
Packaging	100 t
Concrete and pavement	1000 t
Redundant erosion and sediment controls	40 t
Liquid waste from site facilities	Managed by existing systems

Spoil generated during excavations has potential to be contaminated though previous land use. This waste (and any other suspected contaminated waste) will be validated prior to leaving site.

Management of waste material generated by the project will be undertaken in accordance with the principles of the waste management hierarchy. The material will be classified and reused or disposed of in accordance with the *Waste Classification Guidelines* (EPA, 2014). Waste will be stockpiled or stored in receptacles at one of the construction laydown areas prior to reuse or disposal.

PKSW has existing waste management systems and contractors which have proven capable of dealing with temporary increases in waste streams during previous reline and shutdown activities so is well placed to manage waste streams as a result of the project.

Operation

During operation, waste generation is expected to be minimal and consistent with existing ship unloading operations undertaken on site. From the operation of the ship unloader and associated conveyor system there is potential for spills of materials to occur from conveyors. Spilled material is recovered and incorporated back into commodity stockpiles and isn't considered a waste material. The operation of the proposed conveyor systems will result in the creation of waste conveyor belts as they reach the end of their operational life. Used conveyor material will be collected and removed off-site for recycling.

9.10.3 Mitigation and management measures

Management and mitigation strategies that will be implemented to manage waste generated by the project are shown in Table 9.24.

Table 9.24 Waste management, management measures

Impact / Aspect	ID	Measure	Timing
Construction waste	WM1	A waste management plan for the project will be prepared prior to construction commencing. The waste management plan will detail: – Statutory requirements for waste in NSW. – Measures for separating waste based on classification of management options including colour coded bins. – Options for off-site reuse, reprocessing, recycling and energy recovery.	Pre-construction
	WM2	Awareness of waste minimisation practices will be included in the project induction.	Construction
	WM3	Waste will be classified, managed and disposed of in accordance with the *Waste Classification Guidelines* (EPA, 2014).	Construction
Operational waste	WM4	Operational waste streams will continue to be managed in accordance with EPL 6092.	Operation
	WM5	Recycling and resource recovery activities will continue throughout the life of the project.	Operation

9.11 Cumulative impacts

This section describes the potential cumulative impacts of the project and other existing or proposed major projects. The cumulative impact assessment draws on the findings of other specialist assessments of the project contained throughout the EIS and publicly available assessment documentation on other existing or proposed major projects in the Illawarra region.

The cumulative impact assessment has found that there is limited potential for cumulative impacts to occur. Having regard to the specialist assessments, the potential for cumulative impacts in each of these areas was considered limited, drawing on specialist assessments of the project and the other identified projects where relevant.

9.11.1 Existing environment

The existing environment of the project is generally defined by a range of existing port and industrial uses in and around Port Kembla. Existing users of the Berths at Port Kembla include Port Kembla Coal Terminal, general cargo facilities and Quattro Port grain facility at Inner Harbour Berths, GrainCorp grain terminal and bulk liquids facilities operated by NSW Ports in the Outer Harbour.

In addition to operations at import and export berths, there are multiple other business, cargo, logistics, bulk goods and heavy industrial facilities in and around Port Kembla including Ceva Logistics, AutoNexus, PrixCar, Port Kembla Gateway, PKK Mining Equipment, Svitzer, Cement Australia, NSW Ports Maritime Centre and Pacific National.

In addition to the known existing and established facilities in and around Port Kembla, additional proposed major projects identified in the region that have been identified are outlined in Table 9.25.

Table 9.25 Proposed major projects

Project	Type	Status	Approx. Distance
Port Kembla Gas Terminal	Liquid natural gas export terminal	Approved	500 m east
Port Kembla Biodiesel facility	Soybean processing and biodiesel facility	Approved	1.1 kilometres north
EasternGas Pipeline – Port Kembla Lateral Pipeline	Gas pipeline	Approved	1.4 kilometres east
Port Kembla Outer Harbour Development	Reclamation and development of the Outer Harbour	Approved	1.5 kilometres southeast
Kembla Grange Waste Facility	Resource recovery of construction and demolition waste	Approved	6.5 kilometres west
Tallawarra B Power Station	Gas turbine power station with a nominal capacity of up to 300-450 megawatts (MW).	Approved	8 kilometres southwest
BlueScope 6BF Reline Project	Blast furnace reline	Approved	Within PKSW site
Unanderra Liquid Waste Facility	Liquid waste processing facility	Approved	3.2 kilometres west
Port Kembla Power Station	Gas turbine power station with a nominal capacity of up to 635 megawatts (MW).	Prepare EIS	700 m east

9.11.1.1 Port Kembla Gas Terminal

Port Kembla Gas Terminal is a proposed LNG import terminal at Berth 101 in the Inner Harbour of Port Kembla, approximately 500 metres east of the project. The project was approved in April 2019 and is currently undergoing construction.

9.11.1.2 Port Kembla Biodiesel facility

The Port Kembla Biodiesel Facility is a proposed soybean processing and biodiesel facility about 1.1 kilometres north of the project in the same area as the Port Kembla Bulk Liquids terminal. The most recent modification application for the project was made in 2015 and extended the approval lapse date to May 2016. It is understood that commencement of the facility has not commenced and therefore it is likely that the approval for the facility has lapsed.

9.11.1.3 Eastern Gas Pipeline – Port Kembla Lateral Pipeline

The Port Kembla Lateral Pipeline proposes to duplicate the existing Port Kembla lateral pipeline, which forms part of the Eastern Gas Pipeline which transports gas from Victoria to NSW. The project was approved in late 2020 and is yet to be constructed.

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9.11.1.4 Port Kembla Outer Harbour Development

The Port Kembla Outer Harbour Development received concurrent concept and project approval under Part 3A of the EP&A Act in March 2011. The majority of dredged sediments and excavated material required for the establishment of a new berthing pocket at Berth 101 is proposed to be disposed within a 17 ha disposal area within the Outer Harbour as part of the reclamation activities proposed as part of the development.

The disposal area has been developed through discussion with NSW Ports to accommodate the latest plans for the redevelopment of the Outer Harbour. The disposal footprint falls predominantly within the approved development area for Stage 1 of the Outer Harbour Development Project, with a small portion of the disposal area extending beyond the approved footprint near the southern shoreline of the Outer Harbour.

9.11.1.5 Kembla Grange Waste Facility

Kembla Grange is an existing waste recovery facility about 6.5 kilometres west of the project. In 2016, approval was sought to expand the facility to provide for processing of up to 230,000 tonnes per annum of building and demolition waste. The expansion was scheduled to be constructed and commissioned by 2016.

9.11.1.6 Tallawarra B Power Station

Tallawarra B Power Station is a proposed gas fired power station adjacent to the existing Tallawarra A Power Station, located 9.8 kilometres south of the project. The project was approved in 2010, however due to project delays the project was not constructed and consent lapsed. The project has been granted an extension until 2022 to physically commence.

9.11.1.7 6BF reline project

BlueScope's 6BF reline project, which received Ministerial approval in September 2022, proposes to reline the 6BF over a period of approximately 3 years to return it to service and commence ironmaking after 5BF ceases operation. The 6BF project site is located in relatively close proximity to and on the same lot as majority of the works for the CLIP (Lot 1 DP 606434). Construction activities for the 6BF reline project may overlap with the project, and the operational phase of the relined 6BF will be concurrent with operation of CLIP.

9.11.1.8 Unanderra Liquid Waste Facility

The Unanderra Liquid Waste Facility is a proposed extension to an existing waste treatment facility about 3.2 kilometres west of the project. It is understood the extension will process in the order of 6,500 tonnes of inorganic liquid waste per annum. Environmental assessment requirements for the project were provided in May 2018. This project was approved on 31 August 2022.

9.11.1.9 Port Kembla Resource Recovery Facility

Port Kembla Resource Recovery Facility is a proposed facility about 2.7 kilometres south of the project. The facility will involve processing including crushing, screening and separation of up to 400,000 tonnes of construction and demolition waste per annum. Environmental assessment requirements for the project were provided in 2014, however the environmental impact assessment has not been published and the proposed facility has not been approved. The environmental assessment requirements are expected to have lapsed, requiring reapplication by the proponent if the project is to proceed.

9.11.1.10 Port Kembla Power Station

Australian Industrial Power (AIP) proposes to develop a power station at Port Kembla's Berth 101 approximately 600 metres to the east of the Berths. The power station will generate power from natural gas supplied by the Port Kembla Gas Terminal at Berth 101 with an ultimate generation capacity of nominally 635 megawatts. Station design will allow for fuel mixtures of green hydrogen and natural gas. The project also includes transmission lines which will run along the southern boundary of the PKSW site. At the time of preparation of this EIS, SEARs had been issued and an EIS was being prepared with anticipated submission in 2022.

9.11.2 Potential impacts

The sections below detail the potential cumulative impacts of the project and other existing or proposed major projects described in Section 9.11.1. Based on the potential impacts of the project and the other existing or proposed major projects that were identified, the main areas where potential cumulative impacts could occur are considered to be air quality, noise and vibration, hazard and risk, water and hydrology and traffic.

9.11.2.1 Air quality

Construction of the project will generate dust and air emissions as described in Section 8.1.3.1. Whilst the project has the potential to generate emissions, the project presents a low risk of particulate impacts at sensitive receivers due to their offset distances from the project and proposed management measures in place. The project is therefore not expected to have a significant cumulative impact during construction.

The AQIA considered the project's impacts and how they would interact with surrounding projects during operation. A review of surrounding projects and their anticipated emissions identified the following projects as having potential to generate cumulative impacts with the CLIP:

– Port Kembla Gas Terminal
– 6BF Reline Project
– Tallawarra B Power Station (though impacts were considered unlikely)

The AQIA presented data for cumulative impacts with BlueScope AQMS (cumulative concentrations were calculated using project only predictions and worst-case maximum background concentrations from BlueScope's monitoring data) and surrounding State Significant projects during operation. This is presented in Table 9.26.

Table 9.26 Predicted cumulative impact particulate concentrations and deposition

Receptor	Predicted particulate concentrations (µg/m^3) and depositions (g/m^2/month)					
	Cumulative with BlueScope AQMS			Cumulative with BlueScope AQMS and SS projects		
	TSP	PM_{10}		TSP	PM_{10}	
	Annual	24 hour	Annual	Annual	24 hour	Annual
Criteria	**90**	**50**	**25**	**90**	**50**	**25**
R01	56.9	49.7	22.4	56.9	49.7	22.4
R02	56.9	49.7	22.4	56.9	49.7	22.4
R03	56.9	49.7	22.4	57.0	49.7	22.4
R04	56.9	49.7	22.4	56.9	49.7	22.4
R05	56.9	49.8	22.4	57.0	50.0	22.5
R06	56.9	49.7	22.4	57.0	49.8	22.5

It is noted that predicted incremental concentrations are relatively minor compared to the predicted cumulative concentrations. At the worst impacted receptor, predicted incremental concentrations account for:

– 0.1% of the annual TSP assessment criteria
– 1.8% of the 24 hour PM_{10} assessment criteria
– 0.3% of the annual PM_{10} assessment criteria

The predicted dust deposition rates are orders of magnitude below the assessment criteria, and therefore the project will not have a significant cumulative impact during operation.

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9.11.2.2 Noise and vibration

The noise and vibration assessment considered cumulative impacts during construction and operation. There is the potential for construction of major projects listed in Section 9.11.1 to occur concurrently which may lead to cumulative construction noise impacts. Based on predicted construction noise levels, potential cumulative construction noise impacts may be experienced during impact pile rig activities, however this would only be considered minor or negligible. Noise emissions from all other construction activities are predicted to be below the NMLs at residential receivers.

Cumulative noise impacts during operation affecting receivers from all industrial noise sources are assessed according to the amenity criteria of the NPfI. The combined impact of all industrial noise sources at a receiver point should be considered, where industrial facilities are either operating or have been approved for development. Compliance with operational noise criteria presented in Section 8.2.3.3 indicates noise emissions from the PKSW site will not increase as a result of the project and will not generate significant cumulative impacts.

9.11.2.3 Hazard and risk

The potential for hazard and risk associated with the project was assessed based on a review of project specific potential hazards that may occur on site. The hazard identification study identified the following hazards with the potential for off-site impact, all of which can be suitably controlled:

– Coal and coke dust located on-site
– Damage to bunker fuel pipeline during construction activities
– Ship movements

These scenarios were assessed in accordance with criteria in Hazardous Industry Planning Advisory Paper No 4, Risk Criteria for Land Use Safety Planning. All scenarios were found to be compliant with the criteria and the assessment concluded that the risks can be managed to tolerable levels with the implementation of the proposed safeguards. This means that there will be no significant off-site hazards or risks associated with the project that have the potential to result in cumulative impacts. The Hazard and Risk assessment is summarised in Section 8.3 and presented in full in Appendix F.

9.11.2.4 Water and hydrology

The water impact assessment considered the construction and operational impacts associated with the project. During construction, the project was found to have minor potential for water quality impacts though sedimentation or contaminated soils being disturbed. With the implementation of mitigation measures in Section 8.4.4, the project will not have a significant impact in isolation. It is expected that the other projects listed in this section will have similar requirements to reduce impacts to water quality during construction, and therefore the project will not generate significant cumulative impacts in relation to water quality.

Water quality impacts during the operational phase will also be minor, given the engineering controls implemented in project design and consistency of water requirements when compared to current operations. It was also identified that the project will not have a significant impact on flooding or drainage within the PKSW. Overall, the project will not generate cumulative impacts during operation.

9.11.2.5 Traffic

There is potential for cumulative impacts, particularly with the 6BF reline project if it were to be constructed at the same time as the project, as both sites are located within the PKSW. As discussed in Section 9.1.2.1, there is ample capacity within the wider and local road network to handle construction traffic generated by the project. The key access roads into to the PKSW site are different for both projects so any localised cumulative traffic impacts are unlikely. At a worst-case scenario, where the most labour intensive activities are being undertaken for the project and on the 6BF reline at the same time, some traffic impacts may be generated. Any traffic impacts are expected to be minor to moderate at worst-case scenario, and at their greatest during the morning and afternoon peak. Impacts outside the morning and afternoon peak will be negligible.

As the anticipated project workforce during operation is not anticipated to change significantly from existing operations, cumulative impacts during operation are not anticipated.

9.11.2.6 Other cumulative impacts

The construction of the project may overlap with some projects listed in Section 9.11. The potential for other cumulative impacts with these projects is considered negligible due to CLIPs location in an established industrial location. Positive cumulative impacts will occur through the generation of a significant number of construction-related roles for the local community. It will also provide a short-term boost to local manufacturers and suppliers. The project also provides a positive long-term cumulative impact as it supports the continuation of steelmaking in the Illawarra.

The project will generate greenhouse gases that may have an impact on anthropogenic climate change. Land uses within the Port Kembla Industrial area including steel making, fertiliser manufacture and coal storage all contribute to emissions. Construction of the project will generate greenhouse gases though combustion of fuels and electricity use, as will other projects listed in Section 9.11. Resources will also be required, which may have cumulative impacts in regard to waste generation and resource use. Measures discussed in Section 9.9.4 and 9.10.3 will reduce the project's impacts on greenhouse gases and waste, and therefore will mitigate cumulative impact. In a similar manner, it is expected that other major projects in the area will be required to do the same. Overall impacts are not expected to be significant and will be limited to the period of construction.

