BlueScope Port Kembla Advanced Steel Manufacturing Precinct (ASMAP)

Environmental Impact Statement

13 November 2023

Project No.: 0650342

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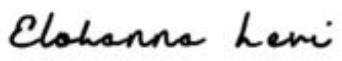

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REAP DECLARATION

Project details	
Project name	Advanced Steel Manufacturing Precinct (ASMAP) Project
Application number	SSD-50268731
Address of the land	Lot 1 DP 606434, Five Islands Rd, Port Kembla NSW 2505
Applicant details	
Applicant name	BlueScope Steel (AIS) Pty Ltd
Applicant address	Level 24, 181 William Street, Melbourne VIC 3000

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Declaration by Registered Environmental Assessment Practitioner	
Name	Michael File
Registration number	8596
Organisation registered with	Planning Institute of Australia
Declaration	The undersigned declares that this EIS: ■ Has been prepared in accordance with 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	
Date	13 November 2023

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1. SUMMARY

1.1 Introduction

This Environmental Impact Statement (EIS) has been prepared for BlueScope Steel (AIS) Pty Ltd ('BlueScope' or 'Applicant') to assess environmental matters relating to the development of the Port Kembla Advanced Steel Manufacturing Precinct (ASMAP) (Project).

BlueScope is the largest Australian subsidiary of BlueScope Steel Limited (BSL), an Australian based company with operations in Australia, North America and the Asia-Pacific that specialises in the production of steel materials, products, systems and technologies. BSL is one of Australia's leading manufacturers of painted and coated steel products, with strong expertise in providing steel components for houses, buildings, automotive, and other structures. BSL currently employs over 6,700 employees at approximately 100 sites across Australia, being a mix of large manufacturing plants, roll-forming facilities and distribution centres. BlueScope's PKSW is the largest steel production facility in Australia with an annual production capacity of approximately 3 million tonnes of crude steel.

The Project is located within BlueScope's Port Kembla Steelworks (PKSW) in Port Kembla, New South Wales (NSW). It is situated approximately 3 kilometres (km) (direct-line) south of the Wollongong central business district (CBD) and 80 km (direct-line) south of Sydney CBD. The Project is entirely located within the Wollongong City Council (WCC) Local Government Area (LGA), in the Illawarra Region of NSW, on land that is predominantly used for industrial activities.

The Project Area extends across approximately 14.7 hectares (ha), within Lot 1 of DP 606434, which is owned by BlueScope. The Project Area currently contains plate mill furnaces, plate processing cutters and cranes within existing buildings, as well as car parks, access roads and other ancillary infrastructure.

The Project is declared State Significant Development (SSD) under Part 2.2, Clause 2.6 and Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) and therefore requires development consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Environmental Resources Management Australia Pty Ltd (ERM) has prepared this EIS on behalf of the Applicant to support the SSD Application for the Project.

1.2 Project Summary

The Project will involve the removal of two existing furnaces at the Plate Mill, the construction and installation of a new walking beam furnace and upgrades and installation of associated equipment at the Plate Mill.

The Project has been revised and refined over time in response to design and constructability requirements, and in consideration of environmental constraints and the outcomes of ongoing community and stakeholder consultation.

The key elements of the Project are as follows:

- Installation of a new walking beam furnace for the Plate Mill;
- Installation of a new plate mill processing equipment and infrastructure, including cutters, turnover table, transfer system, cranes and a rail extension (referred to as Fourth Route Processing);
- Upgrades to the existing electrical infrastructure, including a 11 kilovolt (kV) sub-system, switch rooms, distribution boards and transformers;
- Installation of a new refractory lined structure in the slab yard Building, adjacent to the proposed furnace entry;

- Construction of associated infrastructure, including hardstands, construction compounds and laydown areas; and
- Modification of existing structures to enable the integration of new equipment.

The existing Plate Mill has produced up to 430,000 tonnes of plates per year. The Project will increase the throughput to up to 600,000 tonnes of plate per year.

1.3 Stakeholder Engagement

Extensive consultation was undertaken to inform the design such that environmental and social impacts were minimised and benefits to stakeholders were maximised. The Applicant is committed to effective and genuine engagement with key stakeholders to seek feedback and to help inform the Project. This engagement will continue through subsequent phases of the Project. The range of stakeholders that have been and will continue to be engaged includes various local and NSW Government agencies, adjacent and nearby neighbours, broader community and BlueScope employees.

Engagement with stakeholders commenced in 2021 prior to the preparation of the Scoping Report and following the feasibility stages of the Project. The early consultation provided an opportunity to understand key stakeholder attitudes and feedback relating to environmental and social aspects required to be addressed as part of the EIS. As part of the preparation of the Scoping Report, a Stakeholder Engagement Strategy (SES) was prepared to guide consultation and engagement throughout the development of the EIS, and through subsequent phases of development of the Project.

The SES listed the objectives of the engagement and outlined an approach to achieving these. Engagement activities and stakeholder and community responses were recorded in a stakeholder register. Several tools were used to engage with and seek feedback from stakeholders including, emails, phone calls, face-to-face meetings, briefings, factsheets, fieldwork, community open days, website and dedicated Project's email address and 1800 phone number.

The EIS includes a summary of the stakeholder engagement (**Appendix D**). Overall feedback from stakeholders has generally been positive. Some concerns were raised with regard to traffic and transport access to a new Wind Tower Manufacturing Facility. This element of the Project has subsequently been removed. Other feedback has been taken into account by the Applicant in the technical assessments.

The Applicant will continue to work with the community and key stakeholders to address any issues or concerns raised about the Project. Ongoing engagement with stakeholders will be undertaken during the EIS exhibition and assessment phase.

1.4 Impact Assessment

This EIS includes a detailed assessment of the potential environmental, social and economic outcomes of the Project and proposes, where required, mitigation measures to manage adverse environmental, social and economic impacts. Each assessment has been prepared for this EIS in consideration of relevant guidelines, Project's SEARs and stakeholder engagement.

A summary of the key findings for each is provided in **Table 1-1** .

Table 1-1 Project Assessment Summary

Components	Impacts Summary	EIS Section
Air Quality and Odour	An Air Quality and Greenhouse Gas Assessment was conducted for the Project. The key source of air emissions is the new walking beam furnace, which replaces two existing pusher type furnaces. The new furnace will increase processing capacity, reduce fuel consumption and improve emissions relative to tonnes of plate steel. The key identified pollutants, NO_2 and SO_2, generated from use of coke ovens gas in the new furnace burners, were subject to dispersion modelling, for both the Base Case (existing operations at current rate of production of 430,000 t/pa) and Project Case (proposed operations assuming continuous furnace operation at 170 t/hr, which is materially higher than the estimated 68t/hr required to produce the proposed 600,000 t/pa). The air quality assessment includes prediction of air pollutant concentrations at sensitive receivers near the site and compares these against the regulatory impact assessment criteria. The predicted NO_2 concentrations are broadly indicative of a reduced impact, particularly taking into account the conservative assumptions underlying the Project Case. For both the Base Case and the Project Case, the 100th percentile 1-hour SO2 predictions slightly exceed the assessment criteria at locations to the south-east of PKSW, as well as on elevated terrain to the north-west. Predicted exceedances at the 99.9th percentile statistic are limited to a small region around immediately south-west of PKSW. Given the highly variable nature of 100th percentile 1-hour average model predictions, this change is considered small.	Section 7.2 and Appendix H
Noise and Vibration	A Noise and Vibration Impact Assessment (NVIA) was conducted for the Project. The closest residential receivers are located to the north of the Project Area. Construction and operational noise and vibration impacts were predicted at the receivers via modelling based on assumed noise sources and the architectural drawings. Compliance is predicted to be achieved at all the identified noise sensitive receivers against the Project Noise Trigger Levels derived in accordance with the 'NSW EPA Noise Policy for Industry' (NPI). Compliance is predicted with the NPI sleep disturbance criteria for residential receivers. Road traffic and rail movements associated with the Project are predicted to be insignificant and will not generate additional operational road traffic or rail noise impact at the NSRs. Construction vibration is not expected from the Project.	Section 7.3 and Appendix I
Preliminary Hazard Analysis	A risk screening of dangerous goods and hazardous materials under *State Environmental Planning Policy (Resilience and Hazards)* was carried out for the Project. A Preliminary Hazards Analysis (PHA) was undertaken in accordance with Hazardous Industry Planning Advisory Paper No. 6 based on two dangerous goods which exceeded the threshold quantities set out in the DPE guidelines, "Applying SEPP 33", namely, the Coke Oven Gas (COG) used as a fuel in the furnace and the natural gas used as a pilot light for starting the furnace and for plate cutting. The consequence analysis carried out demonstrated that worst case impacts did not extend beyond the PKSW site. The potential hazards from the development are considered acceptable having regard to the technical and management safeguards which will continue from BlueScope's current operations. Additional mitigation measures will be adopted to ensure the risk factors are minimised.	Section 7.4 and Appendix J

Components	Impacts Summary	EIS Section
Contamination	A preliminary site investigation (PSI) and detailed site investigation (DSI) were carried out for the Project. Contaminants of concern (CoC) in soil samples were below the adopted assessment screening levels and pose a negligible risk. Limited CoC was present in shallow groundwater. Potential Acid Sulfate Soil (PASS) were confirmed in the underlying clays across the Project Area. Dewatering during construction will require management of amalgamated groundwater from the shallow aquifer around the excavation. Although some samples reported exceedance of metal concentrations and ammonia, it is considered that the quality of water will meet the licenced discharge requirements into Allans Creek. Mitigation and management measures will be implemented by the Project including preparation of a Construction Environmental Management Plan (CEMP) and an Acid Sulfate Soils Management Plan (ASSMP).	Section 7.5 and Appendix K
Flooding	A Flood Impact Assessment (FIA) was prepared for the Project for 1 in 10 year, 1 in 100 year, 1 in 200 and 1 in 500 year flood events. The Project Area is affected by overland flow, given it forms part of the overland flowpath draining into Allans Creek and Tom Thumbs lagoon from the northwest and northeast. The Project Area is broadly situated in a low hazard, flood fringe areas, with flood affectation mostly from low depth, low hazard flood fringe floodwaters for events up to and including the 1 in 10 year event. No material changes are proposed to the external building footprints or ground levels as part of the development. The proposed works will not change the existing flood behaviour and/ or existing emergency management arrangements. The Project Area flood affectation is expected to worsen due the effects of climate change; however, these conditions will be localised in the southwestern corner of the Project Area and hazards are not expected to impact upon buildings. Eastern portions of the Project Area will remain flood free. Opportunities to 'shelter-in-place' on flood-free areas on site are available and is an appropriate emergency management response.	Section 7.6 and Appendix L
Costal Hazards	A Coastal Hazard Assessment (CHA) was undertaken for the Project to investigate inundation caused by extreme coastal water levels interacting with catchment floodwaters. The CHA concluded that the potential effects of coastal processes and hazards on or from the Project are negligible. No mitigation or management measures are necessary for the Project.	Section 7.7 and Appendix M
Soil and Water	A Water Quality Impact Assessment (WQIA) and Conceptual Soil and Water Management Plan (SWMP) were prepared to assess the impact of the Project to identified surface water receivers. The Project will eliminate salt water use through the introduction of a closed loop cooling system and water recirculation system. This will reduce the overall volume of water discharged to the Plate Mill licensed drainage point under Environmental Protection Licence (EPL) 6092 so that post project implementation, the Plate Mill drain will have 3 water sources:, stormwater, oil separator treated water and the discharge of general service water when this water cannot be transferred to the Hot Strip Mill. The Project will use the existing PKSW water supply for construction, operation and decommissioning. There will be a material increase in the use of Industrial Fresh Water as a result of the Project. The Project, during detailed design, will investigate options to reduce this to as low as feasibly possible.	Section 7.8 and Appendix N

Components	Impacts Summary	EIS Section
Traffic and Transport	A Traffic Impact Assessment (TIA) was prepared for the Project including SIDRA analysis. During construction the Project is expected to generate up to 144 vehicle movements per day, including up to 38 additional heavy vehicle movements. During operation, the Project generates up to 36 light vehicle movements per day and 22 heavy vehicle movements per day. The surrounding road network is able to accommodate the traffic generated by the Project during construction and operation. The cumulative traffic impacts of the Project and nearby developments is expected to be minimal. Heavy vehicles and oversize and over mass (OSOM) vehicles, will be required during construction. Swept path analysis confirms that access for these vehicles can be accommodated on the surrounding arterial road network. The Project would create up to 18 additional jobs. The existing car parking areas have capacity to fully accommodate the expected staff parking demands generated during construction and operation. There is capacity in the existing industrial rail infrastructure in Port Kembla to accommodate the anticipated impact of the increased throughput as a result of the Project.	Section 7.9 and Appendix O
Visual	A Visual Impact Assessment has been prepared for the Project. The furnace stack will be partially visible from outside the PKSW site. All other elements of the Project are contained within the footprint of the existing buildings. All viewpoints were determined to have a negligible or low visual impact on the surrounding landscape	Section 7.10 and Appendix P
Aboriginal Cultural Heritage	An Aboriginal Cultural Heritage Survey Report (ACHSR) was prepared for the Project. Desktop survey did not identify previously recorded Aboriginal objects or Aboriginal Places within the Project Area, with the nearest heritage site being an Artefact scatter 280 m to the west of the Project Area. Survey of the Project Area identified that the entirety of the Project Area is built landscape that has undergone decades of development and modification. Any objects or places of Aboriginal heritage significance have likely been destroyed or displaced. The Project Area has been assessed to demonstrate low potential to contain Aboriginal objects or archaeological deposits. The Project Area represents minimal to nil social/cultural, scientific, aesthetic or historic value. No further Aboriginal archaeological investigation is required across the Project Area, however, as a safeguard, implementation of an “Unexpected finds” protocol is recommended for the Project	Section 7.11 and Appendix Q
Waste	Waste generated from construction and operation of the Project will be managed via the existing waste management processes and in accordance with the waste hierarchy. Waste will be classified, managed and disposed of in accordance with the Waste Classification Guidelines (EPA, 2014) at appropriately licensed facilities. Any potential generation of waste from construction and operation works of the Project will be managed in accordance with the objectives of the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act), to ensure that the diversion of waste from landfill is maximised. Waste stored and processed within PKSW is managed in accordance with the existing EPL 6092. During operation of the Project, waste generation is expected to be similar to the existing operational activities. No change to this aspect of EPL 6092 is expected as a result of the Project.	Section 7.12
Biodiversity	The Project Area does not support any threatened species or ecological communities and no significant habitat features have	Section 7.13 and Appendix R

Components	Impacts Summary	EIS Section
	been identified. Based on the long history of vegetation clearance and disturbance, it is unlikely that the Project would result in any significant impacts on ecological values listed under the BC Act or the EPBC Act. For the reasons provided above it is considered that the Project will not result in any significant impact on biodiversity values of the Project Area. As such, a waiver to the provision of a BDAR was issued by the DPE on 16 December 2022. Therefore, a BDAR is not required to accompany any application for development consent or for the Project.	
Social	The construction and operation of the Project will result in a number of positive socioeconomic outcomes for the Wollongong LGA and the wider NSW economy. More broadly, the Project will enhance the supply of Australian made steel. The Project will generate up to 95 full time equivalent (FTE) new jobs during peak construction with an average of 60 FTE. The Project will generate an additional 18 FTE permanent jobs during operations. Stakeholder engagement revealed positive support for the Project.	Section 7.14 and Appendix S
ESD and Greenhouse Gas	The proposed furnace upgrade will result in a reduction in fuel demand of approximately 0.95 gigajoules per tonne of plate steel processed, equating to a reduction in furnace COG consumption of approximately 35%. On this basis, at current production rates, the implementation of the Project is estimated to result in a GHG reduction of approximately 14.3 kt CO2-e annum, which is a 39% reduction in emissions. At an increased throughput of 600,000 t/annum, emissions are estimated to increase by approximately 16% above the current operations, albeit with a 33% increase in throughput due to improved efficiency of the new furnace. BlueScope has also incorporated a range of energy efficiency and greenhouse gas reduction measures into the Project design, including recovery of waste heat from the furnace exhaust gases, use of variable speed drives on large motor drives and other design measures to maintain furnace efficiency over a range of operational throughputs. The burners selected for the furnace are also able to accept an increase in hydrogen composition if green hydrogen becomes available in reliable and economic supply quantities as part of a transition to low carbon steelmaking	Section 0 and Appendix H
Infrastructure Requirements	A new 11 kV distribution system dedicated to the Plate Mill will be installed. A new furnace switch room will house all the Low Voltage (LV) distribution boards, motor control centres and control panels required for operating the new furnace. A new containerised switch room will be installed in the Despatch Building to house transformer and LV distribution boards, and control panels required for operating the additional plate processing equipment. Six new 11 kV/ 415 V, 1 megavolt-ampere (MVA) transformers will be installed.	Section 4.2.3
Development Contributions	Wollongong City-Wide Development Contributions Plan 2022 is applicable to the Project. A Cost Estimate Report has been prepared in accordance with Section 208(3) of the EP&A Regulations and identifies the cost of carrying out the development works to be $47.6 million. In accordance with the Section 7.12 Plan, a 1% levy contributions payment to Council is required and is based on the cost of works. BlueScope will submit to the consent authority that the Project is an appropriate case for an exemption from the requirement to pay a development contribution given that it will not require, or contribute to any requirement for, any Council provided infrastructure.	Section 7.15

1.5 Justification and Evaluation

Iron and steelmaking operations commenced at Port Kembla in 1928. The Plate Mill was built in the early 1960s and has largely been in continuous use since that time. Much of the original plant is still in use today including the original reheat furnaces.

The aim of the Project is to improve the production capability and capacity of the Plate Mill to cater for increased demand for steel plate, particularly from the defence and renewable energy sectors. The Project includes the replacement of two existing furnaces with a newer and more energy efficient furnace, with upgrades to associated plate processing plant and equipment located at the Plate Mill.

The new furnace represents the use of best available technology to ensure the environmental impacts of the Project are minimised as far as reasonably practicable. The Project also incorporates a number of other measures to reduce environmental impacts from the operation of the Plate Mill. The Project represents the most comprehensive upgrade of the Plate Mill since it was originally constructed.

The outcomes from this Project will be to:

- Support the demand and supply of steel products within BlueScope's existing customer market;
- Increase capability to supply steel and support construction industry, defence and renewable sectors;
- Provide both direct and indirect employment opportunities, approximately 95 FTE construction jobs during peak construction periods and additional 18 FTE operational jobs;
- Generate economic stimulus of $650 million, delivering economic benefit to the local and Illawarra Shoalhaven region economy;
- Liaise and work with the community and all potentially affected stakeholders in the identification, mitigation and/or monitoring of any potential environmental impacts;
- Ensure quality, safety and environmental standards are maintained;
- Recycle and reuse materials where practical and economically feasible; and
- Minimise all potential adverse environmental impacts.

The Project is consistent with the principles of Ecologically Sustainable Development (ESD). The employment and economic opportunities created by the Project have been supported by stakeholders during engagement. The Project will incorporate a range of design and mitigation measures to ensure all relevant criteria, environmental objectives and community expectations are satisfied. The EIS has considered the cumulative impacts of the Project and the existing operations at PKSW. The EIS has demonstrated that the relevant impacts associated with the Project can be addressed through the implementation of appropriate management and mitigation measures.

2. INTRODUCTION

2.1 Introduction

BlueScope Steel (AIS) Pty Ltd (the 'Applicant', or 'BlueScope') proposes to construct and operate the Advanced Steel Manufacturing Precinct (ASMAP) (the 'Project'), located within BlueScope's Port Kembla Steelworks (PKSW) in Port Kembla, New South Wales (NSW). The PKSW covers an area of approximately 837 hectares (ha) (**Figure 2-1**).

The Project is situated approximately 3 kilometres (km) (direct-line) south of the Wollongong central business district (CBD) and 80 km (direct-line) south of Sydney CBD. The Project Area is entirely located within the Wollongong City Council (WCC) Local Government Area (LGA), in the Illawarra Region of NSW. The regional context is shown in **Figure 2-1**.

The existing Plate Mill was commissioned in 1963 and produces up to 430,000 tonnes of plates per year and operates 24 hours a day, seven days a week. The Project proposes to modernise and upgrade the Plate Mill and to increase the throughput to approximately 600,000 tonnes of plate steel per year.

The Applicant is seeking State Significant Development (SSD) consent under Part 4, Division 4.7 of the *Environmental Planning & Assessment Act 1979* (EP&A Act) for the Project. The Applicant has engaged Environmental Resources Management Australia Pty Ltd (ERM) to prepare an Environmental Impact Statement (EIS) for the Project, as part of the SSD consent process.

This EIS includes a detailed assessment of the key issues including an assessment of the potential impacts of all stages of the development and any cumulative impacts. These aspects address the:

- Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning and Environment (DPE) for the Project (SSD-50268731) as amended on 17 May 2023;
- Consultation with relevant government agencies; and
- Issues raised during the stakeholder and community engagement process.

Specific requirements and where each are addressed in this EIS are presented within **Appendix A**. The statutory planning controls are addressed in **Appendix B**. A summary of the management and mitigation measures from this EIS is provided in **Appendix C**.

2.2 The Applicant

BlueScope is a wholly owned subsidiary of BlueScope Steel Limited ('BSL') (ABN 16 000 011 058), an Australian based company with operations in Australia, North America and the Asia-Pacific that specialises in the production of steel materials, products, systems and technologies. BSL is a leading manufacturer of painted and coated steel products, with strong expertise in providing steel components for houses, buildings, automotive, and other structures.

In Australia, BSL currently employs 6,700 people at more than 50 facilities and 50 distribution centres. Its business in Australia specialises in flat steel products including slab, hot rolled coil, cold rolled coil, plate, and value-added metallic coated and painted steel products. BlueScope's PKSW is the largest steel production facility in Australia with an annual production capacity of approximately three (3) million tonnes of crude steel.

BlueScope's Australian Business Number (ABN) and address are listed below:

- **ABN:** 19 000 019 625; and
- **Address**: Level 24, 181 William Street, Melbourne, Victoria 3000.


Mulgoa
Sydney
Liverpool
Bringelly
Heathcote
Picton
Buxton
Wollongong
SITE
Bowral
Moss Vale
MOUNT OUSLEY ROAD
MEMORIAL DRIVE
CROWN STREET
PRINCES HIGHWAY
PRINCES MOTORWAY
Wollongong City Council
Shellharbour City Council
Mount Kembla
Kembla Heights
Figtree
Mangerton
Coniston
Mount Saint Thomas
Cordeaux Heights
Unanderra
Farmborough Heights
Kembla Grange
Berkeley
Lake Heights
Port Kembla
Warrawong
Cringila
Tom Thumbs Lagoon
Port Kembla Harbour
Brownsville
Kanahooka
Dapto
Koonawarra
Primbee
Windang Park
Lake Illawarra
Illawarra Escarpment SCA
Illawarra Escarpment
Keiraville
Mount Keira
Gwynneville
North Wollongong
West Wollongong
Gerringong
Balgownie
Bill Madden Park
University of Wollongong-Wollongong
Botanic Gardens Wollongong
Stuart Park
Nyrang Park
Beaton Park
Wiseman Park
Gilmore Park
Figtree Park
Figtree Grove
Ski Parish Park
JJ Kelly Park
Kembla Park
Nudjia Park
Charcoal Park
Kembla Grange Park
Wollongong Lawn Cemetery
Kembla Grange Racecourse
The Grange Golf Course
Newton Park
Fred Finch Park
Berkeley Park
Holborn Park
Barina Park
Centenary Park
John Crehan Park
Hooka Point Park
Wollamai Park
Kully Bay Park
Darcy Wentworth Park
King George V Park
Hill Sixty Park
Coomaditchy Lagoon Reserve
Port Kembla Golf Course
Golf Range
Lakelands Park
Webb Park
Depot Mall
Legend
Project Area
Hot Mills
Port Kembla Steel Works
Major Road
LGA
Nature Reserve
State Conservation Area
Source:
NSW DTDB and DCDB 2022
Esri Imagery July 2023
Regional Context
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Drawing No: 0650342_EIS_G001_R3.mxd
Date: 21/08/2023
Drawing Size: A4
Drawn By: SP
Reviewed By: EL
Coordinate System: GDA 1994 MGA Zone 56
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Port Kembla Advanced Steel Manufacturing Precinct (ASMAP) Project
Client: BlueScope Steel Limited
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ERM

2.3 Project Overview

2.3.1 Existing Plate Mill Operations

The Port Kembla Steelworks (PKSW) includes iron and steelmaking operations which commenced at Port Kembla in 1928 under the ownership of Australian Iron and Steel Pty Ltd (which later merged with Broken Hill Proprietary Company (BHP). The Plate Mill was commissioned in 1963 and currently produces up to 430,000 tonnes of plate steel per year. The Plate Mill currently operates 24 hours a day, seven days a week.

The existing Plate Mill includes two reheat furnaces which were commissioned in 1963 and 1969 respectively. Both furnaces were originally oil powered and were upgraded to coke oven gas (COG) powered in the early 1970s. Other original equipment still in use today in the Plate Mill includes Stand 1 & Edge (1963), Stand 2 (1973) and No.3 Crane (1963). The Plate Mill is shown in **Figure 2-2**.

a. Plate Mill (1963)

b. Plate Mill (today) - Stand 1

c. Plate Mill (today) - Stand 2

d. Plate Mill (today) - Pusher Furnaces 1 & 2

Figure 2-2 Existing Plate Mill

The process of producing plate steel at the Plate Mill is described below in **Table 2-1** and illustrated in **Figure 2-3** below.

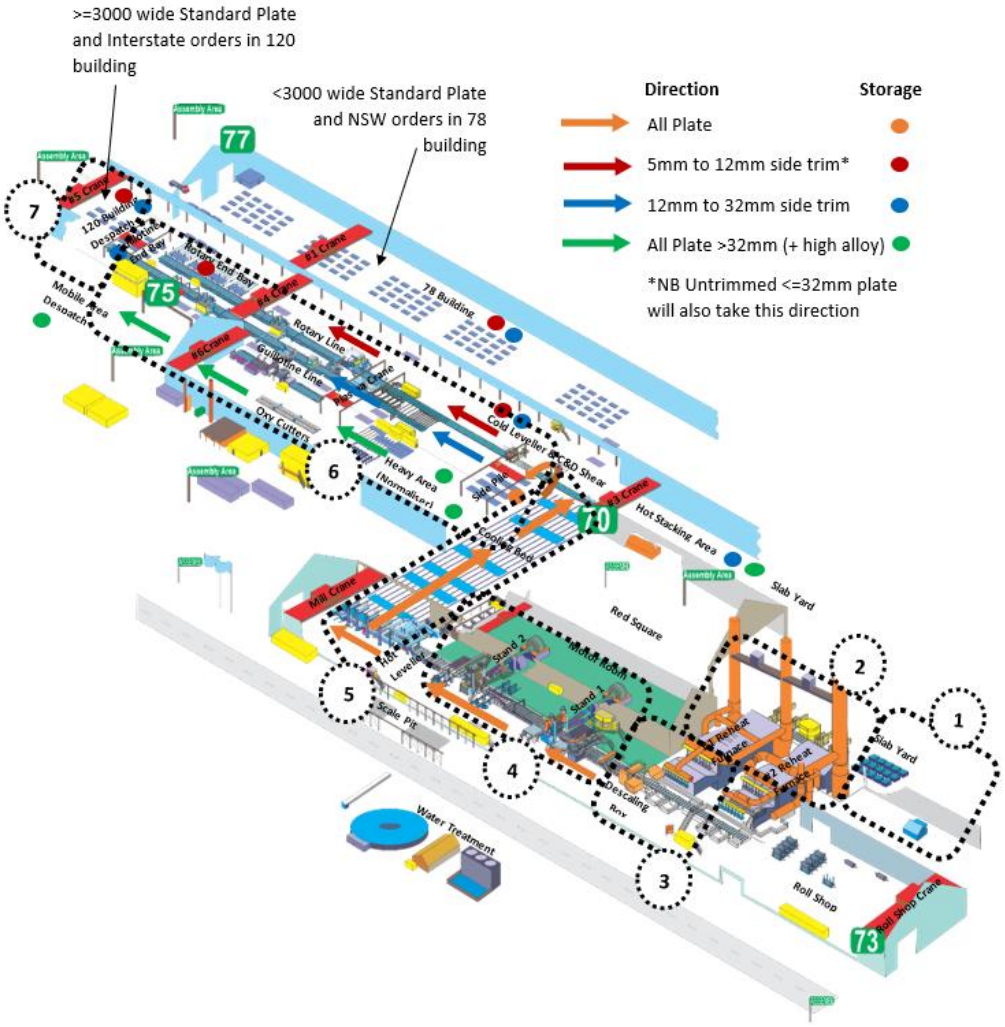

Figure 2-3 Plate Mill operation

Table 2-1 Plate steel production process

Stage	Description
1. Slab selection	The selection of steel undergoes a complex scheduling process to go into production. The steel selected will match the optimal steel slab dimensions with the customer's desired plate product.
2. Furnace	Once selected, cranes transport the steel slab to the entry of the reheat furnace. The slab is heated to its desired temperature based on grade and rolling requirement, approximately 1200ºC, before being discharged.
3. Descaling	Once heated to the desired temperature, the slab is blasted with high pressure water to remove scale generated in the reheating process.
4. Plate Rolling	The slab is then ready to take on its new form. It enters a series of high forces rollers called Stand 1 where it is rotated 90º and rolled to increase its width and rotated again back into the original orientation to be rolled again. This process repeats until desired transfer thickness of slab is achieved. After this process, the slab may be allowed to cool to improve mechanical properties before being rolled to final thickness at Stand 2.
5. Hot Leveller	To ensure final flatness, the slab which is now a raw plate is passed through a hot leveller and transferred to a cooling bed at exit.
6. Plate Processing	The raw plate may be stored for a time before being cut to length on one of three processing routes: ■ The rotary line that side trims smaller thickness plate (e.g. 5mm to 12mm); ■ The guillotine line that side trims wider thickness plate (e.g. 12mm to 32mm); ■ Oxy cutters line that will cut large plates and sample pieces. Each route has plate inspections prior to trimming and capabilities for inspection after trimming and cut to length.
7. Despatch	Once all activities are completed the plate is labelled/ stencilled with the plate and customer details then allocated to its final order and stored in one of two warehouses or in the outside area awaiting despatch via either rail or road.

2.3.2 Proposed Project

The Project Area refers to the location of the Project within the broader PKSW. The Project Area currently contains plate mill furnaces, plate processing cutters and cranes within existing buildings, as well as car parks, access roads and other ancillary infrastructure. The Project Area occupies a total area of 14.7 ha.

The Project includes:

- Installation of a new walking beam furnace for the Plate Mill;
- Installation of a new plate mill processing equipment and infrastructure, including cutters, turnover table, transfer system, cranes and a rail extension (referred to as Fourth Route Processing);
- Upgrades to the existing electrical infrastructure, including a 11 kilovolt (kV) sub-system, switch rooms, distribution boards and transformers;
- Installation of a new refractory lined structure in the slab yard;
- Construction of associated infrastructure, including hardstands, construction compounds and laydown areas; and
- Modification of existing structures to enable the integration of new equipment.

The Project Layout is provided in **Figure 2-4** and **Figure 2-5**. The Project is described in further detail in **Section 4**.

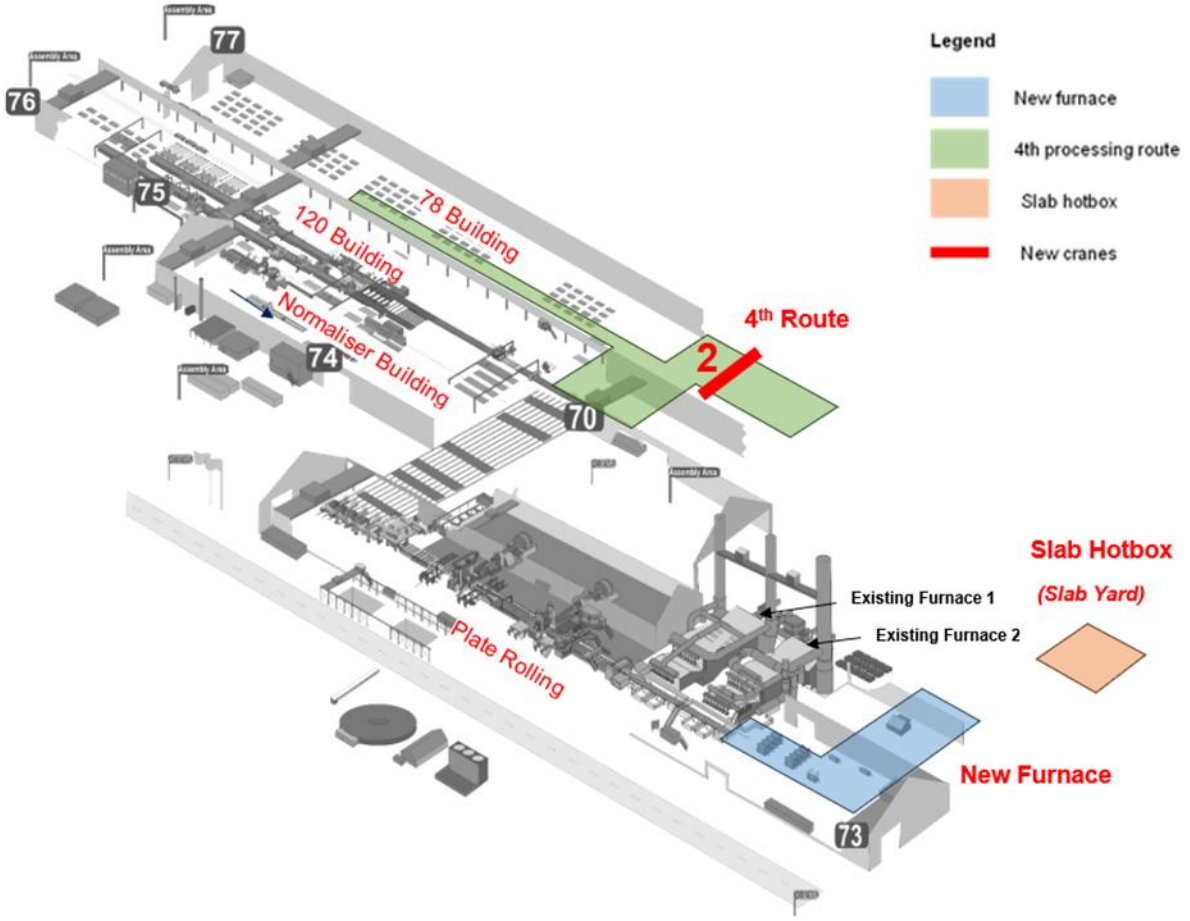

Figure 2-4 Project Overview

GLADSTONE AVENUE
SPRINGHILL ROAD
MASTERS ROAD
TOM THUMB ROAD
YAMPI WAY
4th Processing Route
Plate Mill Process Building

Legend
Project Area
Slab Yard
Project Layout
Minor Road

Source:
NSW DTDB and DCDB 2022
Nearmap Imagery July 2022

Project Area

F2-5

Drawing No:	0650342s_BSL_CR_G004_R9.mxd		Port Kembla Advanced Steel Manufacturing Precinct (ASMAP) Project
Date:	23/10/2023	Drawing Size: A4	
Drawn By:	VN	Reviewed By: DS	Client: BlueScope Steel Limited

Coordinate System: GDA 1994 MGA Zone 56

0 100 200m

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2.4 Project Objectives

The objectives of the Project are to:

- Increase the Plate Mill capacity to enhance BlueScope's capability to supply steel products to the defence and renewable energy sectors;
- Support and maintain the current demand / supply of steel products within BlueScope's existing customer base;
- Provide both direct and indirect employment opportunities during construction and operation;
- Liaise and work with the community and all potentially affected stakeholders in the identification, mitigation and/or monitoring of any potential environmental effects;
- Ensure quality, safety and environmental standards are maintained;
- Recycle and reuse materials where practical and economically feasible; and
- Minimise any potential adverse environmental impacts and to maximise environmental benefits provided by the project.

2.5 Design Approach

A multivariable and iterative design approach has been adopted for the Project, taking into consideration a range of technical, environmental, social, and economic opportunities and constraints.

Design iterations for the Plate Mill upgrades have progressed with key drivers being measures to minimise and avoid environmental and social impacts consistent with the following Avoid-Minimise-Mitigate-Offset design hierarchy:

- **Avoid** – in the first instance, all efforts were made to avoid potential environmental and social impacts;
- **Minimise** – where potential impacts could not be avoided, design principles aimed to minimise environmental and social impacts, as far as feasibly possible;
- **Mitigate** – mitigation strategies will be implemented to manage the extent and severity of remaining environmental and social impacts; and
- **Offset** – environmental and social offsets shall be used only as applicable, following all efforts to first avoid, minimise and mitigate environmental impacts.

Design evolution and impact minimisation is outlined in **Section 3.7**.

2.6 Related Development

Alongside the proposed upgrades to the Plate Mill that are the subject of this SSD application, site preparatory works which do not require development consent, or which are authorised to be carried out as complying development, will be carried out. Such works include minor demolition and excavation works, relocation of services and construction of sheds, storage enclosures and temporary site offices.

2.7 Restrictions and Covenants

A title search was undertaken for the Project Area and no restrictions have been identified that would inhibit the carrying out of the Project. The easements detailed in the title search would not be impacted by the Project.

3. STRATEGIC CONTEXT

3.1 Government Strategies, Policies and Plans

In addition to achieving the objectives outlined in **Section 2.4**, the Project will assist to achieve objectives of the following International, Federal Government, and State Government policies and strategic goals as described below.