The project will not be a large producer of greenhouse gas during operation. BlueScope is committed to reducing its carbon and other atmospheric impacts over time, further reducing the likelihood of cumulative impacts during operation.

9.11.3 Mitigation and management measures

Management and mitigation strategies that will be implemented to manage potential cumulative impacts generated by the project are shown in Table 9.27.

Table 9.27 Cumulative impacts management measures

Impact	ID	Measure	Timing
General impact reduction	CI1	The mitigation measures presented in Appendix C will be implemented effectively to reduce the project's impact on the environment.	Pre-construction Construction Operation

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10. Environmental Management

10.1 Environmental management system

PKSW operates under an Environmental Management System (EMS) that is certified to the international environment management standard: ISO 14001:2015. The EMS includes a series of management plans and procedures to assess and mitigate environmental risks.

BlueScope also maintains a Pollution Incident Response Management Plan (PIRMP) as required by section 153A of the POEO Act, and EPL 6092. EPL 6092 also stipulates the monitoring requirements and emission limits for discharges from specific emission points.

These plans will be reviewed to incorporate the environmental management commitments and any conditions of approval for the project.

This EIS identifies safeguards and management measures to minimise adverse environmental impacts which could potentially arise as a result of the project. These are outlined throughout Chapters 8. These management measures will be incorporated into the detailed design and applied during the construction and operation of the project.

All safeguards and management measures outlined in this document will be managed by implementing a Project Environmental Management Plan. The Project Environmental Management Plan will manage the impacts of all stages of the project and will include the following sub plans:

– Construction Environmental Management Plan (CEMP) to address the impacts of the construction phase.
– Operational Environmental Management Plan (OEMP) to address the impacts of the operational phase.

Each of the above plans will be prepared prior to the commencement of each of the stages and will include but will not be limited to the following:

– Roles of specific staff
– Reporting requirements
– Monitoring requirements
– Environmental targets and objectives
– Auditing and review timetables
– Emergency response requirements
– Details of training and inductions required
– Complaint response procedures
– Adaptive management mechanisms to encourage continuous improvement

The above plans will also potentially contain sub plans for specific issues such as erosion and sedimentation and waste management plans.

10.2 Summary of safeguards and management measures

Environmental safeguards and management measures outlined in this document will be incorporated during construction, operation and decommissioning of the project. These safeguards will minimise any potential adverse impacts arising from the project on the surrounding environment. The safeguards and management measures are provided as a consolidated list in Appendix C.

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11. Justification and conclusion

11.1 Justification for the project

11.1.1 Strategic justification

Steel is infinitely recyclable and the most recycled material on earth. It is an essential part of the transition to net zero carbon emission economies as wind turbines, solar farms, hydrogen production, storage facilities and the necessary electrical infrastructure to support all of these depend upon and will require vast amounts of steel. Steel made at PKSW is used throughout Australia for a wide range of infrastructure and construction projects, both large and small, as well as being exported to key overseas markets.

Raw material availability is crucial to secure steel production capability in the near and longer term. Access to the raw materials that are currently used in the blast furnace process, such as metallurgical coal, is critical during the transition to net zero steelmaking. In future, access to raw materials such as Direct Reduced Iron (DRI) and green hydrogen will be required to support net zero steelmaking.

To support the future operation of the PKSW, upgrades to 3 of the existing 5 berths operated by BlueScope are required to maintain the supply of raw materials, including iron ore, metallurgical coal, limestone, dolomite, scrap steel, and other commodities which are required for steelmaking. Any disruption to local coal supplies, such as 3-seam coal which from 2028 will no long be mined at South32's Dendrobium mine, poses significant risk to the continuous operations of the blast furnace. Without the continued supply of suitable local coal supplies, BlueScope will need to import alternatives supplies via Port Kembla Harbour. This necessitates the construction of the ship unloader at Berth 111 as well as additional conveyor infrastructure at this berth.

The project is considered to be essential to NSW for a number of economic and social reasons. Specifically, it will support continued operation of the PKSW, the largest manufacturing facility in NSW and Australia, and therefore the continued manufacturing of flat steel products in NSW and supply of approximately 2.2 million tonnes of these products used in a range of infrastructure and construction activities of key importance to the NSW economy. The project will result in an additional 1.0 Mtpa of material discharged through the BlueScope leased berths. The upgrade to the capacity of Berth 111 will maximise the use of this deeper berth to accommodate more frequent use of the larger class of Cape sized ships and fully loaded Panamax ships.

The project will support the continued significant contribution which PKSW makes to the Illawarra economy and will facilitate the retention of approximately 4,500 jobs at the site itself and support in the order of 10,000 skilled jobs in total in the region. The construction phase of this project will also employ 80-100 workers.

The project is also of national strategic importance through the continued operation of one of only two integrated steelworks in Australia. Increasing globalisation has led to a thinning of industrial production in developed economies such as Australia, raising concerns for the nation's capacity to produce goods locally in the event of a disruption to world trade. The complexity and outright cost to establish replacement ironmaking, steelmaking and hot-rolling facilities may be prohibitive if PKSW is shutdown. This could impact the supply chain resilience for industries of critical strategic significance including but not limited to defence.

The project is strategically located in the Illawarra, which is emerging as a major industrial hub for manufacturing and energy infrastructure. A number of potential energy projects have been identified in connection with the area, including the Port Kembla Gas Terminal for the import of Liquified Natural Gas (LNG) and the proposed associated development of a dual fuel LNG-Hydrogen power station. BlueScope's position as an established manufacturer and potential customer will be of value to these projects and continue to be an important factor in maintaining the Illawarra's contribution to the state and national economies.

11.1.2 Objects of the EP&A Act

The project's consistency or otherwise with the objects of the EP&A Act is summarised in Table 11.1.

Table 11.1 Objects of the EP&A Act

Object	Comment
(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,	Support for the continued operation of the PKSW beyond 2028 and therefore the continued significant contribution which PKSW makes to the Illawarra economy, which is currently about $6.5 billion or 24 per cent of regional output per annum. This will also facilitate the retention of approximately 4,500 jobs at the site itself and support in the order of 10,000 highly skilled jobs in total in the region. A number of management measures have been identified in this EIS and will be implemented to minimise any environmental, social or economic impacts associated with the project.
(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,	Ecologically sustainable development is specifically addressed in Section 11.1.3.
(c) to promote the orderly and economic use and development of land,	The project will support the continued operation of the existing PKSW, which is a heavily disturbed industrial site that has operated as a steel making plant for nearly a century. The project will therefore constitute an orderly and economic use and development of the land.
(d) to promote the delivery and maintenance of affordable housing,	Not relevant to the project.
(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	The project will not have a significant impact on the environment, including threatened and other species of native animals and plants, ecological communities and their habitats. Measures identified in the EIS will be implemented to protect and conserve the environment and native animals and plants.
(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	The project will be located within a highly disturbed industrial site and will not impact on built or cultural heritage. Measures identified in the EIS will be implemented to sustainably manage known and unknown heritage resources.
(g) to promote good design and amenity of the built environment,	The project will involve the refurbishment and upgrade of existing structures within the PKSW berths. Any additional structures will be designed in accordance with relevant design standards and requirements and will be generally consistent with the existing industrial character of the site.
(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,	All buildings will be constructed and maintained in accordance with all relevant construction and health and safety standards.
(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	Not relevant to the project.
(j) to provide increased opportunity for community participation in environmental planning and assessment.	Consultation with the community and relevant government agencies was undertaken during preparation of this EIS Consultation will be ongoing during detailed design, construction and operation.

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11.1.3 Ecologically sustainable development

The principles of ecologically sustainable development are defined under the EP&A Regulation (Schedule 2) as:

(a) the precautionary principle, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

(i). careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii). an assessment of the risk-weighted consequences of various options,

(b) inter-generational equity, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

(c) conservation of biological diversity and ecological integrity, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms, namely, that environmental factors should be included in the valuation of assets and services, such as:

(i). polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii). the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii). *environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

These principles are addressed in turn, as they relate to the project, in the following sections.

The precautionary principle

This principle states *"if there are threats of serious or irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation".*

Evaluation and assessment of alternative options has aimed to reduce the risk of serious and irreversible impacts on the environment. Stakeholder consultation considered issues raised by stakeholders and a range of specialist studies were undertaken for key issues to provide accurate and impartial information to assist in project planning and development.

The project has sought to minimise impacts on the amenity of the study area while maintaining engineering feasibility and safety for all users. A number of safeguards have been proposed to minimise potential impacts. These safeguards will be implemented during construction and operation of the project. No safeguards have been postponed as a result of lack of scientific certainty.

A CEMP will be prepared before construction starts. This requirement will ensure the project achieves a high-level of environmental performance. No management measures or mechanisms will be postponed as a result of a lack of information.

Intergenerational equity

The principle states, *"the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations".*

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The project will not result in any impacts that are likely to adversely impact on the health, diversity or productivity of the environment for future generations. The project will benefit future generations by maintaining access to domestically produced steel products. If these products are produced overseas, access to such products for future generations would be subject to international market supply chain issues which could lead to lack of supply certainty. Additionally imported material would be inherently more carbon intensive due to the longer product transportation distances. Moving to an overseas supply model would also see a large number of local employment opportunities taken away from the future workforce.

Conservation of biological diversity and ecological integrity

This principle states the *"diversity of genes, species, populations and communities, as well as the ecosystems and habitats to which they belong, must be maintained and improved to ensure their survival".*

The project is located on an established heavy industrial area which has been used for steelmaking since 1928. The project relates to the upgrade of the raw materials unloading berth infrastructure at PKSW. The project area does not contain any areas that contain biodiversity or sensitive ecology. There is potential for impacts to occur to receiving environments such as the marine environment of Port Kembla. Through the application of the measures outlined in Appendix C these impacts will be appropriately managed. Importantly these measures include established environmental management practices which are currently in place at the PKSW. These measures are subject to ongoing review and improvement where required as outlined in Section 10.1. With these measures in place the project is unlikely to have an impact on biological diversity or ecological integrity.

Improved valuation, pricing and incentive mechanisms

This principle requires *"costs to the environment should be factored into the economic costs of a project".*

The EIS has examined the environmental consequences of the project and identified management measures to manage the potential for adverse impacts. The requirement to implement these management measures will result in an economic cost to BlueScope. The implementation of management measures will increase both the capital and operating costs of the project. In addition, the construction of the continuous ship unloader will see current environmental management systems (e.g. electricity and water) upgrades to meet or exceed current regulatory requirements. This signifies that environmental resources have been given appropriate valuation.

BlueScope is also committed to ongoing environmental performance and funds a range of projects and research efforts aimed at identifying mechanisms for improving environmental outcomes.

11.2 Biophysical, economic and social merits of the project

The biophysical, economic and social costs and benefits of the project have been assessed in detail throughout the EIS. The biophysical impacts of the project will be generally limited due to the disturbed nature of the site and the relatively limited disturbance required.

The main potential impacts of the project relate to air quality, noise, hazards and risks and water quality. These environmental aspects have been assessed in detail in this EIS. The project is not expected to have a significant impact on the environment. Overall, the potential impacts of the project on the environment are considered limited and will be readily managed with the implementation of the measures discussed through the EIS that will be collated in construction and operation environmental management plans.

Construction of the project is expected to generate employment through the approximately 80-100 workers required to complete the project. Furthermore, the continued production of steel at PKSW will support the continued significant contribution from the PKSW to the Illawarra and NSW economies and help facilitate the continued growth and development of emerging manufacturing industries in the region and the State.

11.3 Conclusion

The project has a well-established strategic need and justification. Construction and operation of CLIP will support the continued operation of the PKSW, thus facilitating the ongoing contribution of PKSW to the regional and state economics and the supply of steel to the domestic and export market. Recent events such as COVID-19 have highlighted the need for robust domestic supply chains; without CLIP, the ability to import raw materials critical for ongoing steelmaking at PKSW could be significantly compromised.

The project is well placed in the context of the State and national strategies to transition to a net zero emissions economy. BSL, BlueScope's parent company, has set out its target and goal of net zero steelmaking by 2050 in its recently published Climate Action Plan, subject to the enablers identified in BSL's Climate Action Report. Earlier sections of this EIS have explained the importance of steel in the transition to a reduced carbon economy, with steel being a critical material in the infrastructure which will underpin this transition, including wind turbines, solar farms, hydrogen production, storage facilities and the necessary electrical infrastructure to support these technologies.

The project will be constructed and operated in a highly disturbed site. The EIS has documented the environmental and social impacts of the project, both positive and potentially negative, taking into account the matters which require consideration under the EP&A Act. The EIS assessment demonstrated that the project is generally consistent with the principles of ecologically sustainable development. To the extent that there are any negative environmental or social impacts of the project, they will be reduced by implementation of the management and mitigation measures which are outlined in this EIS. Any remaining minor negative impacts will be significantly outweighed by the positive benefits of the project.

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Appendix A

SEARs compliance

Table A.1 Compliance with SEARs for application number SSI-36408005

Category	SEARs requirement	Section addressed
General Requirements	The Environmental Impact Statement (EIS) must meet the minimum form and content requirements as prescribed by Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) and must have regard to the State Significant Infrastructure Guidelines.	Declaration Appendix B
	The EIS must include:	
	an executive summary	Executive summary
	a detailed description of the project, including:	
	an accurate history of the site, including development consents and approved plans previously and/or currently applicable to the site	Section 2.1 and 2.2
	the strategic need for the project with regard to its critical State significance	Chapter 3
	the justification for the project and an analysis of other options or alternatives considered and the reasons for selecting the preferred option	Chapter 4
	likely staging of the project, including construction, commissioning, operation, maintenance and decommissioning	Section 5.2 and 5.8
	likely interactions between the project and existing, approved and proposed operations in the vicinity of the site	Section 9.11
	site plans and maps at an adequate scale showing the location and design of all project components, the footprint, existing infrastructure and environmental features	Figure 5.1
	infrastructure upgrades or items required to facilitate the project, including measures to ensure these upgrades are appropriately maintained.	Chapter 5
	consideration of all relevant environmental planning instruments, including identification and justification of any inconsistencies with these instruments	Chapter 6
	a risk assessment of the potential environmental impacts of the project, identifying the key issues for further assessment	Section 7.4 and Scoping Report
	a detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment, which includes: a description of the existing environment, using sufficient baseline data.	Chapter 8
	an assessment of the potential impacts of all stages of the project, including any cumulative impacts with the Blast Furnace 6 Reline Project and other nearby projects, taking into consideration relevant guidelines, policies, plans and statutes; and	Chapter 9
	a description of the measures that will be implemented to avoid, minimise, mitigate and if necessary, offset the potential impacts of the project, including proposals for adaptive management and/or contingency plans to manage significant risks to the environment	Chapter 8, 9 and 0 Appendix C.
	a consolidated summary of all the proposed environmental management and monitoring measures, highlighting commitments included in the EIS.	Appendix C.
	The EIS must also be accompanied by:	
	a report from a qualified quantity surveyor providing: – a detailed calculation of the capital investment value (CIV) (as defined in Clause 3 of the Regulation) of the proposal, including details of all assumptions and components from which the CIV calculation is derived. The report shall be prepared on company letterhead and indicate the applicable GST component of the CIV – certification that the information provided is accurate at the date of preparation – an estimate of jobs that will be created during the construction and operational phases of the proposed infrastructure	Provided under separate cover to DPE. Section 5

Category	SEARs requirement	Section addressed
Key issues	The level of assessment of likely impacts should be commensurate with the significance or degree or extent of impact within the context of the proposed location and surrounding environment and have regard to applicable NSW Government policies and guidelines.	
	In particular, the EIS must address the following matters:	
	Biodiversity – including an assessment of the biodiversity impacts in accordance with the *Biodiversity Conservation Act 2016*, including the preparation of a Biodiversity Development Assessment Report (BDAR) where required under the Act, except where a waiver for preparation of a BDAR has been granted.	Section 9.3.3 Appendix H
	Heritage (Aboriginal) – including an assessment of the likely Aboriginal impacts of the project including consultation with Aboriginal stakeholders having regard to the Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH, 2010).	Section 7.2.2 and 9.4.2
	Hazards and Risks – including: – consideration of hazards posed by shipping generated by the project; and – if the project is classified as potentially hazardous in accordance with Hazardous and Offensive Development Application Guidelines – Applying SEPP 33 SEPP 33 (DPIE 2011b), a Preliminary Hazard Analysis prepared consistent with Hazardous Industry Planning Advisory Paper No. 6 – Guidelines of Hazard Analysis (DPE, 2011), covering all aspects of the project which may pose a risk to the public;	Section 8.3.2 Appendix F
	Land and Water – including: – an assessment of potential surface and groundwater impacts of the project – characterisation of water quality discharges, including quality and quantity of all pollutants from the project for comparison against relevant water quality criteria, and details of proposed water quality controls – a detailed site water balance, including a description of site water demands and any water licensing requirements – identification of an adequate and secure water supply for the life of the project – details of the stormwater and wastewater management systems and measures to treat, reuse or dispose of water – a description of the proposed erosion and sediment controls during construction – - an assessment of potential flooding impacts, including measures that will be employed to minimise risk to life and ensure the safe evacuation of people – - characterisation of the nature and extent of any acid sulphate soils or contamination on the site, the potential risks to human health and the receiving environment, and the measures that will be implemented to avoid and mitigate impacts	Section 8.4.3, 8.4.4, 9.2.2 and 9.2.3 Appendix G
	Air Quality – including: – an assessment of the likely air quality impacts of the project in accordance – with the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA, 2016 – consideration of the project's ability to comply with the relevant regulatory framework, including the Protection of the Environment Operations Act 1997 and the Protection of the Environment Operations (Clean Air) Regulation 2010 – - the likely greenhouse gas impacts of the project	Section 8.1.3 and 9.9.3 Appendix D Appendix I
	Noise and Vibration – including: – assessment of the likely construction noise impacts of the project under the Construction Noise Guideline if available, or the Interim Construction Noise Guideline (DECCW, 2009) if the Construction Noise Guideline is not available.	Section 8.2.3 and Appendix E

Category	SEARs requirement	Section addressed
	– an assessment of the likely operational noise impacts of the project under the NSW Noise Policy for Industry (EPA, 2017b) – an assessment of the likely vibration amenity and structural impacts of the project under Assessing Vibration: A Technical Guideline (DEC, 2006a) and German Standard DIN 4150-3 Structural Vibration – effects of vibration on structures;	
	Transport – including: – an assessment of the predicted impacts of project traffic on road safety and capacity during construction and operations, including consideration of cumulative traffic and the need for any road upgrades or infrastructure works to support the project – details of internal road layouts and vehicle movement plans to demonstrate that all vehicle sizes can be safely accommodated on site	Section 9.1.2
	Visual – including an assessment of the likely visual impacts of the project on the amenity of the surrounding area and private residences in the vicinity of the project;	Section 9.6.2
	Socio-Economic – including: – an assessment of the social impacts of the project prepared in accordance with the Department's Social Impact Assessment Guideline For State Significant Developments (2021) – an analysis of any potential economic impacts of the development, including a discussion of any potential economic benefits to the local and broader community; and	Section 9.8.2
	Waste – identify, quantify and classify the likely waste stream to be generated during construction and operation, and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste	Section 9.10.2
Plans and documents	The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the EP&A Regulation. These must be provided as part of the EIS rather than as separate documents. In addition, the EIS must include high quality files of maps and figures of the subject site and proposal.	Throughout the EIS
	The EIS must also be accompanied by GIS spatial data as outlined in the State significant infrastructure guidelines	Data provided separately on lodgement.
Engagement	During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners.	Section 7.2
	The EIS must detail the engagement undertaken and demonstrate how it was consistent with the Department's Undertaking Engagement Guide: Guidance for State Significant Projects. The EIS must detail how issues raised and feedback provided have been considered and responded to in the project.	Section 7.2
Expiry date	If you do not lodge an EIS for the infrastructure within 2 years of the issue date of these SEARs, your SEARs will expire. If an extension to these SEARs will be required, please consult with the Planning Secretary 3 months prior to the expiry date.	Noted
References	The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans as identified. While not exhaustive, the following attachment contains a list of some of the guidelines, policies, and plans that may be relevant to the environmental assessment of this proposal.	Noted

Appendix B

Statutory compliance table

Table C1 Statutory compliance

Statutory reference	Consideration	Section of EIS
EP&A Act		
Section 1.3	Objects of the Act	Section 6.1.1
Section 5.13	Critical State significant infrastructure *Any State significant infrastructure may also be declared to be critical State significant infrastructure if it is of a category that, in the opinion of the Minister, is essential for the State for economic, environmental or social reasons. Any such declaration may be made by the instrument that declared the development to be State significant infrastructure or by a subsequent such instrument.*	Section 6.1.1
Section 5.14	Minister's approval required for State significant infrastructure	Section 6.1.1
Section 5.15	Application for approval of State significant infrastructure	This EIS
Section 5.16	Environmental assessment requirements for approval	This EIS
Section 5.17	Environmental assessment and public consultation	This EIS
Section 5.28(5)	*A condition of the approval of State significant infrastructure under this Division may require any one or more of the following—* *(a) the surrender under this section of any other approval under this Division (or under Part 3A) relating to the infrastructure or the land concerned,* *(b) the surrender under section 4.63 of any development consent relating to the infrastructure or the land concerned*	Section 6.1.1
Section 4.6.3(3)	*If a development consent is to be surrendered as a condition of a new development consent and the development to be authorised by that new development consent includes the continuation of any of the development authorised by the consent to be surrendered:* *a) the consent authority is not required to re-assess the likely impact of the continued development to the extent that it could have been carried out but for the surrender of the consent, and* *b) the consent authority is not required to re-determine whether to authorise that continued development under the new development consent (or the manner in which it is to be carried out), and* *c) the consent authority may modify the manner in which that continued development is to be carried out for the purpose of the consolidation of the development consents applying to the land concerned.*	Section 6.1.1
EP&A Regulation		
Section 190	***Form of an environmental impact statement***	
(1)	*An environmental impact statement must contain the following information:*	Declaration
(a)	*The name, address and professional qualifications of the person by whom the statement is prepared,*	Declaration
(b)	*The name and address of the responsible person,*	Declaration
(c)	*The address of the land:* *In respect of which the development application is to be made, or* *On which the activity or infrastructure to which the statement relates is to be carried out,*	Section 2.2.5
(d)	*A description of the development, activity or infrastructure to which the statement relates,*	Chapter 5
(e)	*An assessment by the person by whom the statement is prepared of the environmental impact of the development, activity or infrastructure to which the statement relates, dealing with the matters referred to in this Schedule,*	Chapter 8 and 9
(2)	*The person preparing the statement must consider—*	
(a)	*For State Significant Development – the State Significant Development Guidelines or*	Not applicable

Statutory reference	Consideration	Section of EIS
(b)	*For State Significant Infrastructure – the State Significant Infrastructure Guidelines*	Declaration
(3)	*An environmental impact statement must also contain a declaration by the person who prepared the statement of the following—*	
(a)	*The statement has been prepared in accordance with this Division and.*	Declaration
(b)	*The statement contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure to which the statement relates, and*	Declaration
(c)	*That the information contained in the statement is neither false nor misleading.*	Declaration
Section 192	***Content of an environmental impact statement***	
(1)	*An environmental impact statement must contain the following:*	
(a)	*A summary of the environmental impact statement,*	Executive summary
(b)	*A statement of the objectives of the development, activity or infrastructure,*	Section 1.2
(c)	*An analysis of the feasible alternatives to the carrying out of the development, activity or infrastructure, having regard to its objectives, including the consequences of not carrying out the development, activity or infrastructure,*	Section 4.3
(d)	*An analysis of the development, activity or infrastructure, including:*	
(d)(i)	*A full description of the development, activity or infrastructure, and*	Chapter 5
(d)(ii)	*A general description of the environment likely to be affected by the development, activity or infrastructure, together with a detailed description of those aspects of the environment that are likely to be significantly affected, and*	Chapter 8 and 9
(d)(iii)	*The likely impact on the environment of the development, activity or infrastructure, and*	Chapter 8 and 9
(d)(iv)	*A full description of the measures proposed to mitigate any adverse effects of the development, activity or infrastructure on the environment, and*	Appendix C
(d)(v)	*A list of any approvals that must be obtained under any other Act or law before the development, activity or infrastructure may lawfully be carried out,*	Chapter 6
(e)	*A compilation (in a single section of the environmental impact statement) of the measures referred to in item (d) (iv),*	Appendix C
(f)	*The reasons justifying the carrying out of the development, activity or infrastructure in the manner proposed, having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development set out in Section 193*	Chapter 11
(2)	*This section is subject to the environmental assessment requirements that relate to the environmental impact statement.*	Appendix A
(3)	Not applicable	
(4)	*A document adopted or referred to by an environmental impact statement is taken to form part of the statement.*	This document
Relevant considerations under EPIs		
Planning Systems SEPP	Division 4.36 of the EP&A Act enables an EPI to declare a development to be SSI. The project has been declared CSSI as it is listed in clause 26, Schedule 5 of the Planning Systems SEPP	Section 6.1.2.1
T&I SEPP	The project falls within the Port Kembla land application map under Part 5.1 of the T&I SEPP. The project meets the definition of a heavy industry and port facilities in accordance with the T&I SEPP and is consistent with the objects of the land zoning.	Section 6.1.2.2

Statutory reference	Consideration	Section of EIS
R&H SEPP	A Preliminary Hazard Analysis (PHA) has been undertaken in accordance with the R&H SEPP.	Section 6.1.2.3 and 8.3 Appendix F
R&H SEPP	The project is located partially within the coastal use and coastal environment area mapped under the R&H SEPP. While the CSSI declaration overrides the need for consent under the R&H SEPP, consideration as been given to the requirements of the R&H SEPP	Section 6.1.2.3 and 9.3.2.1
R&H SEPP	The project represents a continuation of the existing industrial land use and the management of any contaminated land and the suitability of the site for the project is considered in this EIS.	Section 9.2 Section 6.1.2.3 and 9.2
Consideration under other NSW legislation		
POEO Act	PKSW, is operated under EPL 6092, which applies to a range of scheduled activities carried out at the site. It is expected that this license will be varied to incorporate any new or discontinued scheduled activities associated with the project. Section 5.24 of the EP&A Act provides that an EPL cannot be refused if it is necessary for carrying out an approved CSSI project and is consistent with the development consent.	Section 6.2.1.1
BC Act	The project will be unlikely to have a significant impact on any threatened species, populations or ecological communities listed under the BC Act, therefore the requirement for a BDAR has been waived.	Section 6.2.1.2 and 9.3.3
NPW Act	Under section 5.23 of the EP&A Act, an AHIP under Section 90 of the NPW Act is not required for approved CSSI. The project will be restricted to a highly disturbed industrial site of the existing PKSW and will not impact on Aboriginal heritage.	Section 6.2.1.3 and 9.4.2
Heritage Act	The project is not expected to impact upon any identified heritage item or relic. Under section 5.23 of the EP&A Act, approval under Section 59 or Section 139 is not required for approved CSSI.	Section 6.2.1.4
CLM Act	The PKSW site is listed as a contaminated site by the EPA. The site has had four notices issued to it, the last being in March 2018, which was a notification to cease the Voluntary Management Plan for the site on the basis that regulation of the site under the Contaminated Land Management Act 1997 (CLM Act) is no longer warranted.	Section 6.2.1.5
Consideration under Commonwealth legislation		
EPBC Act	No impacts to MNES have been identified that are considered likely to be significant and consequently a referral to DCCEEW under the EPBC Act has not been made.	Section 6.2.2.1
Native Title Act	Under the Native Title Act, the valid grant of a freehold estate on or before 23 December 1996 is known as a 'previous exclusive possession act'. This means that native title has been extinguished over the area and native title claimants can not include this land in their applications. The project is located on freehold land owned by BlueScope as well as land leased or licensed from NSW Ports. All of it is highly disturbed and has been the site of industrial activities for many decades, and therefore it is considered unlikely that native title would have survived even on the leased or licensed land.	Section 6.2.2.2

Appendix C

Proposed mitigation measures

Table E1 Proposed mitigation measures

Impact	ID	Measure	Timing
Air quality			
Dust management	AQ1	A dust management plan for use during construction activities will be prepared prior to works commencing.	Pre- Construction
	AQ2	Visual monitoring of construction work during dust generating construction activities or adverse weather conditions.	Construction
	AQ3	During demolition of any contaminated areas, extra measures will be implemented to prevent dust leaving the work area.	Construction
	AQ4	The construction contractor will be required to implement additional precautions to prevent dust leaving the worksite if visible plumes of dust are observed.	Construction
	AQ5	Dust generating activities will be ceased or reduced if a visual plume of dust leaves the site or monitoring shows excessive particulate levels.	Construction
	AQ6	Operations conducted in areas with low moisture content material will be suspended during high-speed wind events or dust suppression will be used.	Construction
	AQ7	Stockpile sizes will be kept to the minimum practical.	Construction
	AQ8	Limit cleared areas of land and stockpiles, and clear only when necessary to reduce fugitive dust emissions.	Construction
	AQ9	Control on-site traffic by following specific routes for haulage and access in accordance with signposted speeds.	Construction
	AQ10	All trucks hauling material on roads external to the PKSW site will be required to be covered and to maintain a reasonable amount of vertical space between the top of the load and top of the trailer.	Construction
Operation air quality management	AQ11	Current dust mitigation measures currently being implemented at PKSW will continue in project operation. These include: – Use of water cannons to provide dust suppression water of the coal stockpiles in 4 Area during periods of high winds – Use of wheel wash at the exit of 4 Area to reduce wheel generated dust from haulage trucks transporting material around the PKSW site	Operation
	AQ12	The CSU bucket-elevator unloading device and CSU conveyor system will be enclosed to prevent spillage and reduce dust emissions.	Construction Operation
	AQ13	Enclosure of conveyors as much as practicable to minimise dust emissions from conveyors.	Construction Operation
Noise and vibration			
Construction Noise and Vibration Management	NV1	A construction noise and vibration management plan (CNVMP) will be developed once a detailed construction methodology has been prepared. The plan will include: – Summary of the construction methodology. – Updated noise predictions at sensitive receivers if required. – A noise monitoring procedure and program for the duration of works. – Feasible and reasonable mitigation measures to be implemented to mitigated predicted impacts to sensitive receivers that may be noise affected. – A community consultation plan to liaise with the noise affected receivers, including: • Notification to residences a minimum of 7 calendar days prior to the start of high noise generating works, including information such as total building time, what works are expected to be noisy, their duration, what is being done to minimise noise and when respite periods will occur.	Pre-construction