3.1.1 United Nations Sustainable Development Goals

The 'United Nations 2030 Agenda for Sustainable Development' includes global Sustainable Development Goals (SDG) to build a more sustainable and resilient future. The 17 SDG and 169 individual targets cover measures towards improvements to economic, social and environmental sustainability. All Member States of the United Nations agreed to work towards achieving the SDGs by 2030.

Of relevance to the Project are:

- *"By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities"* (Goal 9, Target 9.4); and
- *"By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management*" (Goal 11, Target 11.6).

The Project will provide improved energy efficiency from the new furnace, better utilisation of resources, and reduction of greenhouse gas (GHG) emissions and improved air quality per tonne of plate steel produced.

3.1.2 NSW 2040 Economic Blueprint

The *NSW 2040 Economic Blueprint* sets out a direction for the continued success of NSW in a changing world and expanding global economy (NSW Treasury, 2019). The Blueprint identifies challenges and risks and highlights major opportunities for the NSW Government to grow industries, innovate and improve our economy.

The report was prepared in consultation with stakeholders, and outlines a range of key aspirations for NSW to reach by 2040 including:

- The nation's first trillion-dollar economy;
- Healthy, productive people;
- Liveable and connected cities;
- Productive, vibrant regions;
- Innovative and world class businesses;
- A sustainable environment with reliable and affordable energy; and
- Enhanced performance of government.

The *NSW 2040 Economic Blueprint* focuses on achieving economic growth through advanced manufacturing and new industries. The Project will contribute to these objectives by providing significant capital investment which will deliver benefits to the NSW economy. The PKSW has played a significant role in contributing to the economy over the past 90 years. The Project underpins BlueScope's ability to serve the growing wind tower market to help NSW and Australia achieve the renewable energy targets using locally produced steel.

3.1.3 NSW Climate Change Policy Framework

The *NSW Climate Change Policy Framework* aims to maximise the economic, social and environmental wellbeing of NSW in the context of a changing climate and emerging international and national policy settings and actions to address climate change.

The objectives of this Project are consistent with the overarching commitment of the *NSW Climate Change Policy Framework* to achieving net-zero emissions by 2050 and helping NSW become more resilient to a changing climate. The Project is anticipated to result in improved energy efficiency and improved air emissions and reduced GHG emissions per tonne of plate steel produced. The Project will also provide increased ability to provide steel to the growing wind tower segment, assisting the renewable energy industry to address climate change.

BSL, BlueScope's parent company, released its first Climate Action Report in 2021 to provide a strategic approach to managing climate-related risks around planning towards achieve a pathway to decarbonisation. The report included optimisation of existing BSL assets and processes and exploration of near-term emissions reduction technology options for steelmaking at Port Kembla as part of an overall BSL medium-term target to be achieved by 2030, on the path of the goal of achieving net zero emissions by 2050, subject to enablers such as commerciality of emerging and breakthrough technologies, the availability of affordable and reliable renewable energy and hydrogen, availability of quality raw materials and appropriate policy settings.

3.1.4 Net Zero Plan Stage 1: 2020-2030

The *NSW Government Net Zero Plan Stage 1: 2020–2030* (DPIE, 2020a) (Net Zero Plan) sets the foundation for action on climate change and how the NSW Government will deliver on its objective to achieve net zero emissions by 2050, as outlined in the NSW Climate Change Policy Framework (OEH, 2016). The Net Zero Plan is the NSW Government's overarching strategy to reduce emissions and mitigate the impacts of climate change.

The proposed furnace upgrade will result in a reduction in fuel demand of approximately 0.95 gigajoules per tonne of plate steel processed, equating to a reduction in furnace COG consumption of approximately 35%. On this basis, at current production rates, the implementation of the Project is estimated to result in a GHG reduction of approximately 14.3 kt CO2-e annum, which is a 39% reduction in emissions. At an increased throughput of 600,000 t/annum, emissions are estimated to increase by approximately 16% above the base case of existing operations, albeit with a 33% increase in throughput due to improved efficiency of the new furnace.

The Project will assist in giving effect to the Net Zero Plan, including the NSW Government's updated 2030 target, by reducing emissions per tonne of steel produced and, significantly, by providing a source of local plate steel for wind tower manufacture. The Project will be undertaken in accordance with the Climate Action Report (BlueScope Steel Limited, 2021) and is consistent with the NSW Climate Change Policy Framework and Net Zero Plan Stage 1: 2020–2030.

3.1.5 NSW Net Zero Industry and Innovation Program

The *NSW Net Zero Industry and Innovation Program* (NZIIP) sets out to support and partner with the industry to reduce emissions and accelerate the development of clean technology and decarbonisation (Office of Energy and Climate Change, 2022). The NZIIP is part of the *NSW Net Zero Plan Stage 1: 2020-2030* to reduce emissions by 50 percent by 2030 and achieve net zero by 2050.

The NZIIP has three areas of focus:

- Clean Technology Innovation;
- New Low Carbon Industry Foundations; and
- High Emitting Industries.

The NZIIP intends to identify facilities to fast-track emission reductions and thereby to implement transformative industrial projects across NSW industry and business. The Project utilises technologies which have the potential to reduce emissions across the Plate Mill operations. Improved COG efficiency at the Plate Mill will also enable more COG to be redirected for power generation for the wider PKSW.

3.1.6 NSW Ports 2063

The *NSW Ports 2063 our 40 - Year Master Plan for Sustainable* Growth (Master Plan) outlines port trade growth and changes expected over the next 40 years (NSW Ports, 2023). The Master Plan considers the probable future, key drivers of change and actions that will need to be taken to respond to this growth. The Master Plan is focused on the long-term sustainability of ports and intermodal assets, including Port Kembla, Port Botany, Cooks River Intermodal Terminal and Enfield Intermodal Logistics Centre.

Port Kembla is NSW's motor vehicle import port and an international trade gateway for bulk agricultural, construction and mining industries. Port Kembla services growing demand for population-driven trades such as vehicles and construction material imports and its expansion and diversification will support NSW's growth. BlueScope is a major tenant at Port Kembla, and the Project, through its contribution to the ongoing viability of the PKSW, which in turn makes a significant contribution to the economy of NSW, is therefore consistent with the objectives of the Master Plan.

3.1.7 Building Momentum: State Infrastructure Strategy 2022-2042

The *State Infrastructure Strategy 2022-2042* (Infrastructure Strategy) is a 20-year infrastructure investment plan for NSW across each of NSW's key infrastructure sectors – transport, energy, water, health, education, justice, social housing, culture, sport and tourism (Infrastructure NSW, 2022). The Infrastructure Strategy identifies policies and strategies needed to provide the infrastructure that meets the needs of a growing population and a growing economy. It assesses infrastructure challenges and solutions and provides recommendations on how to best grow the State's economy, enhance productivity and improve living standards for the NSW community.

In addition, the Infrastructure Strategy outlines how economic growth and improved living standards will be achieved through investment in infrastructure projects. These include roads, rail, ports, water, telecommunications, hospitals, schools, and sports facilities, which are generally steel-intensive. The Project will support the aims of the Infrastructure Strategy by creating a local source of steel products for downstream manufacturers and the construction industry.

3.2 Regional Planning

3.2.1 Illawarra Shoalhaven Regional Plan 2041

The *Illawarra Shoalhaven Regional Plan 2041* (Regional Plan) provides the strategic framework for the region including the local government areas of Wollongong, Shellharbour, Kiama and Shoalhaven (DPIE, 2021). It aims to protect and enhance the region's assets and plan for a sustainable future. The plan also identifies the relevance of Port Kembla as an international trade gateway for the State and its continuing role in relation to operations within PKSW. Four themes have been identified to assist with the implementation of the Regional Plan:

- A productive and innovative region;
- A sustainable and resilient region;
- A region that values its people and places; and
- A smart and connected region.

The Project is aligned with the themes of the Regional Plan as the proposed upgrades to the Plate Mill facilities will utilise innovative technologies which have the potential to reduce emissions across the Plate Mill operations contributing to a sustainable and resilient region. The Project will also provide greater capability to supply steel plate to the renewable energy industry. Further, the Project will supply steel to the construction industry and facilitate the delivery to match housing supply needs.

3.3 State Environmental Planning Policies

3.3.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

Chapter 5 of *State Environmental Planning Policy (Transport and Infrastructure) 2021* ('T&I SEPP') aims to provide a consistent planning regime for the development and delivery of infrastructure on land in Port Botany, Port Kembla and the Port of Newcastle. The T&I SEPP also aims to ensure that the land around the Lease Area (being the land managed by NSW Ports) is maintained for port related and industrial purposes including heavy industry at land around Port Kembla. As the Project is for industrial purposes, the Project is consistent with the aims of the T&I SEPP.

The Project Area is zoned IN3 Heavy Industrial under the T&I SEPP. Heavy industries are permissible with development consent within the zone. The SEPP does not prescribe maximum building heights or floor space ratios for development within PKSW.

The Project will provide new employment opportunities and economic investment within the region, while encouraging and managing ecologically sustainable development as further detailed in **Section 0**. The Project has been designed in accordance with relevant standards and has considered mitigation measures to avoid or minimise impacts on land uses.

3.4 Voluntary Planning Agreements

There are no Voluntary Planning Agreements in place or proposed in relation to the Project.

Wollongong City-Wide Development Contributions Plan 2022 (the Plan) applies to all applications for development consent and complying development certificates required to be made by or under Part 4 of the EP&A Act in respect of development on land to which the Plan applies, which includes the Project Area. The Plan levies contributions under Section 7.12 of the EP&A Act; its aim is to "assist the Council to provide the appropriate public facilities which are required to maintain and enhance amenity and service delivery within the area".

The Minister has discretion as to whether to impose a condition of approval requiring payment of a development contribution, after considering the provisions of any applicable Development Contributions Plan. The Applicant notes that the Project will have negligible, if any, impacts, on the requirements and demand for local government services and amenities. The Applicant intends to make a submission to the Council that it would be appropriate for the Minister for Planning to resolve that the Project is exempt from the requirement to make a development contribution.

Development contributions are addressed further in **Section 7.15**.

3.5 Site, Setting and Features

The PKSW, including the Project Area, is located within the existing PKSW site within the suburb of Port Kembla, NSW, a beachside suburb south of the centre of WCC LGA. The suburb is known for its significant role in the industrial history of the Illawarra region. Port Kembla is an international trade gateway for bulk agricultural, construction and mining industries and is home to the state's largest grain export terminal; it is also the state's second largest coal export port. Port Kembla is situated 90 km south of Port Botany, 67 km from south-west Sydney and 100 km from Western Sydney.

The topography across the Project Area is relatively flat, ranging from 5 m to 12 m above sea level (ASL). The Project Area is zoned IN3 (Heavy Industrial) pursuant to T&I SEPP, as shown in

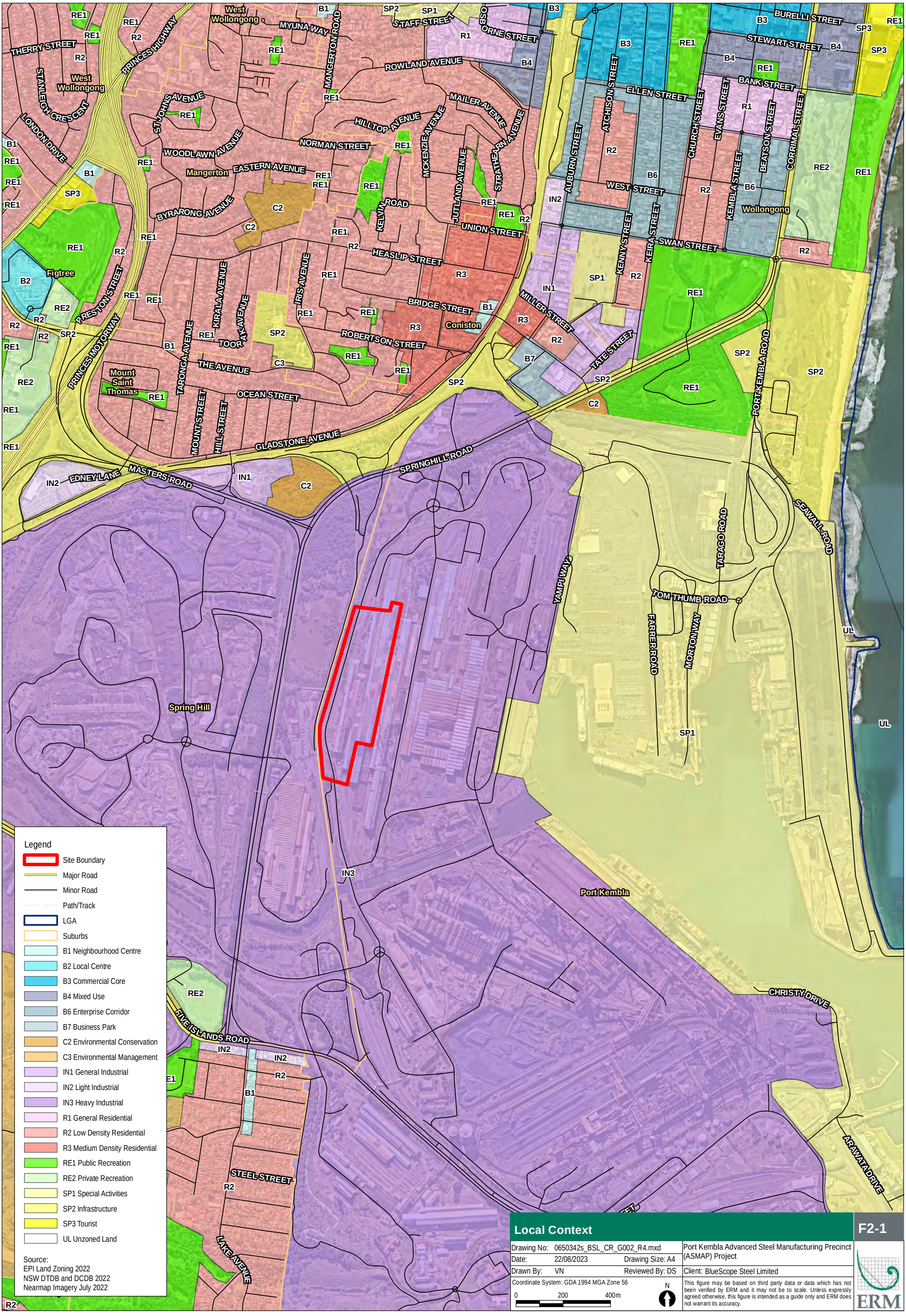
Figure 3-1. The land surrounding the Project Area is predominantly zoned as IN3 (Heavy Industrial) and SP1 (Special Activities) and consists of heavily industrialised land and the port. The immediate surrounds are predominantly used for manufacturing and industrial uses.

Residential areas are located to the north and south of the Project Area. The closest residential receiver is located approximately 600m (direct-line) to the north of the Project Area.

Table 3-1 provides a summary of surrounding land use.

Table 3-1 Surrounding Land Use

Land use	Summary
Environmental Setting	PKSW has historically been used for industrial purposes, including the existing Plate Mill and associated facilities within the Project Area. Due to a long history of industrial use, the Project Area and all of the PKSW is highly modified.
Conservation areas	PKSW consists of minimal vegetation. Remnant vegetation exists within undulations in the residential suburbs of Cringila and Mount Saint Thomas and aligning riparian zones, including Allans Creek and American Creek.
Catchments	The Project Area is adjacent to the north of Allans Creek, which flows from southwest to east of the Project Area, before reaching Port Kembla Harbour. Other watercourses include American Creek and Byarong Creek which both connect to Allans Creek to the west of the Project Area. The Project Area is within the Allans Creek Catchment.
Industrial Infrastructure	Other key industrial elements within PKSW and surrounds include: ■ Shire Steel and Fabrication, Wollongong Sheet Metal and Engineering and Cleary Bros to the north of the Project Area; ■ Port Kembla facilities and railway infrastructure to the east; ■ Gas & coke making facilities and railway infrastructure to the south; and ■ Lysaghts Railway Station, railway infrastructure, Veolia Depot, Cleanaway Port Kembla Liquid Waste Services and Australian Steel Mill Services to the west.
Railway	A railway line is located adjacent to the Project Area to the west, including Lysaghts Train Station. Public access is not currently available at this station and it is only accessible with swipe cards by individuals working at industrial facilities within Port Kembla. Although this rail line is a passenger line, it co-exists with the rail freight network which serves Port Kembla. The freight network connects to the broader rail freight network via the Moss Vale – Unanderra Line and the Illawarra Line.
Roads	The Project Area is bound by Springhill Road (classified State Road no MR581) to the north and Five Islands Road (classified State Road no MR295) to the west and south, both of which form part of the B65 that connects the Wollongong CBD to Port Kembla. The Princess Motorway (M1) runs north-south to the west of the Project Area and is the main arterial road connecting the Project Area to Wollongong and Sydney. The roads surrounding the Project Area primarily cater to industrial and port-related land uses around the PKSW site. The primary access to the Hot Mills and Project Area is known as Northgate, which forms a T-intersection with Springhill Road and provides access to internal roads and parking areas in the PKSW. All sectors of PKSW are internally linked by road; the primary access to PKSW is provided via the Springhill Road entrance at PKSW Northgate, which is an approximately 180 m local private road.