Impact	ID	Measure	Timing
		• A procedure for complaints, including maintaining a complaints register in accordance with existing BlueScope processes.	
Site induction	NV2	All employees, contractors and subcontractors are to receive an environmental site induction. The site induction must at least include: – All project specific and relevant standard noise and vibration mitigation measures – Relevant licence and approval conditions – Permissible hours of work – Any limitations on high noise generating activities – Construction employee parking areas – Designated loading/unloading areas and procedures – Site opening/closing times (including deliveries) – Environmental incident procedures	Pre-construction Construction
At source mitigation measures – pre -construction	NV3	Quieter and less vibration emitting construction methods will be used where feasible and reasonable.	Pre-construction
	NV4	The noise levels of plant and equipment will have an operating sound power lower or similar to the levels presented in Table 8.17.	Pre-construction
At source mitigation measures - construction	NV5	Where practical, noise generating activities with potential to impact any nearby sensitive receivers will be scheduled during standard hours.	Construction
	NV6	Piling will be undertaken during standard construction hours where possible. Where piling is required during the hours of 10 pm and 7 am, works will be limited to an area at a minimum distance of 1,400 metres from the nearest residential receivers. If impact piling works are required during the hours of 10 pm and 7 am and within 1,400 metres of residential receivers, noise monitoring will be undertaken at the source and at the most-affected residential receivers to determine actual noise levels and determine any additional reasonable and feasible mitigation measures to reduce impacts.	Construction
	NV7	As much distance as possible will be placed between the plant or equipment and residences and other sensitive land uses.	Construction
	NV8	Equipment with directional noise characteristics will be oriented away from noise sensitive receivers.	Construction
	NV9	Non-tonal reversing beepers (or an equivalent mechanism) will be fitted and used on all construction vehicles and mobile plant regularly used and for any out of hours work. The use of ambient sensitive alarms that adjust output relative to the ambient noise level will be considered.	Construction
	NV10	Where additional activities or plant may only result in a marginal noise increase and speed up works, the duration of impact will be limited by concentrating noisy activities at one location and moving to another as quickly as possible.	Construction
	NV11	Only the necessary size and power of equipment will be used if available.	Construction
	NV12	Loading and unloading of materials/deliveries will occur as far as practically possible from sensitive receivers.	Construction
	NV13	The use of engine compression brakes will be limited in proximity to residences.	Construction
	NV14	Vehicles will be fitted with a maintained Original Equipment Manufacturer exhaust silencer or a silencer that complies with the National Transport Commission's 'In-service test procedure' and standard.	Construction

Impact	ID	Measure	Timing
	NV15	Equipment will be regularly inspected and maintained to ensure it is in good working order. The condition of mufflers will also be checked. Equipment will not be operated until it is maintained or repaired, where maintenance or repair would address the annoying character of noise identified.	Construction
Out of hours work	NV16	All construction activities should be undertaken during standard construction hours, with the exception of the following activities (as specified in Table 2 of the ICNG): – The delivery of oversized plant or structures that police or other authorities determine require special arrangements to transport along public roads. – Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm. – Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hour. – Public infrastructure works that shorten the length of the project and are supported by the affected community. – Works where a proponent demonstrates and justifies a need to operate outside the recommended standard hours. In the context of this project, the following activities could be considered appropriate to be conducted outside standard construction hours: – The delivery of oversized plant of structures. – Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm. – Large crane lifts taking advantage of calm conditions. – Work required to be completed within tidal ranges. – Piling works at acceptable locations where the NML for noise sensitive receivers is not exceeded.	Construction
	NV17	An out of hours works procedure will be developed as part of the construction environmental management plan for the project. This will include a detailed construction noise and vibration assessment for the potential construction activities proposed to occur out of hours.	Construction
	NV18	Out of hours movements will be minimised where possible. The need for out of hours work will be justified in the CEMP from the project and assessed against the noise requirements of the ICNG.	Construction
	NV19	Approval in writing from the EPA will be sought for construction activities outside of the standard hours of construction per EPL 6092 requirements.	Construction
	NV20	An out of hours works application form for any works outside of the approved working hours for the project will be required where high-intensity construction equipment is proposed to be used, for submission to the EPA. These include, in accordance with license condition L6.2 of EPL 6092: – Pile driving – Jack hammering – Warning sirens – Similar high-intensity noise sources	Construction
Noise validation	NV21	To check noise model predictions are representative of CLIP noise emission at sensitive receivers, noise validation measurements will be undertaken at intermediate locations in the path between source equipment and receivers. Nearfield source measurements will also be undertaken in order to confirm source noise levels and refine the noise model if required.	Operation

Impact	ID	Measure	Timing
	NV22	If compliance noise measurements indicate that operational noise levels are above noise predictions, mitigation measures to conveyors, conveyor drive houses and the CSU may be considered for noise reduction, such as: – Low noise bearing alternatives for conveyors where suitable – Upgraded construction of enclosures for conveyor and conveyor drive units – Local shielding around identified noise components of the CSU	Operation
Operational noise management plan	NV23	An operational noise management plan will be developed to minimise the risk of adverse noise impacts during the operation. It will be refined throughout the design process taking into account: – The relevant licence conditions. – Conditions of approval (to be confirmed). – The Noise Policy for Industry. – Australian Standards 1055 Acoustics – Description and measurement of environmental noise. – Approved methods for the measurement and analysis of environmental noise in NSW – currently in draft form. – Conclusions of verification noise monitoring prior to operations commencing. – The operational noise management plan should include: • Operational noise management measures to be implemented. • A complaints handling protocol as per existing BlueScope process.	Operation
Hazard and risk			
Hazard and risk	HR1	Prior to construction starting, a site Construction Management Plan will be completed. The Construction Management Plan will include: – Procedures of isolation and evacuation of the fuel pipeline during relocation and fire management, including fire events at the bunker fuel pipeline. – A construction hazard assessment, identifying identify the proposed methodology of the site construction and/ or installation for hazardous situations. The detailed methodology will indicate the potential hazards and the control measures required to mitigate risks to as low as reasonably practicable during the construction stage. – A risk register produced from the construction hazard assessment which will be treated as a live document to be regularly reviewed during the construction phase. Any information considered to be relevant to the operational phase will be carried forward in the risk register.	Pre-construction
	HR2	Existing conveyor design and safeguards will be utilised.	Pre-construction Construction
	HR3	Existing emergency management procedures will be updated where relevant.	Pre-construction Construction Operation
	HR4	Inspection and maintenance regime for conveyor systems will be implemented during operation.	Operation

Impact	ID	Measure	Timing
Water and hydrology			
Construction erosion and sediment	E1	Prior to construction commencing, a site-specific Soil and Water Management Plan (SWMP) will be prepared. The plan will include arrangements for managing wet weather events, specific controls and environmental inspection requirements. The SWMP will include an Erosion and Sediment Control Plan (ESCP) which will be prepared in accordance with the Blue Book -Managing Urban Stormwater: Soils and Construction (4th edition, Landcom, 2004) and Volume 2 (DECC, 2008).	Pre-construction
	E2	The ESCP will detail the erosion controls used for the project and where they will be established. The ESCP will include site specific measures to: – Prevent sediment moving off-site and sediment laden water entering any watercourse, drainage lines, or drain inlets – Prevent mixing of soils – Ensure soils are replaced in their pre-existing configuration during rehabilitation where possible – Reduce water velocity overland and capture sediment on site – Minimise the amount of material transported from site to surrounding pavement surfaces – Divert clean water around excavations where practical – Install measures and site entry and exit points to minimise movement of material onto public roads	Pre-construction
	E3	Erosion and sediment controls will be established prior to works commencing on site.	Pre-construction
	E4	Erosion and sediment controls will be inspected on a regular basis and replaced when their function is compromised.	Construction
	E5	Soil from excavation generated will be reused where applicable. Excess spoil not required or able to be reused onsite will be disposed of appropriately as per the EPA's Waste Classification Guidelines (2014).	Construction
	E6	Vehicles will be restricted to existing access routes where practical.	Construction
	E7	Disturbed areas will be returned to pre-existing condition following the completion of construction, where practicable.	Construction
Operational water management	E8	Water monitoring programs under licencing or approval conditions will continue during operation.	Operation
Traffic			
Construction Traffic	TT1	A Construction Traffic Management Plan (CTMP) will need to be prepared prior to the commencement of works. The CTMP will provide: – Measures to minimise the impact of the construction vehicle traffic on the overall operation of the road network. – Measures to provide continuous, safe, and efficient movement of traffic for both the general public and construction workers. – Details regarding installation of appropriate advance warning signs to inform users of the changed traffic condition. – A description of the construction vehicles and the volume of these construction vehicles accessing the construction site. – Information regarding access arrangements and a description of the proposed external routes for vehicles, including the construction vehicles, accessing the site. – That all staff and subcontractors engaged on site will be required to undergo site induction. The induction will outline the requirements on the CTMP, including site access routes, environmental and occupational health and safety responsibilities, emergency procedures, potential carpooling opportunities and vehicle height restriction under the power lines, among others.	Construction

Impact	ID	Measure	Timing
	TT2	Key stakeholders, including owners/operators of adjacent lands and emergency service providers, will be notified of any changes to the traffic management arrangements of public roads prior to the commencement of works.	Construction
	TT3	The construction site access will be reviewed during design development to consider the turn path required for the construction vehicles.	Construction
	TT4	Construction works to occur within the standard hours defined by the Interim Construction Noise Guideline (DECC, 2009) where practical. Some out of hours work may be required to undertake certain tasks as described in Section 5.7.	Construction
	TT5	Truck drivers will be directed to follow the predetermined haulage routes.	Construction
	TT6	Workers required to undertake works or traffic control will be suitably trained and hold the required accreditation to carry out works on site and will also be site inducted.	Construction
	TT7	Protection will be provided to workers and road users through advanced warning of roadworks, speed changes, safety barriers with adequate offsets and deflection allowance, where necessary.	Construction
	TT8	Site access will be restricted to authorised project personnel and existing employees on site.	Construction
	TT9	Roadwork speed zones must be logical, credible, and enforceable. They should only be used where they are self-enforcing or will be enforced. Roadwork speed zones will be used with traffic control signs and devices and should not be used in place of more effective traffic controls. They will be used only while road works are in progress or the lower speed road conditions exist.	Construction
	TT10	The following environmental requirements should be adhered to: – All vehicles transporting loose materials on public roads will have the entire load covered and/or secured to prevent any large items, excess dust or debris depositing onto the roadway during travel to and from the site, including but not limited to construction rumble strips/wheels wash at the site egress location. – Vehicles operating to, from and within the site shall do so in a manner, which does not create unreasonable or unnecessary noise or vibration. – Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like.	Construction
Soils, geology and groundwater			
Acid Sulphate Soils	S1	If ASS are disturbed during excavations, they will be managed as per the Acid Sulphate Soils Manual (ASS MAC, 1998).	Construction
Contamination	C1	An incident emergency spill plan will be detailed in the CEMP.	Pre-construction
	C2	Spill response kits will be provided on site and will be located in a clearly defined location.	Construction
	C3	Plant and machinery will be inspected regularly to ensure that they are in sound working order.	Construction
	C4	If soils that appear to be contaminated are exposed during construction of the project, works will cease in the area until further investigation can be undertaken. The following factors are indications of potential contamination on site: – Stained or discoloured fill – Hydrocarbon or chemical odour	Construction

Impact	ID	Measure	Timing
		Contaminated soils requiring disposal will be classified under the Waste Classification Guidelines (EPA,2014) prior to disposal.	
	C5	All chemical/fuel storage and loading areas will be bunded or otherwise contained.	Construction, Operation
	C6	All plant personnel that may encounter chemicals/fuels will be trained in required handling procedures.	Construction, Operation
Biodiversity			
General biodiversity	B1	– Measures proposed in the SWMP will be implemented to ensure appropriate sediment control measures are put in place to ensure run-off during construction does not result in indirect impacts to surrounding habitats. – Construction machinery will be cleaned prior to entering and leaving site to ensure weed propagules are not transported. – Clearing will of trees will be restricted to the trees identified in the Tree Clearing Report. – Laydown areas will be placed on existing hardstand, and where possible, as far away from drainage lines and places where surface water can pool. – These measures will be implemented in the CEMP and may be revised at any time to manage potential environmental impacts.	Pre-construction Construction
Green and Golden Bell Frog	B2	All measures outlined in *Management of Threatened Species, The Green and Golden Bell Frog, Litoria Aurea (BlueScope, 2020)* will be implemented during construction of the project.	Construction
	B3	All workers will be trained in the procedures outlined in *Management of Threatened Species, The Green and Golden Bell Frog, Litoria Aurea (BlueScope, 2020)* and their responsibilities under the BC Act and EPBC Act in the project induction. This will also be discussed periodically during the toolbox talks or though group refresher training sessions.	Construction
	B4	If a Green and Golden Bell Frog is found in the project site or laydown area, work in the vicinity will cease immediately. Work will not recommence until clearance from a qualified ecologist can be provided. Following confirmation of the sighting of Green and Golden Bell Frog either by a local ecologist or by means of identification using the Green and Golden Bell Frog Audit / Inspection Checklist, the sighting must be registered with the EPA and NSW BioNet Species sightings via the web or telephone.	Construction
Unexpected species discovery	B5	If other endangered species are discovered on the project site or in laydown areas, work will cease in the vicinity and a qualified ecologist will be employed to assess the discovery. Additional mitigation measures presented by the ecologist will be incorporated into the CEMP. Work in the area will not commence unless clearance is given by the ecologist.	Construction
Aboriginal heritage			
Unexpected Aboriginal heritage finds	AH1	In the event of an unexpected find of potential Aboriginal object/s (or suspected item), work will cease in the area and DPE notified. Works will not recommence until continuation is authorised by DPE.	Construction
Historic heritage			
Unexpected finds	HH1	In the unlikely event that unexpected historical (non-Aboriginal) archaeological remains are discovered during works they will be managed with reference to the standard protocols and procedures of Section 146 of the *Heritage Act 1977*.	Construction
Visual amenity			
	LV1	Temporary boarding, barriers, traffic management and signage will be removed when no longer required.	Construction