Legend

- Site Boundary
- Major Road
- Minor Road
- Path/Track
- LGA
- Suburbs
- B1 Neighbourhood Centre
- B2 Local Centre
- B3 Commercial Core
- B4 Mixed Use
- B6 Enterprise Corridor
- B7 Business Park
- C2 Environmental Conservation
- C3 Environmental Management
- IN1 General Industrial
- IN2 Light Industrial
- IN3 Heavy Industrial
- R1 General Residential
- R2 Low Density Residential
- R3 Medium Density Residential
- RE1 Public Recreation
- RE2 Private Recreation
- SP1 Special Activities
- SP2 Infrastructure
- SP3 Tourist
- UL Unzoned Land

Source:
EPI Land Zoning 2022
NSW DTDB and DCDB 2022
Nearmap Imagery July 2022

Local Context

F2-1

Drawing No:	0650342s_BSL_CR_G002_R4.mxd		Port Kembla Advanced Steel Manufacturing Precinct (ASMAP) Project
Date:	22/08/2023	Drawing Size: A4	
Drawn By:	VN	Reviewed By: DS	Client: BlueScope Steel Limited

Coordinate System: GDA 1994 MGA Zone 56

0 200 400m

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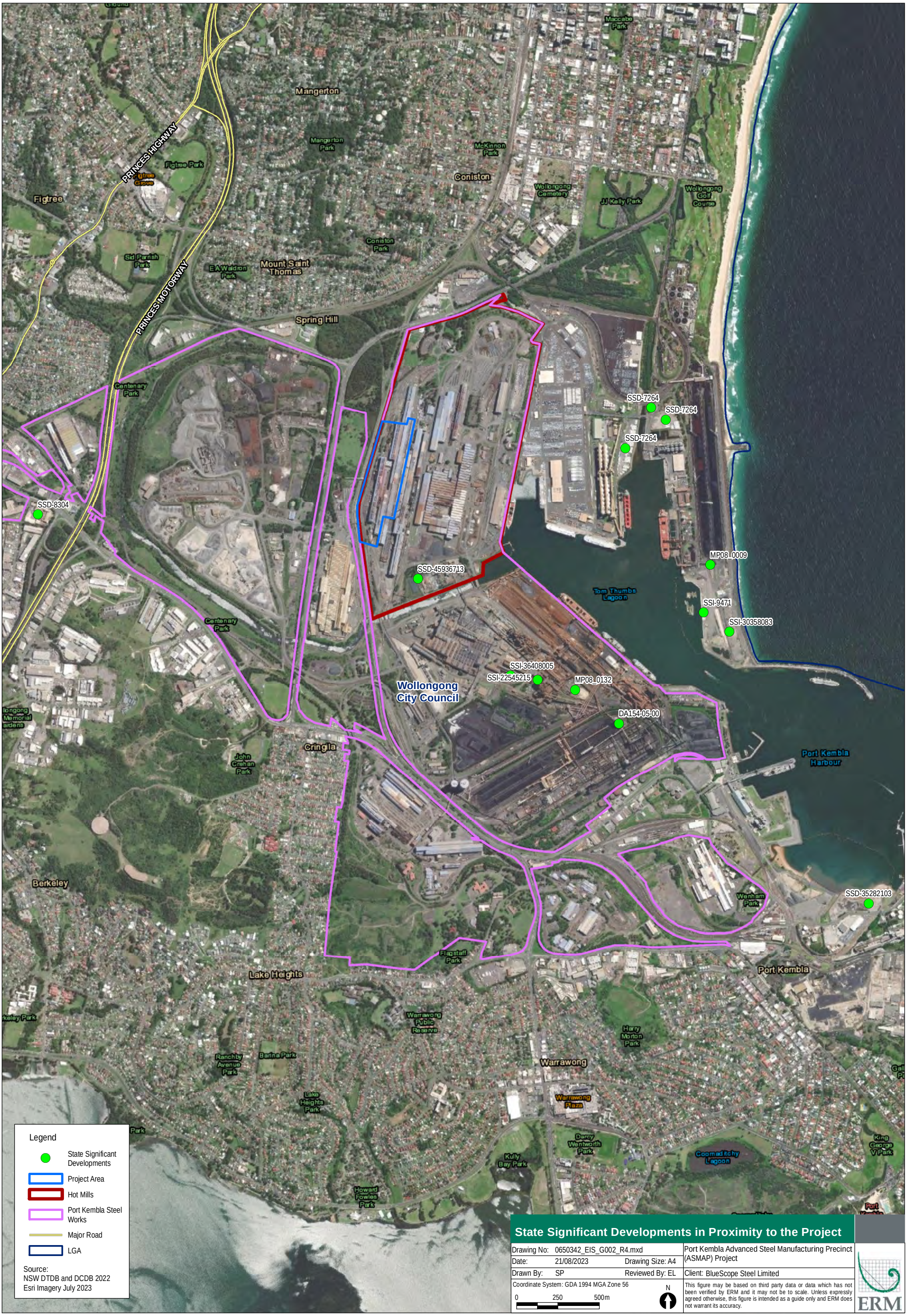
3.6 Potential SSDs with Cumulative Impacts

Proposed, approved or operational state significant developments located within 4 km of the Project Area and known at the time of finalisation of this EIS are summarised in **Table 3-2** and shown in **Figure 3-2**. The cumulative impact of these SSDs is assessed in **Section 7**.


Mangerton
Mangerton Park
Maccabe Park
McKinnon Park
Coniston
Wollongong Cemetery
JJ Kelly Park
Wollongong Golf Course
Figtree
Figtree Park
Figtree Grove
PRINCES HIGHWAY
PRINCES MOTORWAY
Sid Parrish Park
E.A.Waldron Park
Mount Saint Thomas
Coniston Park
Spring Hill
Centenary Park
SSD-7264
SSD-7264
SSD-7264
SSD-8304
SSD-45936713
MP08_0009
Tom Thumbs Lagoon
SSI-9471
SSI-30358083
SSI-36408005
SSI-22545215
MP08_0132
DA154-05-00
Wollongong City Council
Cringila
John Crehan Park
Port Kembla Harbour
SSD-35282103
Wenham Park
Berkeley
Lake Heights
Flagstaff Park
Port Kembla
Warrawong Public Reserve
Harry Morton Park
Warrawong
Warrawong Plaza
Ranchby Avenue Park
Barina Park
Lake Heights Park
Darcy Wentworth Park
Kully Bay Park
Coomaditchy Lagoon
King George V Park
Howard Fowles Park
Legend
State Significant Developments
Project Area
Hot Mills
Port Kembla Steel Works
Major Road
LGA
Source:
NSW DTDB and DCDB 2022
Esri Imagery July 2023
State Significant Developments in Proximity to the Project
Drawing No: 0650342_EIS_G002_R4.mxd
Date: 21/08/2023
Drawing Size: A4
Drawn By: SP
Reviewed By: EL
Coordinate System: GDA 1994 MGA Zone 56
0
250
500m
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Port Kembla Advanced Steel Manufacturing Precinct (ASMAP) Project
Client: BlueScope Steel Limited
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
ERM

Table 3-2 Proximate SSDs with Cumulative Potential

SSD No.	Project	Description	LGA	Current Status[a]	Distance (km)[b]
SSD-45936713	BlueScope Steel HyKembla – Hydrogen Electrolyser Pilot Plant Project	The installation of a 40 MW hydrogen electrolyser and ancillary infrastructure.	WCC LGA	■ Planning Portal - Prepare EIS ■ BlueScope has placed the project on hold and has formally advised DPE of that fact.	0.32
MP08_0009	Port Kembla Coal Terminal	Removal of a specific restriction under the T&I SEPP to allow the coal terminal to receive coal and bulk products 24/7.	WCC LGA	■ Planning Portal – Approved (June 2009) ■ No infrastructure changes	2.00
SSI-36408005	BlueScope Commodity Logistics and Import Project	Upgrading raw material berths, installation of ancillary infrastructure.	WCC LGA	■ Planning Portal – Approved (May 2023) ■ Stage 1 construction duration of 12-24 months, start date likely April 2024. ■ Stage 2 construction duration of 12-36 months, start date to be determined.	1.12
SSI-9471	Port Kembla Gas Terminal Project	LNG carriers, Floating storage and regasification unit, wharf and berth facilities, and gas pipeline	WCC LGA	■ Planning Portal – Approved (April 2019) ■ Operation commenced in Q1 2020	2.02
SSI-30358083	Port Kembla Power Station Project	Development of a 635 MW gas fired power generation station and ancillary infrastructure.	WCC LGA	■ Planning Portal – Prepare EIS ■ No indication of length or commencement of construction	2.19
SSD-8304	Unanderra Liquid Waste Treatment Facility	Development of a 56,5000 tonnes per annum Liquid Waste Treatment Plant	WCC LGA	■ Planning Portal – Approved (August 2022) ■ In operation	1.94
DA154-05-00	Port Kembla Steelworks – Coal Injection Facility	Operational Coal Injection Facility and ancillary infrastructure	WCC LGA	■ Planning Portal – Approved (August 2000) ■ In operation ■ Last modified in December 2022, seeking to modify the development consent to permit the trial use of a biochar as feedstock	1.81

[a] *Project status current as of July 2023 based on DPE's Major Projects website.*

[b] *Indicative direct-line distances from the Project Area boundary.*

SSD No.	Project	Description	LGA	Current Status[a]	Distance (km)[b]
SSD-35282103	Port Kembla Bitumen Import and Dispatch	Development of bitumen import and dispatch facility, and ancillary infrastructure	WCC LGA	■ Planning Portal – Prepare EIS ■ Construction commencement and length are not known.	3.67
SSD-7264	Manildra - Port Kembla Bulk Liquid Terminal Project	Development of a Bulk Liquid Terminal (BLT) and ancillary infrastructure.	WCC LGA	■ Planning Portal – Approved (September 2016). ■ Modification (SSD-7264-MOD-1) – Approved (March 2017). Modification indicates stage 1 of the BLT would be operational by 2018, however Google Maps imagery from 2023 shows no indication of development.	1.50
SSI-22545215	BlueScope's No. 6 Blast Furnace Reline and Operations	Reline the No. 6 blast furnace and install ancillary infrastructure	WCC LGA	■ Planning Portal - Approved (September 2022) ■ Construction expected 2023-2026. ■ Estimated operational life of 15 years	1.26

3.7 Alternatives Considered

Throughout the planning phase of the Project, a range of alternative Project designs have been considered in the context of technical, environmental, social, and commercial constraints.

The Applicant has engaged with relevant stakeholders including Project neighbours, the broader community, local government, State and Federal Agencies, and business and stakeholder groups since the initial design of the Project. This engagement, along with technical studies undertaken in accordance with the SEARs, has helped to shape the Project.

The Applicant has conducted rigorous environmental assessments of the Project in accordance with the SEARs, and has modified the Project based on technical, environmental, constructability constraints, and community feedback (refer **Section 6**).

This section describes alternatives to the Project as a whole and modifications made to the proposed design during development of the Project.

3.7.1 'Do Nothing' Approach

The 'Do Nothing' option would see the existing COG furnaces retained and their operation extended for a longer period of time. The two existing reheat furnaces were commissioned in 1963 and 1969. The furnaces were initially oil powered and converted to COG powered furnaces in the early 1970s. The existing COG furnaces are less energy efficient and produce more greenhouse gas emissions per tonne of steel than modern COG furnaces. The 'Do Nothing' option would forgo efficiency and productivity improvements and reduced greenhouse gas emissions per tonne of steel that would be achieved by upgrading Plate Mill with modern efficient technology.

The 'Do Nothing' option would not provide the local employment opportunities created by the Project, which are predicted to include up to 95 construction direct jobs and up to 18 additional operational direct jobs. The 'Do Nothing' option would not increase the amount of plate steel that can be produced locally each year, which could disadvantage or increase costs for the construction, defence and renewable energy sectors which use these products.

Given the clear benefits of the Project, 'do nothing' is not the preferred option for strategic, economic, environmental and social reasons.

3.7.2 Design Development

The Project involves upgrades to the existing Plate Mill, which is an integral part of existing production processes for the Hot Mills. The Project layout has been subject to an iterative design process informed by the technical assessments and engagement with key specialists. These technical assessments guided the development of the Project and identified the most feasible solution that would best achieve the desired planning, environmental and operational outcomes.

Due to the operational needs of PKSW and the lack of undeveloped land, alternative locations for the Project are not feasible and were not explored further. The Project layout has been refined during design development to ensure safe construction separation distance is achieved between the walking beam furance and the existing furnaces and plate processing equipment.

4. PROJECT DESCRIPTION

4.1 Overview

The Project will involve the construction and installation of a new walking beam furnace and upgrades and installation of associated equipment at the Plate Mill. The upgrade of the furnace will allow the facility to increase the throughput of steel plate from 430,000 to 600,000 tonnes per year depending on the product grades produced.

The Capital Investment Value (CIV) of the Project is approximately $206 million as described in **Appendix F**. The Cost of Works (for determining s7.12 contribution) is approximately $47.6 million (**Appendix G**).

The Project description is summarised in **Table 4-1** and layout is shown in **Figure 4-1**.

Table 4-1 Project Summary

Project Elements	Description
Project	BlueScope Port Kembla Advanced Steel Manufacturing Precinct (ASMAP)
Applicant	BlueScope Steel (AIS) Pty Ltd
Site Description	Lot 1 of DP 606434
Project Area	14.7 ha
Capital Investment	$206 million
Cost of work	$46.7 million
Annual Production	Approximately 600,000 tonnes of plate per year
Maximum Height Structure	Exhaust stack with an approximate height of up to 39 m height above ground level (AGL)
Plate Mill - Furnace	A new walking beam furnace and supporting infrastructure
Plate Mill Processing - Cutters	A new 48 m long high productivity Plasma Oxy Cutting machine
Plate Mill Processing - Turnover Table	A new 22 m long plate turnover table in the Despatch Building
Plate Mill Processing - Transfer System	A new 25 m long transfer system to and from the Despatch Building and the Plate Finishing Building
Plate Mill Processing - Cranes	Upgrading of existing crane in the Plate Finishing Building, and installation of an additional new crane in the Despatch Building
Plate Processing - Rail Extension	Extending the rail line in the Despatch Building by approximately 160 m from the current end stop
Plate Mill - Electrical Infrastructure	Upgrades to the existing electrical infrastructure, including a new 11 kV switchboard, switch rooms, distribution boards and transformers
Slab Yard - Hot Boxing	A new refractory lined structure in the slab yard to store hot slabs and to keep them warm before entering the walking beam furnace.

Project Elements	Description
Construction	
Construction Duration	Approximately 39 months
Construction Hours	Generally as per standard daytime construction working hours (in accordance with the 'Interim Construction Noise Guideline' (DECC, 2009)) but 24hrs/day 7 days/week for some works required to be carried out during shutdown periods.
Construction Workforce	Peak workforce of approximately 95 FTE and average workforce of 60 FTE
Temporary Infrastructure	Temporary facilities to support the Project including: ■ Hardstands; ■ Construction compound (including site offices, car parking, and amenities for the construction work force); and ■ Laydown and storage areas for the temporary storage of construction materials, plant, equipment and metal coating line components.
Services and Utilities	Adjustment, protection or relocation of existing utilities including Coke Ovens Gas (COG), natural gas, compressed air, nitrogen bottled packs, power supply and water supply.
Ancillary Activities	Import of external gravel, aggregate and sand to site for on-site construction use.
Transport Route	Predominant transport route will be from Springhill Road via the Port Kembla Steel Works' North Gate entrance
Operation	
Duration	Development consent in perpetuity.
Hours of Operation	24 hours a day, seven days a week
Operational Workforce	Up to 18 additional FTE

SPRINGHILL ROAD

Descaling Pumphouse

Stand 2

Motor Room North - Switchroom

Stand 1

High Voltage Switchroom

Descaling Box

Nitrogen Store

Motor Room South - Switchroom

New Furnace No.3

The Court Yard

Legend

Site Boundary

Site Layout

Minor Road

Source:
NSW DTDB and DCDB 2022
Nearmap Imagery July 2022

Plate Mill Process Components

F3-2

Drawing No:	0650342s_BSL_CR_G009_R1.mxd		Port Kembla Advanced Steel Manufacturing Precinct (ASMaP) Project
Date:	20/09/2022	Drawing Size: A4	
Drawn By:	VN	Reviewed By: DS	Client: BlueScope Steel Limited

Coordinate System: GDA 1994 MGA Zone 56

0 20 40m

N

ERM

4.2 Project Elements

The Project layout is shown in **Figure 4-1**. This section describes the Project layout and associated infrastructure upgrades, which are displayed in detail in the design drawings in **Appendix E**. Minor changes and refinements to the Project may be made during the detailed design phase.

4.2.1 Plate Mill - Furnace

The Plate Mill presently utilises two COG fired pusher furnaces, where slabs are pushed into the furnace which in turn push other slabs through the furnace. The slabs move across skid supports and the hearth. Slabs exit the furnace and fall under gravity onto roller tables that transfer the slab from the furnace to the Plate Rolling Mill.

The existing two COG fired pusher furnaces include ‘once through saltwater cooling’ where water is pumped from the interworks saltwater pump station and discharged at the Plate Mill drain licensed discharge point (ID 85)at a rate of approximately 1800 kilolitres per hour (kL/ hr). The new walking beam furnace will no longer use ’once through saltwater cooling‘, reducing the volume of process water discharged to the Plate Mill drain and thus the heat load on the ultimate saltwater discharge into Allans Creek. The furnace will instead use a closed loop system, utilising industrial fresh water. The closed loop system includes a head tank, water basin, air cooled heat exchangers and pumps. Transfer of this water to the Plate Mill recirculated system is anticipated to be minimal, with an estimate of approximately 1.5 kL per year which will enter that system.

The current furnaces run as dual or single furnace operations depending on production and maintenance requirements. The dual furnace operations deliver nominally 95 tonnes per hour (t/hr) of hot slab with single furnace operations able to deliver nominally 72 t/hr. The Project will replace the two COG fired pusher existing furnaces with one new walking beam furnace with natural gas fired pilots and COG fired main burners. The maximum capacity of the new furnace is 170tph (assuming 100% of the heath is covered running 100% reliably). However, based on the average slab lengths being charged and the overall equipment effectiveness (OEE), the furnace will run at 88 to 93tph nominally. The new walking beam furnace is expected to provide a 35% reduction in COG consumption per tonne of plate steel processed when compared to current usage with a slight increase in natural gas usage for the pilot burner during furnace light up.

Figure 4-2 illustrates the new walking beam furnace. It will be located adjacent to the existing furnaces, which will not alter the existing hours of operation, being 24 hours a day 7 days a week. The existing furnaces including the stacks will be decommissioned and left in situ.

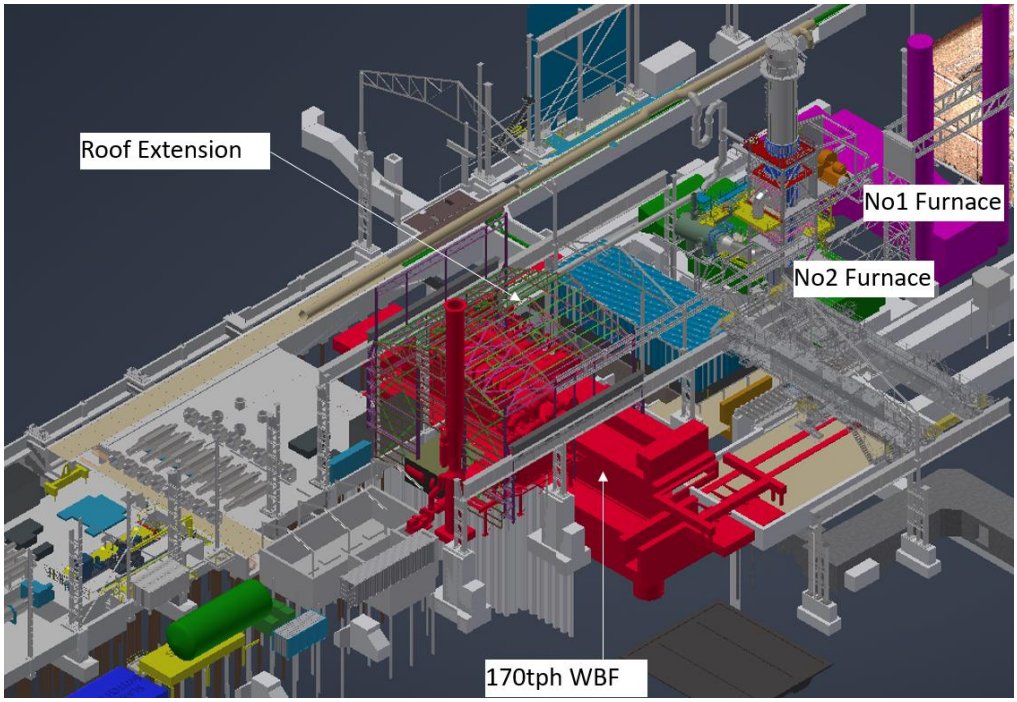


Figure 4-2 Conceptual 3D Model of new Walking Beam Furnace (in red)

The installation of the new walking beam furnace will include the following scope of works:

- Site preparation, including demolition of existing infrastructure and ground excavation;
- Construction of the new walking beam furnace reinforced concrete foundation that includes 400 mm by 400 mm square reinforced concrete bearing piles with depths from 12 m in the furnace area and 15 m in the new hydraulic room and switchroom area;
- Extending the roof south of existing furnaces over the area between two existing buildings to house the new walking beam furnace;
- Installing a new walking beam furnace and relocation of existing services to facilitate connection of the new furnace; and
- Erecting and installing a new low nitrogen oxide (NO_X) burner technology exhaust stack of approximately 39 m AGL.