Impact	ID	Measure	Timing
Visual amenity – construction works	LV2	Roads providing access to the site and work areas will be maintained free of dust and mud as far as reasonably practicable.	Construction
	LV3	Materials and machinery will be stored neatly during construction works.	Construction
	LV4	Ensure any temporary lighting required during the construction period is sited and designed to avoid light spill into the surrounding area.	Construction
	LV5	Utilise existing site features as screening when positioning plant where practical.	Construction
Light spill	LV6	Lighting to be designed installed and operated in accordance with *Australian Standard 4282-1997 Control of the Obtrusive effects of outdoor lighting.*	Detailed design and operation.
Land use and property			
Land use	LU1	A CEMP will be developed to manage and mitigate impacts generated by the construction of the project.	Pre-construction Construction
	LU2	BlueScope will coordinate project activities to minimise the impact to land use and services within the PKSW site.	Construction
Property	P1	BlueScope will consult with NSW Ports prior to works on Lot 71 DP1182824 and Lot 72 DP1182824.	Pre-construction
Social and economic			
Investment and employment	SE1	A contracting and procurement strategy focusing on maximising local content and implementation of BlueScope's First Nations Strategy for indigenous employment will be implemented where possible d to support local employment and business opportunities during construction. During operation, the project will seek to work with interested local parties to fulfil workforce requirements.	Construction, operation
Community engagement	SE2	The project will include a comprehensive, multi-stakeholder engagement program to inform decisions regarding the project.	Construction
	SE3	A Community Consultative Committee (CCC) will continue to be operated by BlueScope for PKSW.	Construction
	SE4	BlueScope will provide a contact number and email address for the community to provide comments on throughout the project.	Construction
Amenity	SE5	BlueScope will ensure that measures discussed in other sections that reduce environmental impacts are implemented effectively for the duration of the project.	Construction, operation.
Greenhouse gas and energy			
Construction GHG emissions	GHG1	All plant and equipment used during the construction works will be regularly maintained to comply with the relevant exhaust emission guidelines.	Construction
	GHG2	Sustainable procurement practices will be adopted where feasible.	Construction
	GHG3	Where reasonable and feasible, measures to be implemented by contractors will include, but not be limited to: – Construction materials sourced locally where possible – Construction materials with high recycled content, such as supplementary cementitious materials in concrete, reclaimed asphalt pavement in asphalt and post post-consumer recycled content in steel will be procured for the project where practical – Construction materials that are low maintenance and durable will be sourced where practical – Plant and equipment will be switched off when not in constant use and not left idling	Construction

Impact	ID	Measure	Timing
		– Plant and equipment brought onsite will be regularly serviced and energy efficient vehicles or equipment will be selected where available – Any plant and equipment that is not working efficiently (e.g. emitting excessive smoke) will be repaired or replaced as soon as possible – Construction works will be planned to ensure minimal movement of plant and equipment, including barges – Opportunities for the reuse/recycling of other construction and demolition waste materials to be investigated and included in construction management plans, where feasible	
Waste management			
Construction waste	WM1	A waste management plan for the project will be prepared prior to construction commencing. The waste management plan will detail: – Statutory requirements for waste in NSW – Measures for separating waste based on classification of management options including colour coded bins – Options for off-site reuse, reprocessing, recycling and energy recovery	Pre-construction
	WM2	Awareness of waste minimisation practices will be included in the project induction.	Construction
	WM3	Waste will be classified, managed and disposed of in accordance with the *Waste Classification Guidelines* (EPA, 2014).	Construction
Operational waste	WM4	Operational waste streams will continue to be managed in accordance with EPL 6092.	Operation
	WM5	Recycling and resource recovery activities will continue throughout the life of the project.	Operation
Cumulative impacts			
General impact reduction	CI1	The mitigation measures presented in Appendix C will be implemented effectively to reduce the project's impact on the environment.	Pre-construction Construction Operation

Appendix D

Air quality impact assessment

Appendix E

Noise and vibration impact assessment

Appendix F

Hazard and risk assessment

Appendix G

Water quality impact assessment

Appendix H

Biodiversity

Your ref: SSI-36408005
Our ref: DOC21/158235

Rose-Anne Hawkeswood
Energy Resources Assessment
Department of Planning and Environment
E-mail: rose-anne.hawkeswood@dpie.nsw.gov.au

Dear Ms Hawkeswood

RE: Request to waive requirement for BDAR under s.7.9 of the Biodiversity Conservation Act 2016 –Commodity and Logistics Import project, SSI-36408005

I refer to the request from GHD to waive the requirement for a biodiversity development assessment report (BDAR) to be submitted in relation to the proposed state significant development SSI - 36408005 application for the Commodity and Logistics Import project at Port Kembla.

I have reviewed the information provided by the applicant in the BDAR waiver application received 23 February 2022 and determined that the proposed development is not likely to have any significant impact on biodiversity values. The application, therefore, does not need to be accompanied by a BDAR.

The determination is attached for you to provide to the applicant.

Please note that if the proposed development is changed so that it is no longer as described in Schedule 1 of the determination, the applicant will need to a lodge a new waiver request or prepare a BDAR.

Please contact Chris Page, Senior Team Leader on 4224 4180 or via e-mail, Chris.Page@environment.nsw.gov.au, should you have any further queries.

Yours sincerely

14/3/2022

MICHAEL SAXON

Director, South East Branch

Biodiversity and Conservation Division

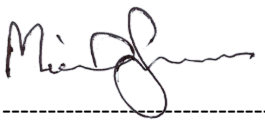
Determination template – BDAR not required

Determination under clause 7.9(2) of the Biodiversity Conservation Act 2016

I, Michael Saxon, Director South East, Biodiversity Conservation Division, under clause 7.9(2) of the *Biodiversity Conservation Act 2016*, determine that the proposed development is not likely to have any significant impact on biodiversity values and therefore a Biodiversity Development Assessment Report (BDAR) **is not required**.

Proposed development means the development as described in Schedule 1. If the proposed development changes so that it is no longer consistent with this description, a further request to waive the requirement for a BDAR must be lodged or a BDAR prepared.

If you do not lodge the development application related to this determination for the proposed development within 2 years of the issue date of this determination, you must either prepare a BDAR or lodge a new request to have the BDAR requirement waived.



---------- 14/3/2022 ----------

Michael Saxon
South East Branch
Biodiversity and Conservation Division

Date

SCHEDULE 1 – Description of the proposed development

Commodity Logistics and Import Project (SSI - 36408005)

The proposal is for the construction of new ship unloading facilities on existing berths at the Port Kembla Harbour.

Commodity Logistics & Import Project

Tree Removal Assessment

BlueScope Steel (AIS) Ltd

09 November 2022

→ **The Power of Commitment**

Project name		Consultancy Services for Environmental Approvals for Commodities Logistics Infrastructure Project					
Document title		Commodity Logistics & Import Project | Tree Removal Assessment					
Project number		12555409					
File name		Arboricultural Report					
Status Code	**Revision**	**Author**	**Reviewer**		**Approved for issue**		
			Name	**Signature**	**Name**	**Signature**	**Date**
S4	0	G. Leonard	K. Crosby		K Rosen	KR	9/11/22

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1. Introduction

1.1 Purpose of this report

BlueScope Steel (AIS) Pty Ltd (BlueScope) is one of Australia's leading manufacturers and is a global leader in finished and semi-finished steel products. BlueScope operates the Port Kembla Steelworks (PKSW), which has been producing steel products since 1928 and is a key component in the New South Wales (NSW) and national economy.

BlueScope proposes to upgrade the PKSW raw materials berths 111, 112 and 113 (the Berths), including the unloading and conveying infrastructure through the Commodity Logistics and Import Project (CLIP) (the project). The project will include construction of a new continuous ship unloader (CSU), relocation of existing ship unloaders and new conveying infrastructure. These upgrades will allow BlueScope to import the required quantities of raw materials and to support continuing operation of the PKSW.

The project has been declared Critical State Significant Infrastructure (CSSI) in accordance with section 5.13 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Schedule 5 of the *State Environmental Planning Policy (Planning Systems) 2021*. An environmental impact statement (EIS) has been prepared to support the application for approval by the NSW Minister for Planning.

Given the highly disturbed nature of the project site, an application to the Department of Planning and Environment – Biodiversity Conservation Division (BCD) for a Biodiversity Development Assessment Report (BDAR) waiver was made during the project scoping phase. BCD subsequently granted a BDAR Waiver for the project on 14 February 2022.

Since granting of the BDAR Waiver, changes have been made to the project footprint which require four tree groups (A, B, C and D) to be removed (refer Figure 1). A site visit was conducted to assess trees to be removed to allow truck access (Area A), piling rig access (Area B), truck turning area (Area C) and a new conveyor and access walkway (Area D). This arboricultural report is provided to assess the trees in question and determine if a BDAR is required to be prepared in accordance with the Biodiversity Assessment Method (BAM) (DPIE 2020).

1.2 Scope and limitations

This report has been prepared by GHD for BlueScope and may only be used and relied on by BlueScope for the purpose agreed between GHD and BlueScope.

GHD otherwise disclaims responsibility to any person other than BlueScope arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

1.3 Assumptions

This assessment has been completed based on information provided by BlueScope and information gained from the site visit.

2. Methodology

2.1 Desktop review

An initial desktop review of the proposed tree removal was undertaken based on information provided by BlueScope. This included review of:

– Aerial photography of the proposed trees to be removed
– Photographs of the trees
– Review of design drawings notably drawing *542475 Rev C.dwg* showing proposed works in context of the trees to be removed.

Desktop review also included a high-level desktop assessment of the regional context of the tree clearing to establish other biodiversity values that may be present such as connectivity with other vegetation.

2.2 Field survey

A field survey of the study area was conducted on 29th September 2022 by GHD ecologist Gary Leonard. Thirty-nine trees were inspected, all of which are located within fenced property at the north-east end of Christy Drive, Port Kembla. The locations and tree numbers are indicated in BlueScope plan 542475 Rev C, labelled “Trees effected by Berth Extension”.

2.3 Assessment and reporting

Following desktop review and field investigation, an assessment was carried out in accordance with the decision-making key in Appendix D.1 of the BAM (DPIE 2020) which provides a framework for the assessment of planted native vegetation. This report documents the results of that assessment.

Paper Size ISO A3

0 100 200 300 400

Meters

Map Projection: Mercator Auxiliary Sphere
Horizontal Datum: WGS 1984
Grid: WGS 1984 Web Mercator Auxiliary Sphere

N

GHD

BlueScope Steel Ltd
CLIP Arboricultural Assessment

Port Kembla Steelworks
Trees marked to be removed

Project No. **12555409**
Revision No. **0**
Date **13/10/2022**

FIGURE 1

\\ghdnet.internal\ghd\AU\Newcastle\Projects\22\12541101\GIS\Maps\12541101_BlueScope_TreeRequiring Removal.aprx
Print date: 14 Oct 2022 - 11:47

Data source: sixmaps/LPI_Imagery_Best: © Department of Customer Service 2020
World Imagery: Maxar.
Tree labels and Area ID was used from drawing number 542475 (drawn by M White) Created by: schand2

3. Existing environment

3.1 Vegetation recorded

The trees proposed for removal are growing within a fenced compound at the north-eastern end of Christy Drive, adjacent to the Inner Harbour. The trees have all been planted by BlueScope and occur in several (mostly) linear groups (see Figure 1). Tree Groups A, C and D have a ground-cover of annual weeds; Tree Group B and the northern portion of Tree Group A have a ground-cover which includes some native or exotic forbs, although in most cases there is also an occurrence of annual weed species. Details relating to each tree are indicated in Table 3.1.

Planted groundcover species include *Lomandra longifolia* (Spiny-headed Mat-rush), *Convolvulus erubescens* (Blushing Bindweed) and *Russelia equisetiformis* (Coral Plant). Annual Weeds include *Ehrharta erecta* (Panic Veldtgrass), *Conyza bonariensis* (Flax-leaf Fleabane), *Facelis retusa* (Annual Trampweed), *Hypochaeris radicata* (Catsear), *Hypochaeris glabra* (Smooth Catsear) and *Sonchus oleraceus* (Common Sowthistle).

Table 3.1. Tree species recorded

Tree number	Age (years)[#]	Botanical Name	Common name	Comments
A1	47	**Araucaria heterophylla*	Norfolk Island Pine	Poor form and vigour; possibly in response to inappropriate soil.
A2	47	**Nerium oleander*	Oleander	-
A3	47	**Nerium oleander*	Oleander	-
A4	47	**Nerium oleander*	Oleander	-
A5	47	**Metrosideros excelsa*	Pohutukawa	-
A6	47	**Araucaria heterophylla*	Norfolk Island Pine	Sparse canopy
A7	47	**Metrosideros excelsa*	Pohutukawa	-
A8	47	**Araucaria heterophylla*	Norfolk Island Pine	Sparse canopy; necrotic terminal growth
A9	47	*Ficus rubiginosa*	Port Jackson Fig	Indigenous to coastal Illawarra; good specimen; may be retained
B1	17	*^Ficus microcarpa* var. *hillii*	Hill's Weeping Fig	Sparse canopy
B2	17	*^Ficus microcarpa* var. *hillii*	Hill's Weeping Fig	Sparse canopy
C1	14	*^Ficus microcarpa* var. *hillii*	Hill's Weeping Fig	Recent tree failure; exposed root plate indicates shallow root system in inappropriate soil
C2	14	*^Ficus microcarpa* var. *hillii*	Hill's Weeping Fig	-
C3	14	*^Ficus microcarpa* var. *hillii*	Hill's Weeping Fig	-
D1	17	*^Callistemon* 'King's Park Special	Hybrid Bottlebrush	Bottle brush cultivar; specimens are mature and in good form and vigour
D2	17	*^Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D3	17	*^Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D4	17	*^Callistemon* 'King's Park Special	Hybrid Bottlebrush	-

Tree number	Age (years)[#]	Botanical Name	Common name	Comments
D5	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D6	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D7	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D8	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D9	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D10	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D11	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D12	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	--
D13	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D14	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D15	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D16	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D17	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D18	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D19	17	^*Callistemon* 'King's Park Special	Hybrid Bottlebrush	-
D20	17	*Casuarina glauca*	Swamp Oak	Indigenous to coastal Illawarra; this species would have occurred either in Swamp Oak estuarine forest or in Lowlands Redgum Grassy Woodland prior to construction of Inner Harbour
D21	17	*Casuarina glauca*	Swamp Oak	-
D22	17	*Casuarina glauca*	Swamp Oak	-
D23	17	*Casuarina glauca*	Swamp Oak	-
D24	17	*Casuarina glauca*	Swamp Oak	-
D25	17	*Casuarina glauca*	Swamp Oak	-

Notes:

*Not indigenous to Australia

^Australian species or cultivar, not indigenous to NSW.

[#]Age advised by BlueScope internal planting records.

3.2 Indigenous species

Trees D20 to D25 are *Casuarina glauca* (Swamp Oak) (see Figure 3.1). These specimens have been planted in a line within a mounded garden bed which is bordered on all sides by sealed concrete. The specimens are in good vigour and form, apart from some stunted growth.

Fuller (2021) describes a range of habitats for this species within the Wollongong LGA, including "…windswept ocean headlands, to…..forest formation in low-lying lagoon communities……It is a familiar feature of places such as Lake Illawarra foreshores and Fairy Creek lagoon…..As well as along the coastal zone, Swamp Oak can be found in poorly drained depressions and extending inland along waterways…."

The original vegetation of Tom Thumb Lagoon would have included fringing patches of Swamp Oak, upslope from areas of saltmarsh (see Gill 2005). Examples of self-recruiting patches of Swamp Oak Forest are apparent in Green House Park, to the north of the subject site, especially along tidal-influenced drainage lines. The planting of Swamp Oak in the subject site is therefore appropriate, although it is apparent that Trees D20 to D25 are growing in an artificial environment which lacks characteristics of Swamp Oak Forest such as a brackish water table, estuarine soil and an associated suite of species.

Tree A9 is *Ficus rubiginosa* (Port Jackson Fig) (see Figure 3.2). Tree A9 is in good form and vigour and may be in a situation which would enable retention of this specimen (M. Zouros, pers. comm.).

Fuller (2021) describes the habitat for this species as "…on rock shelves in or near dry rainforest…..It usually grows in drier rainforest communities on the coastal plain and lower escarpment…..In littoral rainforest it can be found on sand and rocky headlands or seacliffs…". Tree A9 is growing in sandy soil close to the artificial shoreline, although there are no associated species growing as understorey.

Figure 3.1 Trees D20-D25

Figure 3.2 Tree A9

3.3 Habitat for threatened species

The suitability of the planted native vegetation for use by threatened species is assessed here in accordance with Appendix D.2 of the BAM (DPIE 2020). The fruits of Port Jackson Fig are mostly produced from February to July but may be present throughout the year and are eaten by a range of native birds, as well as by the Grey-headed Flying-fox (*Pteropus poliocephalus*) (see Floyd 1989). No nests were recorded in Tree A9, although a collection of empty snail shells at the base of one of the developing buttresses indicated the likelihood of the use of the hollows between the developing buttresses as shelter by the Eastern Blue-tongue Lizard (*Tiliqua scincoides*) (see Ehmann 1992). Other planted trees present would provide foraging habitat for a range of common bird species. The trees to be removed do not provide key habitat values for any species credit species under the BAM. No mitigation measures are required for threatened species habitat.

4. Assessment of planted vegetation in accordance with the BAM

The specimens of planted trees in the subject site which are indigenous to the Wollongong LGA are Trees A9 and Trees D20 to D25. The Port Jackson Fig (A9) and the line of Swamp Oaks (D20 to D25) are not growing in natural habitat nor do they occur within a natural assemblage of indigenous plant species. The trees do not represent a portion of a large body of vegetation and do not connect to or provide a vegetated corridor between other areas of vegetation (exotic or natural). No nests or other indications of long-term occupation by native fauna species were recorded in any of the planted trees. The trees are therefore unlikely to be habitat for any threatened fauna species. This is supported by the fact that the trees would be subject to high level of indirect impacts (noise, artificial light etc) and there is higher value habitat available elsewhere in the locality.

Planted native trees within the subject site were compared with the decision-making key in Appendix D.1 of the BAM (DPIE 2020). A summary of the comparison is provided in Table 4.1 and justification is provided below. An assessment of habitat values for threatened fauna species in accordance with Appendix D.2 of the BAM (DPIE 2020) is provided in section 3.3.

Table 4.1 Planted native vegetation key

Number	Question	Answer
Question 1	Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?	No
Question 2	Is the planted native vegetation: a. planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and b. the primary objective was to replace or regenerate a plant community type or a threatened plant species population or its habitat?	No
Question 3	Is the planted/translocated native vegetation individuals of a threatened species or other native species planted/translocated for the purpose of providing threatened species habitat under one of the following: c. species recovery project d. Saving our Species project e. other types of government funded restoration project f. condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat g. legal obligation as part of a condition or ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the *Native Vegetation Act 2003*) h. ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or i. approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW *Water Management Act 2000*)?	No
Question 4	Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration without a legal obligation to secure or provide for management of the native vegetation?	No
Question 5	Is the native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as: windbreaks in agricultural landscapes, roadside plantings (including street trees, median strips, roadside batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or teatree farms? Whilst some of the trees to be removed have been planted for these purposes, it is noted that BlueScope's internal tree replacement policy would see the removed trees replaced at an appropriate alternative location within the wider Port Kembla Steelworks to achieve similar outcomes.	Yes, refer to section 3.3 for assessment of habitat values for threatened fauna

5. Conclusion and recommendations

Given the highly disturbed nature of the project site, an application to the DPE – BCD for a BDAR waiver was made during the project scoping phase. BCD subsequently granted a BDAR Waiver for the project on 14 February 2022. Since granting of the BDAR Waiver, changes have been made to the project footprint, with a number of additional trees to be removed. This arboricultural report is provided to assess the trees in question and determine if a BDAR is required to be prepared in accordance with the Biodiversity Assessment Method (BAM) (DPIE 2020). This assessment demonstrates that no removal of native remnant vegetation is required and impact on potential habitat of threatened biota will be minimal. Tree removal will be limited to planted exotic and native trees. A BDAR is not required. It is also noted that BlueScope will provide compensatory planting in accordance with its own internal procedures. This would see like-for-like plantings of removed trees to be undertaken at a more appropriate location within the PKSW to the extent practical. This would result in negligible net change to vegetation at the PKSW following completion of the project.

If a decision is made to retain Tree A9, the growth potential of the tree should be considered, in the context of the proposed development, especially because it may be assumed that buttress and surface roots will develop and will eventually cover a large area; moreover, the canopy would increase greatly in height and width. To ensure survival of the specimen during the proposed works, a Tree Protection Plan should be prepared and the tree protection protocols should be supervised by a qualified (min. AQF 5) Arborist.

6. References

DPIE (2020). Biodiversity Assessment Method. NSW Department of Planning, Industry and Environment. https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/biodiversity-assessment-method-2020-200438.pdf

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Floyd, A. (1989) Rainforest Trees of Mainland South-eastern Australia. Inkata Press, Melbourne.

Fuller, L. (2021) Wollongong's Native Trees. 3rd Edition. Leon Fuller, Keiraville.

Gill, N. (2005) Slag, Steel and Swamp. Perceptions of Restoration of an urban coastal saltmarsh. Ecological Restoration and Management 6 (2); 85-93.

Data from the BioNet Atlas website, which holds records from a number of custodians. The data are
inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data P
^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and
Records of Threatened (listed on BC Act 2016) ,Commonwealth listed ,CAMBA listed ,JAMBA listed
West: 150.84 East: 150.94 South: -34.51] returned a total of 14,195 records of 76 species.
Report generated on 11/02/2022 5:44 PM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic
Animalia	Amphibia	Hylidae	3166	*Litoria aurea*	
Animalia	Reptilia	Cheloniidae	2007	*Chelonia mydas*	
Animalia	Reptilia	Cheloniidae	2008	*Eretmochelys imbricata*	
Animalia	Aves	Anatidae	0214	*Stictonetta naevosa*	
Animalia	Aves	Phaethontidae	0108	*Phaethon lepturus*	
Animalia	Aves	Columbidae	0025	*Ptilinopus magnificus*	
Animalia	Aves	Columbidae	0021	*Ptilinopus regina*	
Animalia	Aves	Columbidae	0023	*Ptilinopus superbus*	
Animalia	Aves	Apodidae	0335	*Apus pacificus*	
Animalia	Aves	Apodidae	0334	*Hirundapus caudacutus*	
Animalia	Aves	Diomedeidae	0086	*Diomedea exulans*	
Animalia	Aves	Diomedeidae	0847	*Diomedea gibsoni*	
Animalia	Aves	Diomedeidae	0859	*Thalassarche impavida*	
Animalia	Aves	Diomedeidae	0088	*Thalassarche melanophris*	
Animalia	Aves	Procellariidae	0072	*Ardenna carneipes*	
Animalia	Aves	Procellariidae	0070	*Ardenna grisea*	
Animalia	Aves	Procellariidae	0069	*Ardenna pacifica*	
Animalia	Aves	Procellariidae	0071	*Ardenna tenuirostris*	
Animalia	Aves	Procellariidae	0853	*Calonectris leucomelas*	
Animalia	Aves	Procellariidae	0929	*Macronectes giganteus*	
Animalia	Aves	Procellariidae	0937	*Macronectes halli*	
Animalia	Aves	Procellariidae	8684	*Pterodroma leucoptera leucoptera*	
Animalia	Aves	Procellariidae	0067	*Puffinus assimilis*	
Animalia	Aves	Fregatidae	0095	*Fregata ariel*	
Animalia	Aves	Ciconiidae	0183	*Ephippiorhynchus asiaticus*	
Animalia	Aves	Ardeidae	0197	*Botaurus poiciloptilus*	
Animalia	Aves	Ardeidae	0196	*Ixobrychus flavicollis*	
Animalia	Aves	Accipitridae	0226	*Haliaeetus leucogaster*	
Animalia	Aves	Accipitridae	0230	*^^Lophoictinia isura*	
Animalia	Aves	Haematopodidae	0131	*Haematopus fuliginosus*	
Animalia	Aves	Haematopodidae	0130	*Haematopus longirostris*	
Animalia	Aves	Charadriidae	0136	*Pluvialis squatarola*	
Animalia	Aves	Charadriidae	T453	*Thinornis cucullatus cucullatus*	
Animalia	Aves	Scolopacidae	0163	*Calidris acuminata*	
Animalia	Aves	Scolopacidae	0164	*Calidris canutus*	
Animalia	Aves	Scolopacidae	0168	*Gallinago hardwickii*	
Animalia	Aves	Scolopacidae	0167	*Limicola falcinellus*	

Animalia	Aves	Scolopacidae	0153	*Limosa lapponica*
Animalia	Aves	Scolopacidae	0152	*Limosa limosa*
Animalia	Aves	Scolopacidae	0149	*Numenius madagascariensis*
Animalia	Aves	Scolopacidae	0155	*Tringa brevipes*
Animalia	Aves	Scolopacidae	0156	*Tringa incana*
Animalia	Aves	Scolopacidae	0158	*Tringa nebularia*
Animalia	Aves	Stercorariidae	0128	*Stercorarius parasiticus*
Animalia	Aves	Laridae	0972	*Gygis alba*
Animalia	Aves	Laridae	0112	*Hydroprogne caspia*
Animalia	Aves	Laridae	0120	*Onychoprion fuscata*
Animalia	Aves	Laridae	0117	*Sternula albifrons*
Animalia	Aves	Laridae	0115	*Thalasseus bergii*
Animalia	Aves	Cacatuidae	0268	*^^Callocephalon fimbriatum*
Animalia	Aves	Psittacidae	0260	*Glossopsitta pusilla*
Animalia	Aves	Psittacidae	0309	*^^Lathamus discolor*
Animalia	Aves	Psittacidae	0277	*^^Polytelis swainsonii*
Animalia	Aves	Strigidae	0248	*^^Ninox strenua*
Animalia	Aves	Tytonidae	0250	*^^Tyto novaehollandiae*
Animalia	Aves	Meliphagidae	0603	*Anthochaera phrygia*
Animalia	Aves	Meliphagidae	0448	*Epthianura albifrons*
Animalia	Aves	Meliphagidae	0598	*Grantiella picta*
Animalia	Aves	Petroicidae	0382	*Petroica phoenicea*
Animalia	Aves	Petroicidae	0383	*Petroica rodinogaster*
Animalia	Mammalia	Phascolarctidae	1162	*Phascolarctos cinereus*
Animalia	Mammalia	Petauridae	1137	*Petaurus norfolcensis*
Animalia	Mammalia	Pseudocheiridae	1133	*Petauroides volans*
Animalia	Mammalia	Pteropodidae	1280	*Pteropus poliocephalus*
Animalia	Mammalia	Miniopteridae	3330	*Miniopterus orianae oceanensis*
Animalia	Mammalia	Dugongidae	1558	*Dugong dugon*
Animalia	Mammalia	Otariidae	1882	*Arctocephalus pusillus doriferus*
Animalia	Mammalia	Balaenopteridae	1575	*Megaptera novaeangliae*
Animalia	Mammalia	Physeteridae	1578	*Physeter macrocephalus*
Plantae	Flora	Apocynaceae	1226	*Cynanchum elegans*
Plantae	Flora	Fabaceae (Caesalpinioideae)	8772	*Senna acclinis*
Plantae	Flora	Fabaceae (Faboideae)	2974	*Pultenaea aristata*
Plantae	Flora	Myrtaceae	11397	*Gossia acmenoides*
Plantae	Flora	Myrtaceae	4283	*Rhodamnia rubescens*
Plantae	Flora	Myrtaceae	4293	*Syzygium paniculatum*
Plantae	Flora	Rutaceae	5839	*Zieria granulata*

e only indicative and cannot be considered a comprehensive
Policy may have their locations denatured (^ rounded to 0.1°C;
d Environment. Search criteria : Public Report of all Valid
d or ROKAMBA listed Entities in selected area [North: -34.41

Common Name	NSW status	Comm. status	Records	Info
Green and Golden Bell Frog	E1,P	V	470	
Green Turtle	V,P	V	3	
Hawksbill Turtle	P	V	1	
Freckled Duck	V,P		1	
White-tailed Tropicbird	P	C,J	3	
Wompoo Fruit-Dove	V,P		1	
Rose-crowned Fruit-Dove	V,P		2	
Superb Fruit-Dove	V,P		2	
Fork-tailed Swift	P	C,J,K	1	
White-throated Needletail	P	V,C,J,K	2	
Wandering Albatross	E1,P	E	101	
Gibson's Albatross	V,P	V	1	
Campbell Albatross	P	V	1	
Black-browed Albatross	V,P	V	5	
Flesh-footed Shearwater	V,P	J,K	2	
Sooty Shearwater	P	J	3	
Wedge-tailed Shearwater	P	J	7787	
Short-tailed Shearwater	P	C,J,K	389	
Streaked Shearwater	P	C,J,K	2	
Southern Giant Petrel	E1,P	E	4	
Northern Giant-Petrel	V,P	V	2	
Gould's Petrel	V,P	E	1	
Little Shearwater	V,P		2	
Lesser Frigatebird	P	C,J,K	1	
Black-necked Stork	E1,P		3	
Australasian Bittern	E1,P	E	1	
Black Bittern	V,P		3	
White-bellied Sea-Eagle	V,P		13	
Square-tailed Kite	V,P,3		2	
Sooty Oystercatcher	V,P		38	
Pied Oystercatcher	E1,P		2	
Grey Plover	P	C,J,K	2	
Eastern Hooded Dotterel	E4A	V	3	
Sharp-tailed Sandpiper	P	C,J,K	1	
Red Knot	P	E,C,J,K	1	
Latham's Snipe	P	J,K	1	
Broad-billed Sandpiper	V,P	C,J,K	2	