The main furnace equipment changes are summarised in **Table 4-2**.

Table 4-2 Furnace Equipment Changes

Existing Furnaces	New Walking Beam Furnace	Description
Length 29,000 mm and width 9,150 mm (each furnace)	Length 39,800 mm and width 9,000 mm	Two furnaces will be replaced with one new walking beam furnace
2 combustion air fans (1 per furnace)	1 main combustion air fan and 1 standby	Reduction from 2 fans in operation (dual furnace operations) to 1 fan
3 dilution air fans (2 for furnace 1, 1 for furnace 2)	1 dilution air fan	Reduction from 3 fans in operation (dual furnace) to 1 fan
48 burners (24 per furnace)	36 burners	Ultra-low NO_X burners with a higher gas efficiency
2 stacks between 35 m and 45 m height	39 m stack (approximate height) with induction fan	Additional fan to manage furnace pressure and allow stack height to be in line with existing stack heights

Existing Furnaces	New Walking Beam Furnace	Description
COG offtake flare line	68 pilot burners	Significant safety improvement during furnace light up and heat up. Slight increase in natural gas usage during light up
	Pilot air blower	Additional fan to improve safety performance during furnace light up and heat up
Salt water pumped from BlueScope Energy Services (Interworks) and supplies cooling water to each furnace for once through cooling	2 closed loop cooling water pumps (1 main, 1 standby) Plus 1 diesel pump for emergency	Closed loop cooling replaces the once through saltwater cooling pumped via a pipeline from Energy Services to the Plate Mill
	5 air cooler sets (4 running, 1 standby (total of 60 fans))	Additional fan sets to cool water. Removes need for salt water to discharge directly to drain
	Emergency tank and water basin	Additional footprint to hold water in event of emergency (e.g., power outage to supply cooling water to furnace)
	1 dosing pump	Additional pumps to reduce corrosion risk of pipework and maximise life of pipes and equipment

4.2.2 4th Processing Route

The “Plate Processing and Despatch” Department currently has three main processing routes:

- Rotary Side Shear line in the Plate Finishing Building;
- the Guillotine Side Shear line in the Plate Finishing Building; and
- the Heavy/Flame Cut Route in the Normaliser Building where the oxy-cutters are used.

The 4th processing route is located at the southern end of the Despatch Building and will be a new processing route. The 4th processing route is made up of the new transfer system, new crane, new oxy- cutter, and the new turnover table.

4.2.2.1 Plate Processing - Cutter

The Project proposes to install a new plasma/ oxy cutter, measuring approximately 48 m long by 6 m wide. The cutter will be located in the existing Despatch Building and will cut large plates and sample pieces (**Figure 4-3**). The new plasma/oxy cutter will also process laser plate, currently done by an existing oxy cutter, which will be removed as part of the Project. As part of the new plasma/ oxy cutter, a filtration unit will be installed to ventilate the cutter and avoid smoke build-up in the area. The filtration unit will also be located in the Despatch Building.

The following equipment will also be installed in the Despatch Building:

- Plasma/oxy cutter gantry;
- 48 m cutting bed and rails;
- Air compressor;
- Nitrogen packs; and
- Existing gantry crane reused with longer rails and catenary cable.

Figure 4-3 Conceptual Plasma Oxy Cutter

4.2.2.2 Plate Processing - Turnover Table

A new plate turnover table will be installed in the Despatch Building to facilitate quality inspections and deburring. The turnover table will measure approximately 22 m long by 17 m wide.

The plate turnover table will function in the below manner:

- Crane loads plate on side A of the turnover table;
- Crane operator initiates turnover sequence;
- Side A turnover arms lift the plate to approximately 80º, simultaneously, the side B turnover arms meet the plate at the 80º;
- Both sets of arms rotate together to 100º, and the plate is transferred from side A to side B;
- Side B lowers the plate to 180º;
- Side A lowers to 0º; and
- Crane picks up plate from side B.

The turnover table is to be powered by a hydraulic power unit which will have two 132 kilowatt (kW) high pressure pumps and one 11kW circulation pump. These motors will have variable speed drives.

4.2.2.3 Plate Processing - Transfer System

A new plate transfer system will be installed to transfer plate from the Plate Finishing Building to the Despatch Building, and in reverse to transfer re-rolls from the Despatch Building to the Plate Finishing Building. The transfer system will measure approximately 25 m long by 27 m wide.

The transfer system will function as follows:

- From Plate Finishing Building to Despatch Building:
  - Plate moves into position with existing cooling bed rolls;
  - With transfer car in position, loading system transfers plate from the cooling bed rolls to the transfer car (noting that in some circumstances crane number 3 may be used to load the transfer car with a magnet beam);
  - Transfer car travels to Despatch Building;
  - Plate unloaded with crane number 2; and
  - Transfer car returns to Plate Finishing Building;
- From Despatch Building to plate processing:
  - Transfer car loaded with crane number 2 in Despatch Building;
  - Transfer car travels to Plate Finishing Building;
  - Plate unloaded with crane number 3; and
  - Transfer car returns to Despatch Building.

The following equipment will be modified and installed as part of the transfer system package:

- Modified transfer car;
- Extended car rails;
- New plate loading system; and
- Modifications to existing cooling bed run-in table rolls.

4.2.2.4 Plate Processing - Cranes

The Project includes upgrades to an existing crane and installation of an additional new crane.

Existing cranes are powered from direct current (DC) live rails, weighing approximately 150 tonnes each. One existing crane will be upgraded with remote control functionality including camera systems.

New cranes typically require alternate current (AC) drives and will require the installation of new AC crane live rails. The new crane is to be Siemens programmable logic controller (PLC), or suitable equivalent, including future proofed for potential automation capability (e.g. encoders on all motions, anti-collision, etc.).

A new magnet beam will be required for the new crane. There will be an engineering assessment of potential reuse of the existing magnet beams where practical.

The current cranes are cabin controlled, twin hoist with magnet lifting beams (18 tonnes self-weight). The plate lifting capacity is 20 tonnes. The new crane will be a twin hoist, on a single wide trolley, with overall capacity of 50 tonnes (30 tonnes plate and 18 tonnes magnet beam). The new crane's class and speeds will match that of the existing cranes. The new crane will have a design life of 25 years minimum.

Details of the scope of cranes for the Project is provided below in **Table 4-3** and shown in **Figure 4-4**.

Table 4-3 Scope of Cranes

Location	Existing Crane	Proposed Changes
Plate Finishing Building	F677 Overhead Crane number 3	Upgrade crane cabin
Plate Despatch Building	F1096 Crane number 2	Additional new crane

Figure 4-4 Conceptual Crane Location

4.2.2.5 Plate Processing - Rail Extension

The Project will reinstate the existing 2A rail line in the Despatch Building to its original length, adding approximately 160 m from the current end stop, with a width of 2 m. The existing rail line, topping asphalt, sleepers and ballast will be removed, with new ballast, sleepers, rail and topping asphalt to be installed. The existing end stop will be removed and reinstated at the end of the extended line.

Figure 4-5 Rail Extension in Despatch Building

4.2.3 Electrical Infrastructure

4.2.3.1 Plate Mill - Electrical Infrastructure

A new 11 kV distribution system dedicated to the Plate Mill will be installed. The new distribution system will provide the necessary power and associated infrastructure for the Project's new equipment. This is due to the existing 11 kV system not having spare physical or electrical capacity to support the new equipment.

A new electrical tie circuit will be installed between the Slab Mill 11 kV board and the Plate Mill 11 kV board. The electrical tie circuit is required to support the increased electrical loads and to improve the operational security of the overall Hot Mills 11 kV network by completing the ring configuration of the electrical system.

All aspects of the new distribution system will be installed and operated in accordance with relevant Australian Standards.

New switch room structures will be constructed as described below.

4.2.3.2 Furnace Switch Room

The furnace switch room will house all the Low Voltage (LV) distribution boards, motor control centres and control panels required for operating the new furnace. The structure will be an elevated purpose-built switch room in proximity to the new walking beam furnace.

The switch room will measure approximately 23 m by 9 m and 3 m high.

4.2.3.3 Plate Processing Switch Room

A new containerised switch room will be installed in the Despatch Building to house transformer and LV distribution boards, and control panels required for operating the additional plate processing equipment associated with the Fourth Processing Route, which includes the transfer system, new crane 2, rail extension, turnover table, and cutter along with supporting equipment.

The switch room structure will be an elevated purpose-built containerised room.. The room size will be approximately 6 m long by 2.5 m wide and 3.0 m high.

4.2.3.4 Transformers

Six new 11 kV/ 415 V, 1 megavolt-ampere (MVA) transformers will be purchased to supply the 415 V AC LV distribution for the new works, detailed in **Table 4-4**.

Table 4-4 Transformer Details

Function	Transformer Type / Duty Required	Quantity
Plate Mill Walking Beam Furnace (PM WBF) Equipment Package	Dry type IP2 x 1.0 MVA Air Natural Cooled / 1.2 MVA Air Forced Cooled	4
Plate Processing	Dry type IP2 x 1.0 MVA Air Natural Cooled	2

All transformers will be dry type and non-outdoor type. This transformer type requires installation in an enclosed room to provide protection from weather and elements, although does not require any specific environmental control measures as they do not contain any flammable liquids such as that found in an oil type transformer.

4.2.3.5 Distribution Boards

A new 11 kV switchboard will be purchased to supply the additional process loads associated with the new equipment. The switchboard will be housed in the existing Plate Mill Electrical Motor Room decommissioning and removal of redundant electrical panels. It will comprise of up to 20 panels or sub circuits including associated auxiliary systems (e.g., battery backup, Remote Terminal Unit (RTU) and/or Supervisory Control and Data Acquisition (SCADA)). The switchboard will act as a sub board extension to the existing Plate Mill 11kV main network board.

For each new LV 11 kV/ 415 V transformer, a new 415 V distribution board will be installed. The purpose of these boards is to distribute and protect the required sub circuits for each new package of equipment. These boards will be specified to meet the latest Australian safety standards at a minimum.

The LV 11 kV/ 415 V transformer and distribution boards will be housed in existing or new containerised switch rooms supplied as part of the Project, including:

- Four (4) of furnace transformers and LV distribution installed in the new furnace switch room;
- One (1) of plate processing transformer and LV distribution installed into a new containerised switch room in Plate Despatch Building; and
- One (1) of plate processing transformer and LV distribution installed into the existing C2 Contactor House switch room in Plate Processing Normaliser Building.

4.2.4 Slab Yard - Hot Boxing

The Project includes construction of a refractory lined structure for the installation of slabs for the purpose of maintaining the slab temperature prior to charging the furnace for select rolled products. The structure will measure approximately 22 m by 14 m.

4.2.5 Ancillary Plant and Equipment

The Project will also encompass miscellaneous ancillary upgrades to minor plant items and software, such as the installation of scanners to allow plate tracking and inventory management and computer updates to allow “soft linking” of plate with orders.

4.3 Construction

4.3.1 Duration

Construction of the Project is anticipated to begin in Q2 2024, subject to completion of the planning approvals process. All on-site construction activities are estimated to take approximately 39 months to complete, including commissioning of the Project.

The construction, installation and operation of the Project may be staged in response to market drivers and specific construction work packages.

The scope of work under each indicative milestone (some may be done in parallel) is outlined below:

- Early site works: minor demolition and excavation works, relocation of services and workshops, small storage enclosures and temporary site construction offices will be completed as exempt and/or complying development (and are not assessed further under this application);
- Stage 1: Installation of the Fourth Processing Route equipment, including:
  - Plate Transfer System, modification to Transfer Car in the Finishing Building;
  - Installation of Crane 2, Rail Extension, Turnover Table, and Cutter in the Despatch Building together with supporting equipment;

- Stage 2: Installation of infrastructure for the new furnace, including:
  - Hot Boxing in the slab yard; and
  - Furnace civils excavations works, foundation works, furnace construction along with supporting equipment.

Table 4-5 outlines an indicative timeline for the Project.

Table 4-5 Indicative Timeline

Stage of the Project	Estimated Date/Year of Completion
Planning and Approvals Process	Q4 2022 to Q1 2024
Construction	Q2 2024 to 2026
Commissioning and Operations	2026 onwards

4.3.2 Workforce and Hours of Construction

During the construction phase of the Project, an average workforce 60 FTE with a peak of approximately 95 FTE will be required. The main construction period is expected to take 21 months.

The workforce will be preferentially sourced locally, such that it is anticipated that workforce accommodation will be available within a reasonable distance of the Project. Some external, additional temporary specialist and project management staff will also be required.

Generally, construction work will be limited to the following construction working hours:

- 7:00 am to 6:00 pm (Monday to Friday); and
- 7:00 am to 6:00 pm (Saturday).

For the majority of works, it is not anticipated for construction to occur on Sundays or Public Holidays.

It will be necessary for some work to be undertaken during plant outages (“shutdown periods”) of between two-four weeks in duration. During these periods, consent is sought for construction 24 hours per day, 7 days per week.

It is anticipated that there will be six to eight shutdown periods throughout the 39-month construction period.

Construction outside daytime hours may also be undertaken, as provided for by the ‘Interim Construction Noise Guideline’ (ICNG) (DECC, 2009) in the following circumstances:

- For the delivery of materials required by the NSW Police or other authorities for safety reasons; and
- Where it is required in an emergency to avoid the loss of lives, property and/ or prevent environmental harm.

4.3.3 Site Preparation

The Project will be located on land which is appropriate to accommodate Project infrastructure. Geotechnical investigations have been undertaken to confirm ground conditions (refer **Appendix K**). A site survey will confirm infrastructure positioning and placement.

The new walking beam furnace development will require site preparation, such as demolition of existing redundant infrastructure, excavation of a new basement to a depth of approximately 8 m BGL, excavation for new tables to the east and west of the furnace to a depth of approximately 5 m BGL, temporary support for site excavations, dewatering during construction and permanent support for the basement structure. The excavation will extend from the slab yard to the Plate Mill, including excavation in the open area between the two buildings. The dimensions of the excavation are approximately 15 m wide by 50 m long and 8 m deep. Approximately 5,220 cubic metres (m^3) of soil material is anticipated to be excavated as part of the Project development.

The project plans to re-used excavated spoil onsite. A waste classification will be undertaken for any soil and/or bedrock excavated from the Project Area prior to offsite disposal. Subject to the appropriate testing, material may be classified as Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM), General Solid, Restricted Solid or Hazardous Waste. Soil excavated will be removed as solid waste, and transported to an approved or licensed tipping location, or similar, as required depending on the waste classification. Additionally, where tracking is required, all vehicles will be tracked for their content and disposal location.

4.3.4 Transport Route and Site Access

The Project Area will be accessed at Northgate via Springhill Road. Heavy vehicles will utilise internal access routes to transport material within the Project Area during construction and operations. The existing rail freight network which serves Port Kembla will be utilised to deliver materials from and to the Project Area as described in **Section 7.9**.

Medium and heavy vehicles will transport materials and equipment associated with the Project construction. These will consist of vehicles including Medium and Heavy Rigid Trucks (MRV and HRV respectively), Articulated Vehicles (AVs), Restricted Access Vehicles (RAVs) and Oversize and Overmass (OSOM).

The proposed transport route to and from the Project includes:

- Port Botany: Via the Princes Motorway, Masters Road, Springhill Road then the Northgate; and
- Port Kembla: Via internal PKSW roadways, as such the use of public road network will not be required.

RAV and OSOM vehicles accessing the Project Area will be subject to the requirements of the National Heavy Vehicle Regulator and the relevant impacted road authorities. These vehicles are anticipated to comply with relevant NHVR documents and would utilise the approved OSOM network. The traffic associated with these vehicles will be one-off and likely to occur during off-peak periods (noting the controls that apply on the Princes Motorway to OSOM vehicles).

Section 7.9 summarises the Traffic Impact Assessment (TIA) for the Project.

4.3.5 Road Upgrades

The existing road network is designed to accommodate the vehicle types proposed as part of the Project construction and operations and the impacts of the Project on the surrounding road network are expected to be negligible (refer **Section 7.9**). No road upgrades or infrastructure works are required for the Project.

4.3.6 Construction laydown and compound

A temporary construction laydown and storage area, hardstand, and construction compound (e.g., site offices, car parking, and amenities) will be erected and maintained for the duration of the construction phase. This infrastructure will be located within Area C, as shown in **Figure 4-6** .

Figure 4-6 Construction Storage Areas

4.3.7 Tree removal

The proposed construction laydown area will require the removal of an Illawarra Fig (*Ficus rubiginosa*) and two brushbox (*Lophostemnon confertus*).

4.3.8 Services and Utilities

All existing services and utilities within the construction area will be investigated to avoid disruption to the construction works and to adjacent facilities. Any work to services and/or utilities will be carried out with the relevant provider. The requirements during Project construction and indicative upgrades for Project operation are described below, subject to detailed design phase.

4.3.8.1 Construction Materials

Construction materials including gravel, aggregate and sand will be required for the construction of hardstands to support Project infrastructure, including new walking beam site preparation, rail extension and installation of electrical cabling.

MRV and HRV will be used to deliver raw materials and smaller plant elements, 19 metre long AVs will be used to transport larger plant and RAVs and/ or OSOM vehicles will be required for the delivery of mobile cranes and specialist construction materials to the Project Area. During peak construction it is anticipated that up to 38 heavy and 144 light vehicle movements will be generated per day (refer **Section 7.9**).

Construction equipment and other general consumables (including but not limited to concrete and aggregates) will be sourced from Sydney or more locally from suburbs such as Unanderra, Port Kembla or Wollongong, subject to availability and cost considerations.

4.3.8.2 Potable Water Supply

Sydney Water is the servicing authority for potable water to the PKSW. The existing potable water supply to the Plate Mill is a metered 6 inch main. The presence of more personnel on site during construction may increase potable water usage during this period but will return to its current usage once commissioning is completed. The temporary increase in water usage during the construction phase can be accommodated by existing water supplies to the Plate Mill.

During the operational phase, the workforce associated with the Plate Mill will increase by up to 18 additional permanent operations and maintenance roles. Potable water usage is approximately 6.5 kL/ hr currently. No significant change to overall potable water usage is expected as a result of the increase in the number of employees.

No external potable water supply pipe to the Port Kembla site will be impacted by the Project. No water network upgrade will be required for the Project construction and operation.

4.3.8.3 Industrial Fresh Water Supply

Industrial Fresh Water (IFW) is supplied to the Project Area by Sydney Water and is a combination of unfiltered dam water and recycled water (total composition varies month to month).

IFW is currently supplied to the Plate Mill by two metered lines. The Plate Mill uses approximately 11 kL/ hr of IFW. An increase to the IFW usage to between 26 – 71 kL/hr is expected as a result of the Project because industrial water is used for make-up flow to the new walking beam furnace cooling system (replacing the current saltwater cooling system which requires process water discharge to the Plate Mill drain).

External IFW supply network to the Project Area will not be impacted and no network upgrades are required for the Project.

4.3.8.4 Wastewater

BlueScope manages its own sewage at PKSW. All sewage is collected in septic tanks, pumped out and treated at BlueScope's on-site sewage treatment plant An increase in sewer capacity is not required for the Project.

Some small modifications to reroute the stormwater from the furnace roof extension into the existing stormwater system will be required during construction. No upgrades to the external wastewater services are required.

4.3.8.5 Coke Ovens Gas Supply

The two existing pusher furnaces will be replaced by a new walking beam furnace. The new walking beam furnace is more energy efficient and capable of a higher throughput, as such, is likely to result in a reduction in overall COG consumption of approximately 35% per tonne of plate steel processed.

The current usage for a single furnace is approximately 6,500 Nm^3/ hr while operating, idle flows around 2,500 Nm^3/ hr with peaks of around 8,000 Nm^3/ hr. Dual furnace usage is approximately 14,000 Nm^3/ hr.

This compares to a COG flow rate for the new walking beam furnace of approximately 8,000 Nm^3/ hr, with peak flows around 10,000 Nm^3/ hr. **Figure 4-7** illustrates COG supply to existing furnaces (in red) and to new walking beam furnace (in green).

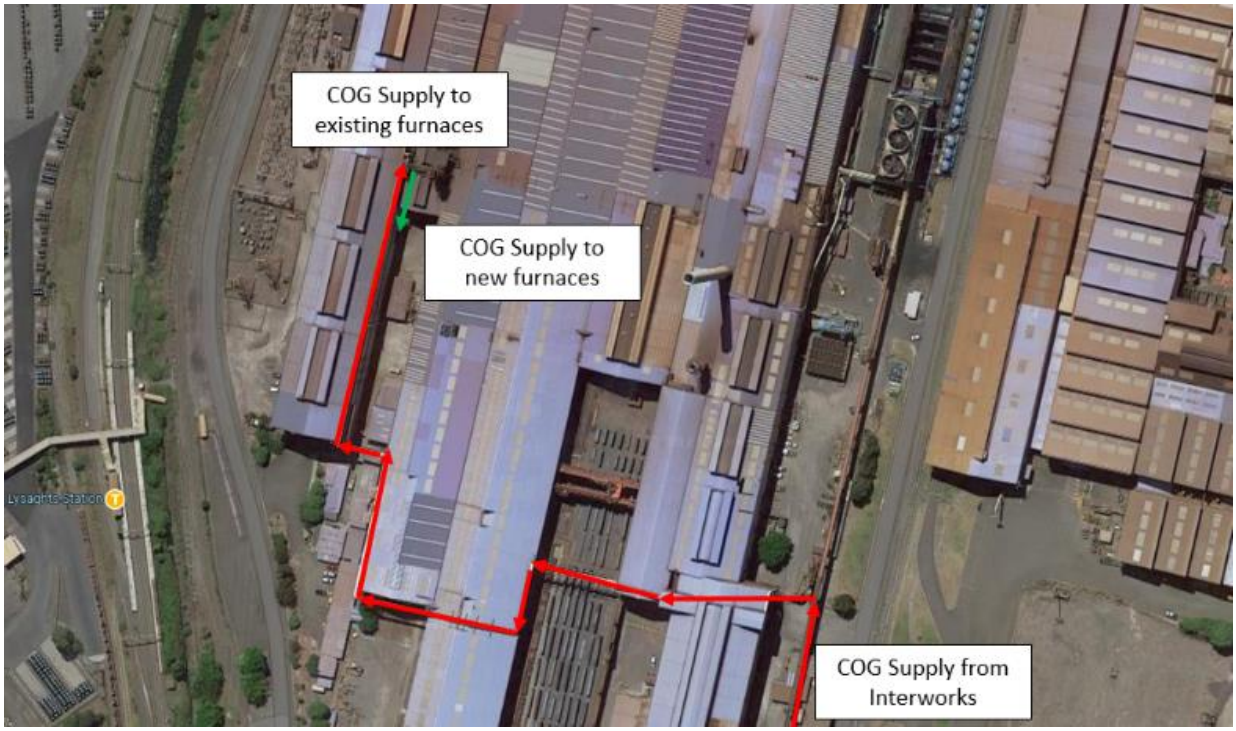


Figure 4-7 Conceptual Coke Ovens Gas Supply Network

4.3.8.6 Natural Gas Supply

Natural gas is used for pilot lighting in the new walking beam furnace burners and for the dispatch cutter. Natural gas will be provided from the existing PKSW interworks feed supplied by Jemena. A small increase in demand of natural gas (measured in flow) is anticipated due to both the additional cutter and the pilot lighting for the new furnace.

The cutter will use approximately 1.24 Nm^3/ hr of natural gas, and the new walking beam furnace will use approximately 15 Nm^3/ hr for light up and heat up (approximately 72 hours, generally once a year). Installation of the natural gas system will comply with the relevant Australian Standards.

Figure 4-8 illustrates natural gas supply to existing furnaces (in red) and to new walking beam furnace (in green). It is not anticipated that this will require any external network changes, and presently there is sufficient in the network to cater for this additional demand.

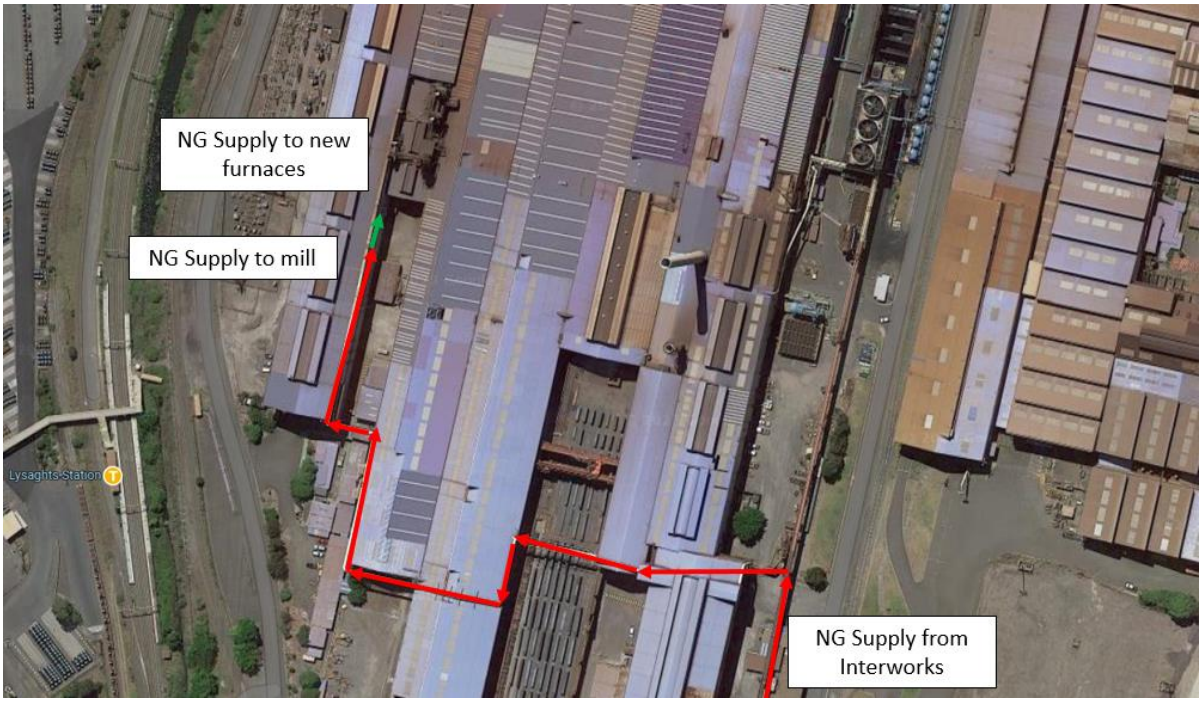


Figure 4-8 Conceptual Natural Gas Supply Network

4.3.8.7 Nitrogen Supply

Nitrogen is currently supplied to the Plate Mill by Coregas in bottled packs. The nitrogen bottled packs currently in place for the existing furnaces will remain the same when replaced for the new walking beam furnace. The new cutter will require nitrogen for purging, requiring a new nitrogen pack store to be set up at in the Despatch Building near the Plate Processing Switchroom.

4.3.8.8 Power Supply

Endeavour Energy is the electricity distributor to the PKSW. Five dedicated 60 MVA transformers distribute 33 kV throughout the PKSW through multiple switchyards and tie circuits in various locations within the PKSW where step down transformers are used for distribution. The primary switchyard associated with the Project is the Hot Strip Mill 33 kV switchyard, located on the western side of the Plate Mill.

The existing internal electrical 11 kV network will be modified to supply the LV distribution required for the Project as discussed in **Section 4.2.3**. All these works form part of the internal BlueScope electrical network infrastructure and are controlled and managed by BlueScope.

Electrical demand is contained within the existing 11 kV supply capacity and no augmentation to the supply from Endeavour Energy will be required for the Project.

4.3.8.9 Telecommunications

There are no changes or modifications to BlueScope external communications networks as part of the Project. Any networking changes associated with the Project would be minimal and internal to PKSW.

4.3.8.10 Waste Management

The collection, management and disposal of waste generated during the Project construction and operations have been considered in **Section 7.12**.

Waste collection locations during construction phase will be provided within an assigned area located within the Project Area. Sufficient space will be allowed for the separation and storage of different waste and for recycling and reuse of items. The existing trade waste points for the Project will allow for the additional flow required for the Project operation.

4.3.9 Other Minor Works

Geotechnical investigations, fencing and other minor works may be required. These works will occur generally within the Project Area unless otherwise indicated in this EIS.

4.3.10 Post Construction Demobilisation

The Project Area will be progressively rehabilitated to the extent practicable throughout the course of construction. When construction is completed, all temporary plant and equipment will be removed, and disturbed areas will be revegetated and rehabilitated if practicable. Adequate sediment, soil and erosion controls will be put in place during ground disturbing works and rehabilitation activities in accordance with the *Managing Urban Stormwater: Soils and Construction- Volume 1* (The 'Blue Book') (Landcom, 2004).

4.4 Operation

4.4.1 Commissioning

Following the completion of construction, the final commissioning works will involve checks and authorisation on high voltage equipment prior to connecting to BlueScope's 11kV network.

4.4.2 Operational Hours and Workforce

The Project is estimated to increase the operational workforce at the PKSW by up to 18 personnel. During operations the Project will operate 24 hours a day, 7 days a week throughout 2 shifts of 12 hours a day.

The Plate Mill facility currently operates 24 hours a day, seven days a week except in the Plate Processing area from the storage area adjacent to the cooling bed to Despatch, which currently operates 24 hours a day, 5 days a week plus 2 x 12 hour dayshift on weekends. The proposed Project operation is for 24 hours a day, 7 days a week for all aspects of operations, including the plate processing operations.

The operational specifications of the existing Plate Mill and the Project are summarised in **Table 4-6.**

Table 4-6 Operational Hours for the Project

Operational Elements	Existing Hours of Operation		Proposed Hours of Operation	
	Operations [3]	**Maintenance Window**	**Operations** [2]	**Maintenance Window**
Slab Yard	24 hr x 7 day/week	16 hour shift per month	No Change	No Change
Plate Rolling – from Furnace to Cooling Bed	24 hr x 7 day/week	16 hour shift per month	No Change	No Change
Plate Processing – from Cooling Bed to Despatch	24 hr x 5 day/week	Staggered for different processing lines	24 hr x 7day/week	Staggered for different processing lines
Plate Despatch	24 hr x 7 day/week	Staggered for different processing lines	No Change	No Change

4.4.3 On-site Storage

The Plate Mill will utilise the existing storage areas for raw patterns (the process which occurs after a slab is rolled) and finished plate.

4.4.4 Decommissioning and Rehabilitation

The equipment installed as part of the Project will be integrated within the existing infrastructure of the Plate Mill. When the Plate Mill reaches the end of its operational life, three main options will be available:

- Continue operating the Plate Mill, noting that the aging equipment is likely to require increased maintenance expenditure to prolong its effective life;
- Replace components of the Plate Mill with new technology available at the time, to extend the use of the Plate Mill; or
- Decommission the Plate Mill.

If decommissioning is the preferred option, a Decommissioning and Rehabilitation Plan would be prepared at the time to address how the Plate Mill would be dismantled, and how the infrastructure and equipment would be either removed, recycled or disposed at a licensed waste management facility.

[3] Includes maintenance window.

5. STATUTORY CONTEXT

5.1 Power to Grant Approval

Approval for the Project is sought under Part 4, Division 4.7 of the EP&A Act, which outlines the approval pathway for development deemed to be SSD. Clause 4.36(2) of the EP&A Act states:

> *"(2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant development. "*

Pursuant to Clause 2.6(1) of Planning Systems SEPP, a development is classified as SSD if:

> *"(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and*
>
> *(b) the development is specified in Schedule 1 or 2."*

Schedule 1, Clause 9 of the Planning Systems SEPP determines that "metal, mineral and extractive material processing" to be SSD if it meets the following criteria:

> *Development that has a capital investment value of more than $30 million for any of the following purposes—*
>
> *(a) metal or mineral refining or smelting, metal founding, rolling, drawing, extruding, coating, fabricating or manufacturing works or metal or mineral recycling or recovery,*
>
> *(b) brickworks, ceramic works, silicon or glassworks or tile manufacture,*
>
> *(c) cement works, concrete or bitumen pre-mix industries or related products,*
>
> *(d) building or construction materials recycling or recovery.*

The Project is for the purpose of 'metal founding, rolling and fabricating' and will have a CIV of more than $30 million (see **Appendix F**).

Therefore, the Project is classified as SSD under Part 4 of the EP&A Act.

5.2 Permissibility

The permissibility of the Project is determined by the T&I SEPP. The Project Area is zoned IN3 (Heavy Industrial) pursuant to Chapter 5 of the T&I SEPP. 'Heavy Industry' is permissible with consent within zone IN3 (Heavy Industrial). The Project meets the definition of 'Heavy Industry' and is permissible with development consent.

5.3 Other Approvals

Other approvals and the relevant NSW and Commonwealth legislation are discussed in **Table 5-1**.

Table 5-1 Other Approvals Required

Approval Category	Legislation	Requirement
Consistent Approvals Section 4.42 of the EP&A Act outlines that these approvals cannot be refused if necessary for carrying out an approved SSD and are to be consistent with the terms of the SSD approval.	*Roads Act 1993* (Roads Act)	The Project will not require works on public roads. The impacts of the Project on roads and traffic are assessed in the Traffic Impact Assessment (refer **Appendix O** and **Section 7.9**).
	Protection of the Environment Operations Act 1997 (POEO Act)	There is an Environment Protection Licence (EPL) 6092 which allows a range of scheduled activities to be carried out at PKSW including metallurgical activities. The Project does not involve changes to the nature of the scheduled activities licensed by the EPL.
	Fisheries *Management Act 1994* (FM Act)	The Project will not require an aquaculture permit under Section 144.
	Coal Mine Subsidence Compensation Act 2017	The Project is not within a mine subsidence district. Therefore, the Project will not require approval under Part 3 of the *Mine Subsidence Compensation Act 2017.*
	Mining Act 1992	There are no existing mining leases or exploration licences over the Project Area.
	Petroleum (Onshore) Act 1991	There are no existing petroleum leases within the Project Area.
	Pipelines Act 1967	The Project will not involve the construction, installation and operation of pipelines and approval under the *Pipelines Act 1967* will not be required.
Native Title	*Native Title Act 1993* (NT Act)	Under section 13 of the NT Act, an individual can apply to the Federal Court for a determination of native title. A review of the potential for native title found no native title claims over the Project Area.
EPBC Act Approval	*Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)	As demonstrated in the BDAR waiver, the Project Area does not support any threatened species or ecological communities and no significant habitat features have been identified. Based on the long history of vegetation clearance and disturbance, it is unlikely that the Project would result in any significant impacts on ecological values listed under the EPBC Act (refer **Section 7.2**).
Other Approvals	*Biodiversity Conservation Act 2016*	SSD applications are required to be accompanied by a Biodiversity Development Assessment Report (BDAR) under Section 7.9 of the BC Act. However, as the Project will not result in any significant impact on biodiversity values of the Project Area, a waiver to the provision of a BDAR under Section 7.9 (2) of the BC Act has been approved by the Department of Planning and Environment (refer **Appendix R**).
	Water Management Act 2000 (WM Act)	There is no groundwater extraction activity associated with the Project and water access licences will not be required under the WM Act.

Approval Category	Legislation	Requirement
Approvals not required under SSD Section 4.41 of the EP&A Act states the following approvals; permits, etc are not required for an approved SSD.	*Rural Fires Act 1997*	The Project will not require a bushfire safety authority under section 100B, as the development does not involve subdivision for residential or rural residential development. Under Section 100C, emergency bush fire hazard reduction and management works can be undertaken on any land without consent or approval under the EP&A Act. Additionally, the Project Area is not identified as being bushfire prone land (refer **Section 7.15**).
	Fisheries Management Act 1994	The Project will not require a dredging or reclamation work permit under Section 201, a marine vegetation regulation of harm permit under Section 205, or a passage of fish not to be blocked permit under Section 219.
	Heritage Act 1977	The Project will not require a Part 4 approval to carry out an act, matter or thing referred to in Section 57(1), or an excavation permit under Section 139.
	Water Management Act 2000	The Project will not require a water use approval under Section 89, a water management work approval under Section 90, or an activity approval (other than an aquifer interference approval) under Section 91.
	National Parks and Wildlife Act 1979	The Project will not require an Aboriginal heritage impact permit under Section 90.

5.4 Mandatory Matters for Consideration

The consent authority is required to consider a range of mandatory matters when deciding whether to grant consent for the Project under various legislation.

Appendix B describes each mandatory matter and identifies where each is addressed in the EIS. It also identifies pre-conditions to exercising the power to grant approval (including mandatory conditions) and identifies in which section of the EIS each is addressed.

5.5 EIS Requirements

This EIS has been prepared in accordance with Part 8, Division 5 of the EP&A Regulation, which specifies the form and content of an EIS. **Appendix B** includes a statutory compliance table and indicates where each requirement is addressed in this EIS.