Bar-tailed Godwit	P	C,J,K	2	
Black-tailed Godwit	V,P	C,J,K	1	
Eastern Curlew	P	CE,C,J,K	2	
Grey-tailed Tattler	P	C,J,K	1	
Wandering Tattler	P	J	1	
Common Greenshank	P	C,J,K	1	
Arctic Jaeger	P	C,J,K	3	
White Tern	V,P		1	
Caspian Tern	P	J	3	
Sooty Tern	V,P		2	
Little Tern	E1,P	C,J,K	138	
Crested Tern	P	J	4814	
Gang-gang Cockatoo	V,P,3		8	
Little Lorikeet	V,P		2	
Swift Parrot	E1,P,3	CE	15	
Superb Parrot	V,P,3	V	1	
Powerful Owl	V,P,3		4	
Masked Owl	V,P,3		1	
Regent Honeyeater	E4A,P	CE	1	
White-fronted Chat	V,P		1	
Painted Honeyeater	V,P	V	1	
Flame Robin	V,P		1	
Pink Robin	V,P		1	
Koala	V,P	V	2	
Squirrel Glider	V,P		1	
Greater Glider	P	V	1	
Grey-headed Flying-fox	V,P	V	264	
Large Bent-winged Bat	V,P		2	
Dugong	E1,P		1	
Australian Fur-seal	V,P		4	
Humpback Whale	V,P	V	2	
Sperm Whale	V,P		2	
White-flowered Wax Plant	E1	E	32	
Rainforest Cassia	E1		1	
Prickly Bush-pea	V	V	1	
Gossia acmenoides population in the Sydney Basin Bioregion south of the Georges River	E2		9	
Scrub Turpentine	E4A	CE	7	
Magenta Lilly Pilly	E1	V	1	
Illawarra Zieria	E1	E	1	

Australian Government
Department of Agriculture, Water and the Environment

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: 14-Feb-2022

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

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:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	1
Listed Threatened Ecological Communities:	8
Listed Threatened Species:	104
Listed Migratory Species:	77

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

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 http://www.environment.gov.au/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:	42
Commonwealth Heritage Places:	None
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:	3
Regional Forest Agreements:	None
Nationally Important Wetlands:	3
EPBC Act Referrals:	27
Key Ecological Features (Marine):	None
Biologically Important Areas:	9
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Commonwealth Marine Area [Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name	Buffer Status
EEZ and Territorial Sea	In buffer area only

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 likely to occur within area	In feature area
Coastal Upland Swamps in the Sydney Basin Bioregion	Endangered	Community likely to occur within area	In buffer area only
Illawarra and south coast lowland forest and woodland ecological community	Critically Endangered	Community likely to occur within area	In feature area
Illawarra-Shoalhaven Subtropical Rainforest of the Sydney Basin Bioregion	Critically Endangered	Community likely to occur within area	In feature area
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In feature area
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion	Endangered	Community likely to occur within area	In buffer area only

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	Species or species habitat known 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 buffer area only
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 buffer area only
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	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 antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
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	Foraging, feeding or related behaviour likely to 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
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	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysogaster Orange-bellied Parrot [747]	Critically Endangered	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
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
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known 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

Scientific Name	Threatened Category	Presence Text	Buffer Status
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 likely to 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	Species or species habitat may 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 likely 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 likely to occur within area	In feature area
Maccullochella peelii Murray Cod [66633]	Vulnerable	Translocated population known to occur within area	In buffer area only
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
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			
Heleioporus australiacus			
Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat known to occur within area	In feature area
Litoria aurea			
Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area	In feature area
Litoria littlejohni			
Littlejohn's Tree Frog, Heath Frog [64733]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Mixophyes balbus			
Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Chalinolobus dwyeri](#)			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known 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
[Megaptera novaeangliae](#)			
Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Petauroides volans](#)			
Greater Glider [254]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Petrogale penicillata](#)			
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
[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 known to occur within area	In feature area
[Potorous tridactylus tridactylus](#)			
Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	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	Roosting known to occur within area	In feature area
PLANT			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Acacia bynoeana Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat may occur within area	In feature area
Allocasuarina glareicola [21932]	Endangered	Species or species habitat may occur within area	In buffer area only
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to 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
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat known to occur within area	In feature area
Daphnandra johnsonii Illawarra Socketwood [67186]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Genoplesium baueri Yellow Gnat-orchid, Bauer's Midge Orchid, Brittle Midge Orchid [7528]	Endangered	Species or species habitat likely to occur within area	In feature area
Grevillea raybrownii [65665]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Haloragis exalata subsp. exalata Wingless Raspwort, Square Raspwort [24636]	Vulnerable	Species or species habitat known to occur within area	In feature area
Leucopogon exolasius Woronora Beard-heath [14251]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Melaleuca biconvexa Biconvex Paperbark [5583]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Melaleuca deanei Deane's Melaleuca [5818]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Persoonia acerosa Needle Geebung [7232]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Persoonia hirsuta Hairy Geebung, Hairy Persoonia [19006]	Endangered	Species or species habitat known to occur within area	In feature area
Persoonia nutans Nodding Geebung [18119]	Endangered	Species or species habitat known to occur within area	In buffer area only
Pimelea spicata Spiked Rice-flower [20834]	Endangered	Species or species habitat known to occur within area	In feature area
Pomaderris brunnea Rufous Pomaderris, Brown Pomaderris [16845]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Prasophyllum affine Jervis Bay Leek Orchid, Culburra Leek-orchid, Kinghorn Point Leek-orchid [2210]	Endangered	Species or species habitat likely to occur within area	In feature area
Pterostylis gibbosa Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562]	Endangered	Species or species habitat known to occur within area	In feature area
Pterostylis saxicola Sydney Plains Greenhood [64537]	Endangered	Species or species habitat may occur within area	In buffer area only
Pultenaea aristata [18062]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
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 known 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
Thelymitra kangaloonica Kangaloon Sun Orchid [81861]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Zieria granulata Hill Zieria, Hilly Zieria, Illawarra Zieria [17147]	Endangered	Species or species habitat likely to occur within area	In buffer area only
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
Hoplocephalus bungaroides Broad-headed Snake [1182]	Vulnerable	Species or species habitat 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 may 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
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[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
[Ardenna pacifica](#) Wedge-tailed Shearwater [84292]		Breeding known to occur within area	In buffer area only
[Ardenna tenuirostris](#) Short-tailed Shearwater [82652]		Breeding known to occur within area	In buffer area only
[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	Foraging, feeding or related behaviour likely to occur within area	In feature area
[Fregata ariel](#) Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
[Fregata minor](#) Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area	In buffer area only

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	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 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 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 likely to 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	Species or species habitat may 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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely 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
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
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]	Vulnerable	Species or species habitat known to 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
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

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
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may 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 known to 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 buffer area only
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 buffer area only
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area	In buffer area only
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area	In buffer area only
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area	In buffer area only
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 buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In buffer area only
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 buffer area only
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 buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In buffer area only
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 buffer area only
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In buffer area only

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
Australian Academy of Science		
Commonwealth Land - Australian Academy of Science [12031]	NSW	In buffer area only
Commonwealth Trading Bank of Australia		
Commonwealth Land - Commonwealth Trading Bank of Australia [12222]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [12224]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Commission [12205]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [12225]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Postal Commission [16431]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [12207]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [12226]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [12227]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [12228]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12221]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12223]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12036]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [12215]	NSW	In feature area
Commonwealth Land - Telstra Corporation Limited [12204]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [12039]	NSW	In buffer area only
Defence		
Commonwealth Land - Defence Service Homes Corporation [12217]	NSW	In buffer area only
Defence - AIRTC WOLLONGONG [10001]	NSW	In buffer area only
Defence - AIRTC WOLLONGONG [10002]	NSW	In buffer area only
Defence - Graovac House [10147]	NSW	In buffer area only
Defence - HYDROGRAPHIC OFFICE [10234]	NSW	In buffer area only
Defence - LAKE ILLAWARRA CADET FACILITY [10241]	NSW	In buffer area only
Defence - THROSBY TRG DEPOT-PORT KEMBLA [10056]	NSW	In buffer area only
Defence - TS ALBATROSS-WOLLONGONG [10148]	NSW	In buffer area only
Defence - WOLLONGONG MULTI-USER DEPOT [11209]	NSW	In buffer area only
Defence - Defence Housing Authority		
Commonwealth Land - Defence Housing Authority [12209]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12208]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12211]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [12214]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12212]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12216]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12213]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [12210]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [12206]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [12032]	NSW	In buffer area only
Unknown		
Commonwealth Land - [12231]	NSW	In buffer area only
Commonwealth Land - [12232]	NSW	In buffer area only
Commonwealth Land - [12229]	NSW	In buffer area only
Commonwealth Land - [12220]	NSW	In buffer area only
Commonwealth Land - [12230]	NSW	In buffer area only
Commonwealth Land - [12218]	NSW	In buffer area only
Commonwealth Land - [12219]	NSW	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
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In feature area
Ardenna pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area	In buffer area only
Ardenna tenuirostris as Puffinus tenuirostris Short-tailed Shearwater [82652]		Breeding known to occur within area	In buffer area only
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area	In buffer area only
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 buffer area only
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 known 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 buffer area only

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 buffer area only
[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 buffer area only
[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 buffer area only
[Charadrius ruficapillus](#) Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In buffer area only
[Chroicocephalus novaehollandiae as Larus novaehollandiae](#) Silver Gull [82326]		Breeding known to occur within area	In buffer area only
[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	Foraging, feeding or related behaviour likely to occur within area	In feature area
Eudyptula minor Little Penguin [1085]		Breeding known to occur within area	In buffer area only
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area	In buffer area only
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 buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In buffer area only
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 buffer area only
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
Larus dominicanus Kelp Gull [809]		Breeding known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Lathamus discolor](#) Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine 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 overfly marine area	In buffer area only
[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	Species or species habitat may 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 known to occur within area overfly marine area	In feature area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may 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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat likely to occur within area overfly marine 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 overfly marine area	In buffer area only
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In buffer area only
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
Pelagodroma marina White-faced Storm-Petrel [1016]		Breeding known to occur within area	In buffer area only
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 buffer area only
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Stercorarius skua as Catharacta skua Great Skua [823]		Species or species habitat may occur within area	In buffer area only
Sternula albifrons as Sterna albifrons Little Tern [82849]		Breeding known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to 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
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour likely to 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	Species or species habitat may 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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding known to occur within area	In buffer area only
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In buffer area only
Fish			
Acentronura tentaculata Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In feature area
Cosmocampus howensis Lord Howe Pipefish [66208]		Species or species habitat may occur within area	In buffer area only
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
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 breviceps Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area	In buffer area only
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely 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
Kimblaeus bassensis Trawl Pipefish, Bass Strait Pipefish [66247]		Species or species habitat may occur within area	In buffer area only
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
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

Scientific Name	Threatened Category	Presence Text	Buffer Status
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
Vanacampus phillipi Port Phillip Pipefish [66284]		Species or species habitat may occur within area	In buffer area only
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
Reptile			
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
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

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
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

Current Scientific Name	Status	Type of Presence	Buffer Status
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]	Vulnerable	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
Berkeley	Nature Reserve	NSW	In buffer area only
Five Islands	Nature Reserve	NSW	In buffer area only
Illawarra Escarpment	State Conservation Area	NSW	In buffer area only

Protected Area Name	Reserve Type	State	Buffer Status

Nationally Important Wetlands [Resource Information]

Wetland Name	State	Buffer Status
Coomaditchy Lagoon	NSW	In buffer area only
Five Islands Nature Reserve	NSW	In buffer area only
Lake Illawarra	NSW	In buffer area only

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Albion Park Rail Bypass, NSW	2017/7909	Controlled Action	Post-Approval	In buffer area only
Consolidation of Existing Operations, Continuation of Underground Mining and Upgrade of Facilities at NRE No.1 Colliery	2009/5142	Controlled Action	Completed	In buffer area only
Dendrobium Mine Extension Project	2021/9115	Controlled Action	Assessment Approach	In buffer area only
Expansion of the NRE No. 1 Colliery Coal Mine in the Southern Coalfield of NSW	2013/6838	Controlled Action	Completed	In buffer area only
Extension of subsurface longwall mining, Wonga West and Wonga East	2010/5786	Controlled Action	Completed	In buffer area only
Pilot Offshore Artificial Reefs	2008/4176	Controlled Action	Post-Approval	In buffer area only
Russell Vale Colliery Longwall 6 Mining, Wollongong NSW	2014/7259	Controlled Action	Post-Approval	In buffer area only
Russell Vale Colliery Revised Underground Expansion Project	2020/8702	Controlled Action	Post-Approval	In buffer area only
Russell Vale Colliery Underground Expansion Project, NSW	2014/7268	Controlled Action	Completed	In buffer area only
Upgrade of surface facilities at NRE No.1 Colliery	2011/5891	Controlled Action	Post-Approval	In buffer area only
Vehicle storage facility, Lot 1 Reddalls Rd, Kembla Grange NSW	2018/8192	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Duke Cogeneration Plant Port Kembla	2001/179	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

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Increase of Road Access to 24 Hours a Day 7 Days a Week	2008/4206	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Lake Illawarra entrance works, Stage 2	2004/1696	Not Controlled Action	Completed	In feature area
Lot 2 Foreshore Drive, in-filling pit, Port Kembla, NSW	2018/8374	Not Controlled Action	Completed	In feature area
Optus mobiles telecommunications base station facility, BlueScope Steel, Lot 1 Five Islands Rd, Port Kembla	2013/7014	Not Controlled Action	Completed	In feature area
Tallawarra Lands: Urban Development	2011/6002	Not Controlled Action	Completed	In buffer area only
Whytes Gully New Landfill Cell Project, Kembla Grange, NSW	2013/6712	Not Controlled Action	Completed	In buffer area only
Wongawilli Colliery	2010/5404	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Lake Illawarra Entrance Works (stage 2)	2005/1997	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Transport of intermediate level radioactive waste to Lucas Heights, NSW	2015/7437	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Transport of OPAL Spent Fuel to France in 2018 and 2025	2016/7841	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
Stage 2 Masonry Plant, Port Kembla, NSW	2014/7247	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
Seabirds			
Ardenna carneipes Flesh-footed Shearwater [82404]	Foraging	Known to occur	In buffer area only
Diomedea exulans antipodensis Antipodean Albatross [82269]	Foraging	Known to occur	In buffer area only
Eudyptula minor Little Penguin [1085]	Breeding	Likely to occur	In feature area
Eudyptula minor Little Penguin [1085]	Breeding	Known to occur	In buffer area only
Procellaria parkinsoni Black Petrel [1048]	Foraging	Likely to occur	In buffer area only
Sharks			
Carcharias taurus Grey Nurse Shark [64469]	Foraging	Known to occur	In feature area
Carcharodon carcharias White Shark [64470]	Distribution	Known to occur	In buffer area only
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 I