6. STAKEHOLDER ENGAGEMENT

6.1 Introduction

Stakeholder engagement is an integral part of any major development. As part of the development of the Project and preparation of the EIS, engagement has been and will continue to be undertaken with a range of stakeholders including various local and NSW Government agencies, the local community, special interest groups and neighbouring industrial landholders. BlueScope is committed to ensuring any public concerns and comments are considered, and that attempts are made to avoid, minimise or mitigate potential impacts where possible.

6.2 Engagement Conducted

Early and ongoing engagement is required for all State Significant Projects.

A 'Stakeholder Engagement Strategy (SES)' was prepared for the Project in September 2022. The SES incorporated the 'International Association of Public Participation (IAP2)' (IAP2, 2022) engagement spectrum in which engagement activities were designed to 'Inform', 'Consult', 'Involve', 'Collaborate' and 'Empower'.

The SES is an evolving document which includes consideration of the SEARs (**Appendix A**) and the following polices and guidelines:

- Undertaking Engagement Guidelines for State Significant Projects (DPIE, 2022);
- 'Social Impact Assessment Guideline For State Significant Projects' (SIA Guidelines) (DPIE, 2023);
- 'State Significant Development Guidelines – Preparing an Environmental Impact Statement' (DPE, 2022); and
- 'Aboriginal Cultural Heritage Consultation Requirements for Proponents' (DECCW, 2010c).

The SES has facilitated engagement with relevant stakeholders which is open and inclusive, easy to access, relevant, timely and meaningful, as required in the Engagement Guidelines (DPIE, 2022). The SES also demonstrates BlueScope's commitment to continuously evaluate community engagement and modify when needed, to ensure stakeholder expectations are met.

A wide range of community and stakeholder consultation activities have been conducted with a broad range of local community groups and interested stakeholders throughout 2022 and up to mid-2023 as part of the Project.

Engagement has included one on one briefings, one to many briefings, a 'Town Hall' event, use of existing consultation pathways including BlueScope's Community Consultative Committee, and distribution of information via local and national media as well as directly on BlueScope social media channels. Much of the consultation for the Project was carried out face-to-face. 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 Council, local schools, the state government and their relevant departments and agencies and BlueScope employees.

The engagement activities provided an opportunity to inform stakeholders about the project and the SSD 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. With the exception of some concerns about transport access and truck movements to the WTMF (which is no longer included in the Project scope), community and stakeholder support for the Project has been generally positive.

6.2.1 Engagement Principles

Best practice engagement involves the community and stakeholders in all decision-making stages of a project. The community plays a role from conception, through the assessment process and on to the construction and operational phases of a proposal. Effective stakeholder consultation has three important functions:

- Facilitate deeper understanding of potential issues and decisions required for a proposal;
- Enhance the quality of decisions made for a proposal; and
- Allow people to contribute to decisions that affect their lives.

BlueScope's community engagement approach is based on living up to 'Our Bond', which is the company's set of guiding principles that outline how 'we choose to do what is right' and that 'our local communities are our homes'. BlueScope prides itself on upholding its strong reputation by being a good corporate citizen and in August 2020, BlueScope announced its new Purpose and Corporate Strategy, which reinforced the commitment to *'Strengthening our Communities'*.

According to Reptrak, who produce the Corporate Reputation Index globally, BlueScope has a 'Strong' reputation in Australia. Out of the Top 60 companies in Australia, BlueScope has consistently ranked in the top 10 to 20 and is the leading manufacturer/industrial company amongst the Benchmark 60 (RepTrak Company).

BlueScope's engagement with the local community and key stakeholders is ongoing and not limited to specific project consultation. In April 2023, Reptrak conducted a deep dive into the Illawarra area where the Project is located and found BlueScope's reputation score to be 3 points higher in the Illawarra than the national average, putting it into the 'Excellent' category. This demonstrates a commitment to ongoing engagement with the local community.

The PKSW operation was established in 1928 when the first (No.1) blast furnace was commissioned. Since then, the site has grown to house and activate heavy industrial steelmaking operations. Today, Port Kembla is an international trade gateway for bulk agricultural, construction, and mining industries, car import terminal and is home to the state's largest grain export terminal; it is also the state's second largest coal export port.

The engagement approach for the Project recognises the PKSW has been in operation in the local area for almost 100 years and, as such, there is opportunity to utilise the existing communication channels and relationships with stakeholders that are already in place in connection with the broader PKSW activities.

6.2.2 Engagement Objectives

The key objectives of the Project's consultation and engagement process are to:

- Identify and consider stakeholder insights and concerns through effective two-way engagement to inform Project planning, design, mitigation, management and monitoring measures;
- Identify long-term community needs and design initiatives that can lead to well-designed support programs for the long-term benefit of the community;
- Support BlueScope in maintaining a positive corporate image; and
- Ensure stakeholders are adequately informed and have sufficient understanding of:
  - The justification and need for the Project;
  - The proven technology proposed as part of the Project;
  - How the Project may affect them and how they can be involved in the approval process;
  - How their views are considered in a meaningful way and used in Project planning, refinement and design, mitigation measures and monitoring and management frameworks;

- The benefits of the Project, including local investment and employment;
- How the Project can contribute to the local community;
- How the Project complies with relevant regulatory requirements and policies; and
- How the requirements of the SEARs and technical assessment lead to further information to be taken into consideration to remove, reduce and offset impacts and improve social and environmental outcomes while maintaining a viable Project.

In terms for the specific Stakeholder communications strategy, the following is outlined:

- Identify stakeholders with an interest in the Project;
- Develop a clear action plan for future engagement approaches across all stakeholder groups;
- Outline communications tools and channels;
- Provide clear, consistent and compelling messages about the benefits of the Project;
- Identify opportunities for stakeholders and the community to raise concerns and provide feedback; and
- Identify opportunities to build positive sentiment across local media, businesses and other stakeholders.

6.2.3 Stakeholder Identification

The SES was designed to enable community members to be part of the Project planning and development process, and to provide them with the opportunity to engage in a meaningful way at an early stage in the assessment process for the Project. Stakeholder identification was undertaken in the SES as part of the scoping phase and was updated during the development of the EIS for the Project.

Table 6-1 lists key stakeholders relevant to the Project which were identified through various methods, including:

- Consideration of the local and wider community, industry and service providers;
- Networking with different individuals and community organisations;
- Discussion with regulators; and
- Inclusion of all stakeholders referenced in the SEARs.

Given BlueScope's direct ownership and operation of adjacent landholdings to the Project Area, the primary focus for the engagement activities was the broader community, representative and special interest groups, government agencies and elected officials and PKSW employees.

Table 6-1 Stakeholders Identified

Category	Stakeholder	Key areas of interest
Community		
Nearby Neighbours	■ Inside Industry ■ NSW Ports ■ BSL owned and operated steelmaking and adjacent sites	■ Transport access impacts or changes ■ Environmental changes ■ Community benefits ■ Construction impacts
Broader Community and Region	■ Illawarra region residents and business ■ BlueScope Community Consultative Committee	■ Environmental changes ■ Community benefits ■ Construction impacts ■ Transport access impacts or changes
Special Interest Groups	■ First Nations representative and organised groups ■ I3net ■ Business Illawarra ■ Greater City Commissions ■ Clean Energy Taskforce ■ Recharge Illawarra ■ Relevant neighbourhood forums	■ Environmental changes (energy use, cultural heritage) ■ Transport access impacts or changes ■ Community benefits ■ Construction impacts ■ Local procurement / resourcing ■ Consideration of impacts
Government Agencies and	■ Wollongong Council ■ NSW Department of Planning and Environment ■ Transport for NSW ■ NSW Environment Protection Authority ■ EnergyCo	■ Community benefits ■ Consideration of impacts (emissions, energy efficiency, flooding) ■ Mitigation and management strategies ■ Transpoort access impacts or changes (road and rail)
Elected Representatives	■ State and Federal MPs	■ Community benefit and regional economic development
BlueScope Employees	■ All PKSW employees	■ Assessment process ■ Community benefit ■ Regional economic development

6.2.4 Engagement Tools

Engagement activities were undertaken as part of the EIS and scoping phase to discuss the Project with stakeholders and to build an understanding of potential concerns, opportunities and mitigation strategies. It also aimed to gather information that could inform the broader communication required to support future stages of the Project including during the delivery stage.

Table 6-2 provides a summary of a range of engagement tools deployed to engage with and seek feedback from Project stakeholders.

Table 6-2 Engagement Tools Overview

Project Tools	Summary	Timing
Key Stakeholder Briefings	Direct consultation with key stakeholders via one-to-one or one-to-few face-to-face briefings affords the opportunity to discuss the Project in detail and provide feedback and input into the process	Ongoing
BlueScope CCC	Meets quarterly and includes representatives from a broad range of stakeholder groups. Allows for information about the Project and progress updates to be widely disseminated, and for the tabling of any issues or concerns raised by the constituents of these varied groups.	Quarterly
Existing Forums	BlueScope will continue to provide updates through existing community and business forums. Presentations in these forums will provide the attendees with an opportunity to communicate community sentiments regarding project activities and raise any issues or concerns. Forums include regular events conducted by business organisations Regional Development, Illawarra Business Chamber and i3net, the Port Kembla Harbour Environment Group (which includes other Port tenants), the University of Wollongong, Warrawong Community of Schools and Neighbourhood Forums 5 & 7 which represent the communities closest to the PKSW.	Ongoing
Website	A dedicated BlueScope in the Illawarra website houses a new webpage for the project and will be launched in the lead up to public exhibition to further drive community awareness or provide more information, which provides: ■ Project Fact Sheet; ■ Links to videos of the Plate Mill; and ■ Website: bluescopeillawarra.com.au.	Ongoing
Email address and hotline	A dedicated email address and hotline will be available prior to public exhibition to answers queries and allow stakeholders to provide feedback. This hotline and email will be monitored regularly by BlueScope's engagement team. The details for the hotline and email address are shared on the Project's website, social media and newsletters: ■ Email: steeldirect@bluescopesteel.com; and ■ Community Call Line: 1800 640 252. The Community Call Line is available 24 hours a day, 7 days a week. Names, contact details and enquires have been recorded in the Stakeholder Register.	Ongoing
Social Media	As appropriate at various project milestones, BlueScope's social media accounts (primarily LinkedIn and YouTube) will share project information].	Ongoing
Public Relations and Media	Periodic media stories in the local Newspaper, Television station and radio for key project milestones (e.g., public exhibition, planning approval, Final Investment Decision, execution).	Ongoing
Stakeholder Register	All interactions with stakeholders are captured on a Stakeholder Register. There are currently several hundred individual stakeholders associated with PKSW on the register, along with over 50 organisations.	Ongoing
Factsheets	Factsheets including general information about the Project were developed and shared with stakeholders to provide a greater understanding of the Project. Updated factsheets will be developed during the course of the Project.	Ongoing
Community Open Days	Community open days or drop-in sessions will be coordinated during the Public Exhibition phase. This will include a Project overview at BlueScope's Visitors' Centre followed by a plant tour of the Plate Mill facility. This enables interested stakeholders to speak directly to Senior Managers of the Project team, ask questions, express any concerns and to share critical Project information and collateral. Community Open Days / drop-in sessions will be held at least twice during the Public Exhibition phase.	Public Exhibition
Virtual meetings	Where face-to-face meetings were not possible, virtual meetings via Teams or Zoom were conducted to share Project information and obtain feedback. All questions were captured in the Stakeholder Register.	Ongoing

Project Tools	Summary	Timing
Town Hall Event	The Applicant has conducted a Town Hall style event for suppliers, contractors, and the business community to ensure stakeholders are fully information. In total 110 people attended the Town Hall event hosted by i3Net on BlueScope's behalf.	Annual
Fieldwork	As part of the ACHSR, fieldwork was undertaken to identify any cultural values within the landscape. RAPs identified that the Project Area has low potential to contain Aboriginal objects or archaeological deposits	Completed

6.2.5 Stakeholders Engagement

A significant number of individual and group meetings and public information events have been conducted since Project inception. Some of the more significant community and regulatory consultation events are summarised in **Appendix D**. There was broad support for the Project and onshoring manufacturing for the important renewable and defence industries. This local capability was regularly referred to and the recognition of local jobs and economic contribution were very important.

There was a general sentiment in favour of having the wind tower facility located at PKSW but understanding the road transport logistics constraints from multiple low bridges on Princes Motorway before entering Mount Ousley. Even alternative routes, through high density residential and commercial areas, were not deemed as viable alternatives.

Importantly, this feedback from both the regulators (primarily TfNSW) and the community, reinforced BlueScope's decision to change the scope of the project and re-design to remove the wind tower facility from PKSW.

6.3 Community and Stakeholder Views

There was broad support for the Project and onshoring manufacturing for the important renewable and defence industries. This local capability was regularly referred to and the recognition of local jobs and economic contribution were very important.

The Project initially included the WTMF. While there was a general sentiment in favour of having the WTMF located at PKSW, road transport logistics constraints would need to be addressed such as multiple low bridges on Princes Motorway before entering Mount Ousley. The alternative routes, which pass through high density residential and commercial areas, were not deemed as viable alternatives. This feedback from agencies (primarily TfNSW), informed BlueScope's decision to amend the Project scope and remove the WTMF from PKSW.

A summary of the community and stakeholder views is included in **Appendix D**. Justification and evaluation of the Project is discussed in **Sections 7** and **8**.

6.4 Future Engagement

Ongoing engagement with stakeholders will be undertaken during the EIS exhibition and assessment phase. This engagement will be generally in accordance with the Engagement Guidelines (DPIE, 2022), which require engagement which is open and inclusive, easy to access, relevant, timely and meaningful.

This engagement will include (but not be limited to):

- Ongoing consultation with Wollongong City Council;
- Ongoing engagement with TfNSW, rail service providers (QUBE) and rail network managers;
- Ongoing consultation with other regulatory agencies to address issues raised during exhibition phase of the EIS and as part of preparation of the Response to Submissions report;
- Create a new Project factsheet, based on key areas of community concern (if any);

- Ongoing consultation with community and regulatory stakeholders via various forums, including meetings, briefings and presentations, open day / drop in sessions, and community events;
- Ongoing monitoring of community hotline and email for complaints and other feedback from the community;
- Maintaining the Project website and other social media channels for the Project;
- Ongoing media relations into the future to drive community awareness around the Project; and
- Project updates uploaded to Project website.

The SES will also be regularly monitored, reviewed and adapted over the course of the Project to ensure it remains effective and encourages community participation. The SES includes a six-month action plan which describes the activities, target audience and timing of actions to ensure smooth delivery of engagement which will be reviewed and adapted post-submission of the EIS.

6.4.1 Exhibition Phase

During the public exhibition period, it is proposed that ongoing consultation be maintained with the existing stakeholder group as well as engaging with new stakeholders that may be interested in understanding more about the Project.

Engagement during the public exhibition will include:

- Briefings provided during the exhibition period for key stakeholders and nearby businesses;
- Community drop-in session with senior BlueScope staff on hand, as well as members of the Project team, to provide an overview of the Project, answer any questions, note and address concerns raised and provide a tour of the Project Area and existing operations. The session will be promoted to the existing Project stakeholder network as well as more broadly in the Wollongong community though advertisement in the local newspaper; and
- Second drop-in with the PKSW operators during the public exhibition period, including all businesses recognised in the stakeholder identification table as being neighbouring or being nearby to the Project Area. Nearby schools and retirement village will also be encouraged to attend the session, which will involve BlueScope representatives providing an overview of the Project, answering any questions, noting and addressing any concerns raised and to providing a tour of the Project Area . The session will be promoted to the existing Project stakeholder network via preferred means of contact (generally email).

6.4.2 Construction Phase

During the construction and phase, engagement will be targeted toward those potentially impacted by the Project (e.g., nearby neighbouring businesses). This engagement will seek to work with the community and local businesses to proactively understand the potential impacts and implement further mitigations, such as providing input into the traffic management plan pre-construction.

Should concerns be raised from other stakeholders in the area, the BlueScope Community Complaints and Enquiries Procedure will be implemented to manage these concerns. The BlueScope Community Complaints and Enquiries Procedure requires staff to respond to all enquiries and concerns and provide follow up detail as required from investigations.

A Construction Environmental Management Plan (CEMP) will be prepared prior to commencement of construction and will include a process for receiving and responding to community complaints, including the management response. BlueScope currently has a free Community Call Line dedicated to enquiries and concerns. The Community Call Line (1800 640 252) is available 24 hours a day, 7 days a week and email address (steeldirect@bluescopesteel.com).

6.4.3 Operation Phase

Following the completion of the construction phase, the SES will be updated with engagement activities and communications mechanisms for the operational phase.

Stakeholder engagement and communication during the operational phase will include:

- BlueScope's regular community perception survey to receive feedback, assess performance and identify areas for improvement in a number of areas, including community engagement. This survey encompasses all communities and residents within BlueScope's Australian operations. A 'deep dive' is proposed into the Project community (e.g., Wollongong) to capture feedback from the community most directly potentially affected by the Project; and
- BlueScope's Community Complaints and Enquiries procedure including a community call line for handling complaints and enquiries from the public. The Community Call Line details will be included in regular communication held with stakeholders.

7. IMPACT ASSESSMENT AND MITIGATION

7.1 Categorisation of Impacts

This section provides a summary of the potential environmental and social impacts associated with the Project and identifies the highest priorities for detailed assessment in this EIS.

It considers all regulatory requirements as listed in **Appendix A**.

Potential environmental and social risks were identified to direct the level of assessment required in this EIS.

This section considers which priority should be given to each of the identified risks, based on four orders of priority, as follows:

This section identifies the issues into four priority risk areas:

- Very High: requires revision to Project description to remove or reduce the risk;
- High: independent specialist assessment;
- Medium: Desktop assessment, consultation and precedents; and
- Low: Desktop assessment required only.

Where an issue has been classified as a low priority, this is on the basis that it is (a) well understood, industry-wide and non-site specific, (b) is not applicable to the Project, or (c) an industry standard approach is available which adequately addresses the issue.

Table 7-1 lists potential environmental and social impacts relevant to the Project.

Table 7-1 Project Risk Assessment

Very High	High	Medium	Low
None	Air Quality and GHG	Aboriginal heritage	Biodiversity
	Noise	Hydrology and flooding	Bushfire
	Hazards	Soil and water	Social
	Contamination	Traffic	Waste
		Visual impact	ESD

7.2 Air Quality and Greenhouse Gas Emissions

7.2.1 Background

An Air Quality and Greenhouse Gas Assessment was conducted by ERM to assess the potential air quality and greenhouse gas impacts associated with the construction and operation of the Project.

The key source of air emissions for the Project is the walking beam furnace, which replaces two existing pusher type furnaces. The proposed walking beam furnace will result in an increase in processing capacity, a reduction in fuel consumption and an improvement in emission performance per tonne of plate steel.

Potential air quality impacts from industrial sources are managed in NSW via a collection of regulatory instruments, which prescribe operating conditions, plant emission limits and ambient air quality criteria to be applied in the assessment and management of industrial operations.