Greenhouse Gas Report

Appendix J

AHIMS search results

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : BlueScope

Client Service ID : 616068

GHD - Newcastle

24 Honeysuckle Drive
Newcastle New South Wales 2300

Attention: Poppy Kiem

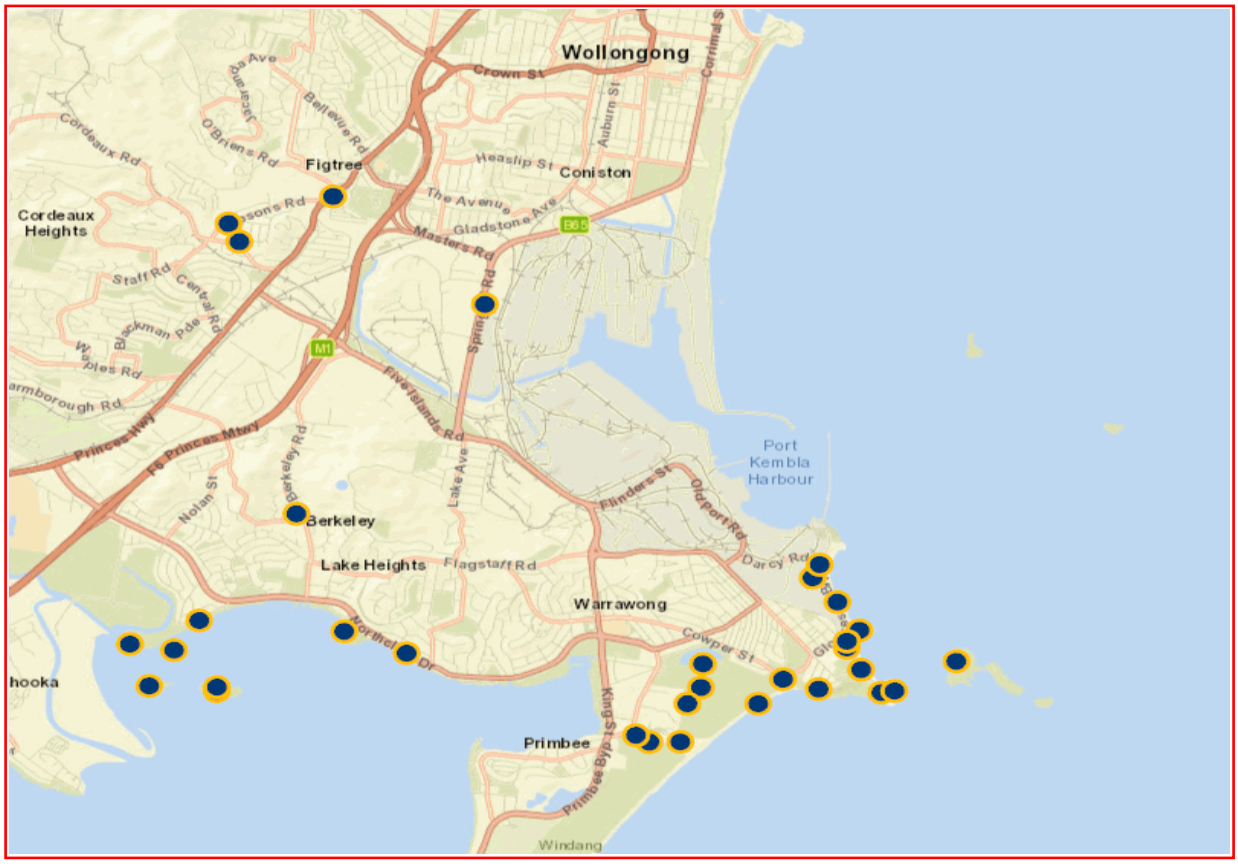
Email: poppy.kiem@ghd.com

Date: 24 August 2021

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -34.5, 150.83 - Lat, Long To : -34.43, 150.95, conducted by Poppy Kiem on 24 August 2021.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

33	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : BlueScope

Client Service ID : 616068

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
52-5-0187	Primbee 3;	AGD	56	306340	6180410	Open site	Valid	Shell : -, Artefact : -	Midden	647,102212
	Contact	**Recorders**	Mrs.Caryll Sefton					**Permits**		
52-5-0188	Primbee 1;	AGD	56	306800	6180340	Open site	Valid	Artefact : -	Open Camp Site	102212
	Contact	**Recorders**	ASRSYS					**Permits**		
52-5-0189	Primbee 2;	AGD	56	306480	6180330	Open site	Valid	Artefact : -	Open Camp Site	102212
	Contact	**Recorders**	ASRSYS					**Permits**		
52-2-1285	Wollami Point;	AGD	56	303300	6181600	Open site	Valid	Shell : -, Artefact : -	Midden	1330,102212
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-2-1286	Elephant site;	AGD	56	303950	6181350	Open site	Valid	Shell : -, Artefact : -	Midden	1330,102212
	Contact	**Recorders**	Kerry Navin,S Hamm					**Permits**		
52-2-1287	Hooka Pt. 2;	AGD	56	301090	6181400	Open site	Valid	Shell : -, Artefact : -	Midden	1330,102212
	Contact	**Recorders**	Kerry Navin					**Permits**		
52-2-1288	Hooka Pt. 3;	AGD	56	301800	6181700	Open site	Valid	Shell : -, Artefact : -	Midden	1330,102212
	Contact	**Recorders**	Kerry Navin					**Permits**	1876	
52-2-1289	North Beach 2	GDA	56	308600	6181700	Open site	Valid	Shell : -, Artefact : -	Midden	1330,102212
	Contact	**Recorders**	Kerry Navin,Niche Environment and Heritage,Miss.Layne Holloway					**Permits**	4544	
52-2-1290	North Beach 1;	GDA	56	308300	6182700	Open site	Partially Destroyed	Shell : -, Artefact : -	Midden	1330,102212
	Contact	**Recorders**	Kerry Navin,Niche Environment and Heritage,Miss.Layne Holloway					**Permits**	602,1471,4544	
52-2-0534	Big Island	AGD	56	309630	6181370	Open site	Valid	Artefact : -	Open Camp Site	
	Contact	**Recorders**	Illawarra Prehistory Group					**Permits**		
52-2-0033	Berkeley;Hooker Point;	AGD	56	301548	6181337	Open site	Valid	Shell : -, Artefact : -	Midden	729,102212
	Contact	**Recorders**	University of Sydney					**Permits**	1876	
52-2-1728	Red point;	AGD	56	309000	6181000	Open site	Valid	Shell : -, Artefact : -	Midden	102212
	Contact	**Recorders**	Mr.Neville Baker					**Permits**		
52-2-0059	Primbee;Coomaditchy Lagoon	AGD	56	306863	6180802	Closed site	Valid	Artefact : -, Shell : -	Midden,Shelter with Deposit	102212
	Contact	**Recorders**	O.B Pryor					**Permits**		
52-2-0072	Red Point; 1	GDA	56	308319	6181196	Open site	Valid	Burial : -, Shell : -, Artefact : -	Midden	102212
	Contact	**Recorders**	Dal Birrell,Bill Sullivan,Niche Environment and Heritage,Miss.Layne Holloway					**Permits**		
52-2-0476	Red Point	GDA	56	308600	6181780	Open site	Not a Site	Shell : -, Artefact : -	Midden,Open Camp Site	102212
	Contact	**Recorders**	James Farrell,Niche Environment and Heritage,Miss.Layne Holloway					**Permits**	4544	
52-2-2203	Gloucestor Ave	GDA	56	308230	6182540	Open site	Valid	Artefact : -		102212
	Contact	**Recorders**	Navin Officer Heritage Consultants Pty Ltd,Niche Environment and Heritage,Niche					**Permits**	1371,4544	
52-2-2261	Gooseberry Island 1	AGD	56	302000	6180850	Open site	Valid	Shell : -, Artefact : -		102212
	Contact	**Recorders**	Cheryl Stanborough					**Permits**		

Report generated by AHIMS Web Service on 24/08/2021 for Poppy Kiem for the following area at Lat, Long From : -34.5, 150.83 - Lat, Long To : -34.43, 150.95. Number of Aboriginal sites and Aboriginal objects found is 33

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : BlueScope

Client Service ID : 616068

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
52-2-3024	BR1 Berkeley	AGD	56	302776	6183010	Open site	Valid	Artefact : 1		102212
	Contact	**Recorders**	Unknown Author					**Permits**	1938	
52-2-3208	Hill 60/ Red Point	AGD	56	309000	6181000	Open site	Valid	Aboriginal Resource and Gathering : -		102212
	Contact T Russell	**Recorders**	Ms.Sue Wesson					**Permits**		
52-2-3209	Goosberry Island	AGD	56	302000	6180900	Open site	Valid	Aboriginal Ceremony and Dreaming : -		102212
	Contact T Russell	**Recorders**	Ms.Sue Wesson					**Permits**		
52-2-3201	Hooka Island	AGD	56	301300	6180900	Open site	Valid	Aboriginal Ceremony and Dreaming : -		102212
	Contact T Russell	**Recorders**	Ms.Sue Wesson					**Permits**		
52-2-3202	Five Islands	AGD	56	308650	6181250	Open site	Valid	Aboriginal Ceremony and Dreaming : -, Aboriginal Resource and Gathering : -		102212
	Contact	**Recorders**	Ms.Sue Wesson					**Permits**	4544	
52-2-3197	Mt Kembla	AGD	56	302000	6186500	Open site	Valid	Aboriginal Ceremony and Dreaming : 1, Aboriginal Resource and Gathering : 1		102212
	Contact T Russell	**Recorders**	Ms.Sue Wesson					**Permits**		
52-2-3199	Fig Tree Site	AGD	56	303075	6186850	Open site	Valid	Aboriginal Ceremony and Dreaming : -, Aboriginal Resource and Gathering : -		102212
	Contact T Russell	**Recorders**	Ms.Sue Wesson					**Permits**		
52-2-3200	Coomaditchie/Official Camps	AGD	56	307000	6181000	Open site	Valid	Aboriginal Ceremony and Dreaming : -, Habitation Structure : -		102212
	Contact	**Recorders**	Ms.Sue Wesson					**Permits**		
52-2-3618	BSS-OS-1	AGD	56	304670	6185580	Open site	Valid	Artefact : -		102212
	Contact	**Recorders**	Mills Archaeological & Heritage Services Pty Ltd					**Permits**		
52-5-0081	Red Point Parkyn's Beach	AGD	56	307595	6180816	Open site	Valid	Shell : -, Artefact : -	Midden	877,2048,10222 12
	Contact	**Recorders**	K Jeffcoat					**Permits**		
52-2-3675	Figtree TRE; Amaroo Avenue	GDA	56	302222	6186473	Open site	Valid	Modified Tree (Carved or Scarred) : -		102212
	Contact	**Recorders**	Mr.Mark Simon					**Permits**		
52-2-4238	Red Point 2	GDA	56	308969	6181168	Open site	Valid	Shell : -		

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : BlueScope

Client Service ID : 616068

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status **	SiteFeatures	SiteTypes	Reports
	Contact	**Recorders**	Matthew Kelleher					**Permits**	3917	
52-2-4245	Restriction applied. Please contact ahims@environment.nsw.gov.au.					Open site	Valid			
	Contact	**Recorders**	Mr.Roy Barker					**Permits**		
52-2-4344	Restriction applied. Please contact ahims@environment.nsw.gov.au.					Open site	Valid			
	Contact	**Recorders**	Mr.Paul House					**Permits**	4544	
52-2-4502	Gloucester Boulevarde Midden 01	GDA	56	308493	6182251	Open site	Valid	Artefact : -, Shell : -		
	Contact	**Recorders**	Niche Environment and Heritage,Miss.Layne Holloway					**Permits**	4544	
52-2-4673	PORT KEMBLA MIDDEN	GDA	56	307950	6181308	Open site	Valid	Shell : 1		
	Contact	**Recorders**	Miss.Rose O'Sullivan,Mr.SINSW Heritage					**Permits**		

**** Site Status**

Valid - The site has been recorded and accepted onto the system as valid

Destroyed - The site has been completely impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There is nothing left of the site on the ground but proponents should proceed with caution.

Partially Destroyed - The site has been only partially impacted or harmed usually as consequence of permit activity but sometimes also after natural events. There might be parts or sections of the original site still present on the ground

Not a site - The site has been originally entered and accepted onto AHIMS as a valid site but after further investigations it was decided it is NOT an aboriginal site. Impact of this type of site does not require permit but Heritage NSW should be notified

Report generated by AHIMS Web Service on 24/08/2021 for Poppy Kiem for the following area at Lat, Long From : -34.5, 150.83 - Lat, Long To : -34.43, 150.95. Number of Aboriginal sites and Aboriginal objects found is 33

Appendix K

Historic Heritage Database Searches

Search Results

7 results found.

Berkeley Nature Reserve Holborn St	Berkeley, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Five Islands Nature Reserve	Port Kembla, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Port Kembla, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Port Kembla Copper Refining and Smelting Area Military Rd	Port Kembla, NSW, Australia	(Nomination now ineligible for PPAL) National Heritage List
Port Kembla Telephone Exchange Old Building Five Islands Rd	Port Kembla, NSW, Australia	(Interim list) Register of the National Estate (Non-statutory archive)
Port Kembla Telephone Exchange Old Building Five Islands Rd	Port Kembla, NSW, Australia	(Ineligible place) Commonwealth Heritage List
Red Point Geological Site Military Rd	Port Kembla, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Report Produced: Fri Feb 11 20:30:20 2022

Heritage Search Result

Date: 14/02/2022

Item Name	Location	LGA	SHR Id	Item Type	Record Owner
Battery Observation Post	25-29 Gallipoli Street PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Bomb Shelter*	59 Military Road PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Commonwealth Rolling Mills	Old Port Road PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Coomaditchie Lagoon and Surrounds	Cowper Street PORT KEMBLA NSW 2505	Wollongong City		Landscape	LGOV
ER & S Assay Office	Miltary Road PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Former Commonwealth Bank Building	31 - 33 Wentworth Street PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Former Port Kembla Fire Station	99 Military Road PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Garden	2 Electrolytic Street PORT KEMBLA NSW 2505	Wollongong City		Landscape	LGOV
Guinerys Port Kembla Hotel	54-58 Wentworth Street PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Hill 60 Fisherman's Beach, Boilers Point, Red Point and MM Beach*	Hill 60 Reserve PORT KEMBLA NSW 2505	Wollongong City		Landscape	LGOV
Hill 60/ Illowra Battery	Military Road PORT KEMBLA NSW 2505	Wollongong City	01492	Landscape	HNSW
Historical Military Museum including Breakwater battery and concrete tank barriers	Gloucester Boulevard PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
House & Shop	123 Military Road PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Mobile Block Setting Steam Crane	Eastern Breakwater Outer Harbour PORT KEMBLA NSW 2505	Wollongong City		Archaeological-Terrestrial	LGOV

Mural	10-14 Wentworth Street PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Port Kembla Olympic Pool	Olympic Boulevarde PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Remains of Original Ocean Baths	Gloucester Boulevard PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Saint Kliment Ohridski Macedonian Orthodox Church	60-62 Keira Street PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Site of Port Kembla Primary School*	Military Road PORT KEMBLA NSW 2505	Wollongong City		Archaeological-Terrestrial	LGOV
St Stephen's Anglican Church of Australia	111 Military Road PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV
Steel Works Hotel	21-25 Wentworth Street PORT KEMBLA NSW 2505	Wollongong City		Built	LGOV

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