The air quality assessment includes prediction of air pollutant concentrations at sensitive receivers near the site and compares these against the regulatory impact assessment criteria. The greenhouse gas assessment is discussed in **Section 0**.

The Air Quality and Greenhouse Gas Assessment is provided in **Appendix H**.

7.2.2 Methodology

Atmospheric dispersion modelling was completed following the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2022) using the US EPA AERMOD atmospheric dispersion model in conjunction with a site-specific meteorological dataset prepared using the CSIRO's TAPM prognostic meteorological model.

Dispersion modelling was conducted for NO_2 and SO_2 which were identified as key pollutants based on a review of emissions for the existing Plate Mill. Emission estimates were based on manufacturer specifications in conjunction with combustion calculations and site-specific coke oven gas (COG) composition. Two emission scenarios were modelled using the current site wide air emission model inputs.

The emission scenarios modelled were:

- **Base Case** – representative of existing operations; and
- **Project Case** – representative of proposed operations. This is equivalent to existing operations, inclusive of the equipment upgrades as a result of the Project and moving from No.5 to No.6 Blast Furnace. The Project Case modelling assumes operation of the walking beam furnace continuously at its maximum processing rate.

The dispersion modelling has used a processing rate of 170 t/hr aligning with the estimated maximum capacity of the Project. This rate is approximately 2.5 times higher than the average rate of 68 t/hr required to achieve the estimated production capacity of 600,000 t/annum, therefore the results provide a conservative representation of typical operations.

7.2.3 Existing Environment

The Project Area is located approximately 1 km inland from the coast, on a narrow coastal plain that includes Port Kembla. The Illawarra escarpment is located approximately 5 km west of the PKSW, reaching elevations in excess of 500 m above sea level. The region features a temperate climate with warm summers and relatively cool dry winters. Local wind conditions are driven by prevailing synoptic weather systems and interactions with regional coastal and terrain features.

Key meteorological features include strong south to south-westerly winds during winter, and afternoon summer sea breezes and precipitation associated with flow of moist ocean air onto land and over the escarpment. Dominant winds are aligned on a north-east / south-west axis, with south-westerly winds most concentrated over autumn and winter, and north-easterly winds most concentrated over summer.

Table 7-2 provides a summary of the monitoring data applied in the dispersion modelling assessment which covers FY21 (July 2020 through June 2021). Cumulative assessments for both NO_2 and SO_2 have applied background data on a time-varying (contemporaneous) basis.

Table 7-2 Summary of model background dataset (FY21)

Pollutant	Averaging Period	Statistic	Concentration (µg/m^3)	Assessment Criterion (µg/m^3)
NO_2	1-hour	Maximum	84	164
		99.9th percentile	68	-
	Annual	average	12.1	31
Ozone	1-hour	Maximum	141	-
		99.9th percentile	110	
SO_2	1-hour	Maximum	49	286
		99.9th percentile	38	-
	24-hour	Average	15.5	57

Table 7-3 shows the emissions from the existing Plate Mill relative to PKSW. The existing Plate Mill emissions make up a small proportion of those from PKSW, with NOx and SO_2 being of greatest significance, contributing to approximately 2% and 4% of total emissions respectively. Plate Mill emissions of CO and PM10 are minor, contributing less than 1% of emissions from PKSW. Accordingly, NOx and SO_2 have been adopted as key pollutants to assess the air quality impacts associated with the Project.

Table 7-3 Existing Plate Mill and PKSW emissions

Pollutant	Existing Plate Mill	Rest of PKSW	PKSW (Total)	Plate Mill (% of PKSW total)
FY21				
NO_x	126	6,042	6,168	2.0%
CO	24	102,906	102,930	<0.1%
SO_2	236	5,292	5,528	4.3%
PM_{10}	2	1,197	1,199	0.2%
FY22				
NO_x	141	5,936	6,077	2.3%
CO	26	103,478	103,504	<0.1%
SO_2	263	5,676	5,939	4.4%
PM_{10}	2	1,098	1,100	0.2%

7.2.4 Impact Assessment

7.2.4.1 Operational impacts

The dispersion modelling was performed over a 10 x 10 km gridded receptor domain with inclusion of the six (6) discrete receptors and PKSW site boundary (**Figure 7-1**). Modelling results have been presented for each discrete receptors, as well as the gridded receptors. Gridded receptor predictions have been filtered to capture the maximum offsite prediction. The results of the dispersion modelling with comparison against the relevant EPA air quality assessment criteria are provided at **Appendix H**.

Figure 7-1 Aerial image showing extent of 100 m resolution gridded receptor domain, PKSW boundary and discrete receptor locations

Table 7-4 Summary of Modelling Predictions – Nitrogen Dioxide (NO_2) (µg/m³)

Receptor	Locality	Project Sources	Site Wide Model – Incremental		Site Wide Model – Cumulative		Criterion
			Base Case	Project Case	Base Case	Project Case	
Maximum 1-hour							
R01	Figtree	(33)	54 (61)	56 (64)	86	86	164
R02	Mt. St. Thomas	(66)	77 (154)	78 (147)	93	93	
R03	Coniston	(44)	51 (70)	51 (70)	86	86	
R04	Unanderra	(12)	45 (59)	47 (60)	85	85	
R05	Cringila	(12)	73 (170)	73 (170)	94	94	
R06	Warrawong	(7)	50 (59)	51 (61)	86	86	
Maximum offsite	-	(96)	94 (421)	95 (436)	125	126	
99.9th Percentile 1-hour							
R01	Figtree	(21)	42 (54)	44 (56)	70	70	-
R02	Mt. St. Thomas	(49)	54 (110)	56 (121)	74	76	
R03	Coniston	(24)	44 (55)	45 (56)	71	72	
R04	Unanderra	(8)	40 (42)	41 (43)	70	70	
R05	Cringila	(7)	52 (135)	53 (135)	81	81	
R06	Warrawong	(4)	38 (52)	39 (52)	71	71	
Maximum offsite	-	(71)	67 (218)	67 (218)	87	87	
Annual Average							
R01	Figtree	(0.4)	2.5 (2.6)	2.6 (2.8)	14.6	14.7	31
R02	Mt. St. Thomas	(0.7)	2.7 (3.2)	2.8 (3.5)	14.8	15.0	
R03	Coniston	(0.6)	3.6 (4.0)	3.8 (4.2)	15.8	16.0	
R04	Unanderra	(0.2)	2.3 (2.4)	2.3 (2.5)	14.4	14.5	
R05	Cringila	(0.2)	6.0 (7.6)	6.0 (7.7)	18.1	18.2	
R06	Warrawong	(0.1)	2.1 (2.4)	2.1 (2.4)	14.2	14.3	
Maximum offsite	-	(4.3)	13.6 (18.8)	13.7 (18.8)	25.7	25.8	

Note:
NO_2 predictions primarily estimated using ozone limiting method. Total NO_x (i.e. NO_x as NO_2) predictions have been shown in brackets.

Table 7-5 Summary of Modelling Predictions – Sulphur Dioxide (SO2) (µg/m³)

Receptor	Locality	Project Sources	Site Wide Model— Incremental		Site Wide Model – Cumulative**		Criterion
			Base Case	Project Case	Base Case	Project Case	
Maximum 1-hour							
R01	Figtree	44	102	102	125	125	286
R02	Mt. St. Thomas	88	221	191	221	191	
R03	Coniston	57	117	117	120	117	
R04	Unanderra	16	127	127	127	127	
R05	Cringila	15	**351**	**351**	**351**	**351**	
R06	Warrawong	10	98	94	98	94	
Maximum offsite	-	128	738*	750*	738*	750*	
99.9th Percentile 1-hour							
R01	Figtree	28	76	71	78	72	-
R02	Mt. St. Thomas	67	163	148	163	152	
R03	Coniston	32	74	72	83	82	
R04	Unanderra	11	62	62	63	63	
R05	Cringila	10	195	195	195	195	
R06	Warrawong	5	74	73	75	73	
Maximum offsite	-	97	582	571	582	571	
Maximum 24-hour							
R01	Figtree	45	46	45	46	45	57
R02	Mt. St. Thomas	41	43	41	43	41	
R03	Coniston	27	28	39	39	27	
R04	Unanderra	33	33	33	33	33	
R05	Cringila	48	48	50	50	48	
R06	Warrawong	25	25	25	25	25	
Maximum offsite	-	239	239	***240***	***240***	239	

Notes:
*Exceedances of criteria shown in **bold font**.*
**Criteria apply at sensitive receptors hence maximum offsite concentrations may not constitute exceedances -Refer contours for detail.*
*** Time varying background used.*

The key findings of the assessment are:

- NO_2 concentrations were predicted using the ozone limiting method in conjunction with time varying background ozone and NO_2 data. All predictions were within the recently updated NO_2 assessment criteria, with a peak 1-hour average cumulative offsite predictions of 126 µg/m³ and 25.8 µg/m³ for 1-hour and annual averages (respectively). These predictions are below the corresponding criteria of 164 µg/m³ and 31 µg/m³. These results are broadly indicative of a reduced impact, given the use of typical furnace operation within the Base Case and the continuous upper limit of operation for the Project case;
- For both the Base Case and the Project Case, the 100th percentile 1-hour SO_2 predictions exceed the recently updated assessment criteria at locations to the south-east of PKSW, as well as on elevated terrain to the north-west. Predicted exceedances at the 99.9th percentile statistic are limited to a small region around immediately south-west of PKSW. Given the highly variable nature of 100th percentile 1-hour average model predictions, this change is considered small; and
- The cumulative impacts of the Project and approved developments are considered to be negligible, noting that the replacement of the existing furnace has negligible influence on ambient air quality, primarily due to the minor scale of emissions from both the existing and proposed plate mill furnaces relative to the total emissions from the PKSW site.

7.2.4.2 Construction impacts

The *UK Institute of Air Quality Management – Guidance on the Assessment of Dust from Demolition and Construction Sites* (IAQM) provides a detailed framework for the assessment and management of potential air quality impacts during construction operations.

IAQM (2014) notes that common air pollution and amenity issues at construction sites relate to:

- Annoyance due to dust deposition (soiling of surfaces) and visible dust plume;
- Elevated PM_{10} concentrations due to dust-generating activities; and
- Exhaust emissions from diesel-powered construction equipment.

The risk-based approach in accordance with IAQM guidance was reviewed to assess the potential particulate impacts during construction of the project. Following the screening criteria outlined in the IAQM guidance, the construction phase of the Project does not justify a detailed assessment.

Table 7-6 summarises the sensitive receptors and the distance from the Project Area.

Table 7-6 Summary table of receptors and location

Receptor ID	Receptor Type	Proximity to Construction Area	Description
R01	Residential	2,100 m west	Residence
R02	Residential	1,400 m north	Residence
R03	Educational	1,800 m north	Coninston Primary School
R04	Residential	3,300 m west	Unaderra Community Centre
R05	Educational	2,100 m south	Cringila Primary School
R06	Residential	3,500 m south-east	Warrawong Community Centre

All sensitive receptors were identified to be located outside of the upper bound construction area buffer distance (e.g., greater than 350 m from construction activities). Noting that excavation and piling are proposed in isolated sheltered locations, when considered in conjunction with separation distances, there is an overall low risk of particulate matter impacts, and no further assessment is warranted.

7.2.4.3 Greenhouse gas emissions

GHG emissions have been estimated for furnace throughputs of 430,000 and 600,000 t/annum, equating to the current upper range of Plate Mill production and the proposed production capacity (respectively). The implementation of the Project at current production rates is estimated to produce a GHG reduction of approximately 14.3 kt CO2-e annum, which is a 39% reduction in GHG emissions. With an increased throughput of 600,000 t/annum, emissions are estimated to increase by approximately 16% above the Base Case, albeit with a 33% increase in throughput. It is estimated that the furnace upgrade will result in a reduction in fuel demand of approximately 0.95 gigajoules per tonne of plate steel processed, equating to a reduction in furnace COG consumption of approximately 35%. With the improvement in gas efficiency the COG released to be utilised in electricity generation equates to a generation range of 3.38 – 1.5 MW at the 430,000 and 600,000 t/annum production rates respectively. Using an estimate of 6220 generation asset operating hours for the year and 0.68 t CO2-e/MWh, the offset in electricity taken from the grid is expected to be between 14.3 – 6.3 kt CO2-e per year.

BlueScope has incorporated a range of energy efficiency and greenhouse gas reduction measures into the Project design including recovery of waste heat from within the furnace exhaust gases, use of variable speed drives on large motor drives and other design measures to maintain furnace efficiency over a range of operational throughputs. The burners selected for the furnace are also able to accept an increase in hydrogen composition if green hydrogen becomes available in reliable and economic supply quantities. The burners are able to be directly replaced with a Hydrogen and Natural Gas blend as part of a transition to low carbon steelmaking.

It is considered that the potential for the Project to result in adverse air quality impacts is low, with material benefits in terms of air and greenhouse gas emissions relative to production levels.

7.2.5 Mitigation and Management

Based on the findings and analysis in the Air Quality and Greenhouse Gas Assessment, it is considered that the potential for the Project to result in adverse air quality impacts is low.

The following mitigation measures are recommended:

- The Project will operate in accordance with EPA requirements, and equipment shall be designed to monitor and alarm abnormal process conditions (including tank levels and combustion controls), thus reducing risks of elevated air emissions;
- The plant will be operated in a manner that is consistent with the purpose for which it was designed to be used. Operations will follow authorised Standard Operating Procedures that comply with legislative requirements and BlueScope standards. The walking beam furnace shall be operated in a manner to control combustion and to ensure efficient control of air emissions;
- Maintenance requirements for all equipment will be assessed and inspection and maintenance plans implemented to the frequency set by BlueScope;
- Tuning of burners will be conducted on each maintenance campaign (upon furnace light up and heat up) to maintain an optimal air to gas ratio. Oxygen analysers will be used for online monitoring and tuning to limit free oxygen inside all the control zones of the furnace;
- Heavy vehicle routes will be optimised for shortest transport routes, thus minimising vehicle kilometres travelled, and corresponding local air quality impacts;
- Operators will be formally trained and accredited in how to operate the plant;
- Periodic emission testing will be performed in accordance with the requirements specified in EPL 6092; and
- Suitable dust management mitigation measures will be included in the CEMP as appropriate.

7.3 Noise and Vibration

7.3.1 Background

A Noise and Vibration Impact Assessment (NVIA) was prepared by ERM to assess the impact from the Project. The NVIA quantitatively assesses the potential noise impacts during the construction and operation phases of the Project. The assessment involves predicting the noise impacts via modelling at identified noise sensitive receivers.

A vibration assessment has not been conducted as there are no vibration sensitive receivers within 50 metres of the Project and as such there would be no residential areas, schools, hospitals, or other receivers that could be potentially impacted by vibration impacts arising from the construction or operation of the Project.

The NVIA is provided at **Appendix I**.

7.3.2 Methodology

The methodology for the NVIA included the following:

- Identification and assessment of noise generating activities at the Project Area, including noise for existing and proposed plant, road traffic, rail traffic, and construction activities;
- Establishment of construction and operational assessment criteria in accordance with the standards, policies and guidelines stated above;
- Operational and construction noise modelling of noise sources listed above, and the associated noise related to traffic increases from these activities;
- Assessment of the predicted operations, construction and traffic noise impacts at identified sensitive receptors against the relevant criteria; and
- Discussion and recommendations for mitigation and/or management measures based on the predicted impact noise levels.

The assessment has been undertaken by suitably qualified acoustic consultants. The assessment has been prepared generally in accordance with the following standards, policies and guidelines:

- NSW Environment Protection Authority (EPA), *Noise Policy for Industry (NPI) 2017* (NSW EPA, 2017);
- NSW Department of Environment and Climate Change (DECC), *Interim Construction Noise Guideline 2009* (ICNG) (NSW DECC, 2009);
- Australian Standards (AS) 1055:2018 *Acoustics – Description and measurement of environmental noise* (Standards Australia, 2018);
- NSW Department of Environment and Conservation (DEC) *Assessing Vibration: A Technical Guideline 2006* (NSW DEC, 2006);
- NSW Department of Environment, Climate Change and Water (DECCW), *Road Noise Policy* (NSW DECCW, 2011);
- Transport for NSW (TfNSW), Road Noise Criteria Guideline (RNCG) 2022 (TfNSW RNCG, 2022);
- Transport for NSW (TfNSW), Noise Mitigation Guideline (NMG) 2022 (TfNSW NMG, 2022); and
- NSW Environment Protection Authority (EPA), *Noise Guide for Local Government (NGLG) 2013* (NSW EPA NGLG, 2013).

A full list of the included monitoring parameters and associated sources for the operation and construction of the development are included in **Appendix I**. The noise assessment for the proposed development was undertaken on the basis that the existing site controls are in place (e.g. roller doors are closed at night in the plate processing facility)

7.3.3 Existing Environment

The existing Plate Mill is located in the northern part of PKSW and operates 24 hours per day, seven days per week. Steel from the Plate Mill is transported either by road or rail. Existing noise emission sources from the Plate Mill includes noise from the plate rolling, plate treatment and plate processing equipment.

Noise from the existing Plate Mill and the PKSW site operations is currently managed in accordance with the EPL 6092 and the Environment Management Systems accredited to ISO14001. These measures include:

- Noise aspects are identified, risk assessed and recorded in the BlueScope Risk management system. Risks are reviewed periodically at a frequency dictated by their risk score;
- Controls are identified to mitigate noise generation from operations where required. These are identified against the relevant risks;
- Operational checks, procedures and maintenance plans are put in place to manage these controls and maintain equipment that has the potential to generate environmental noise;
- External and internal noise monitoring is undertaken where required;
- There is an incident reporting system to capture deviations from normal operations. Actions to rectify issues are assigned and followed up; and
- Community complaints are managed via a 24/7 on-call officer. Contact details are published on the BlueScope in the Illawarra website.

The nearest residential suburbs are Coniston and Mount St Thomas which are located to the north of the PKSW. Noise Catchment Areas (NCAs), which may be impacted by the Project, were identified. NCAs represent an area containing Noise Sensitive Receivers (NSRs) that may experience similar background noise characteristics. Four NCAs were identified as summarised in **Table 7-7** and shown in **Figure 7-2**.

Ambient noise monitoring was undertaken by BlueScope to measure the existing noise environment at the NCAs. Noise monitoring was conducted for a continuous period between 19 July and 9 August 2022. The noise monitoring results provided by BlueScope are summarised in **Table 7-8**.

Table 7-7 Noise Catchment Areas

Noise Catchment Area ID	Residential NSRs	Non-residential NSRs
NCA1 (Coniston) - North-east of ASMAP	Residents within Coniston, located to the north of the Project site. The residential area of Coniston nearest to Port Kembla currently experiences noise exposure from the local road network, heavy rail, Port Kembla industrial area, and commercial premises.	■ Thrive Early Learning Centre, a childcare centre operating from 7am to 6pm (childcare centre) ■ Coniston Public School (school) ■ Older Peoples Mental Health Unit (hospital) ■ Wollongong Golf Club (active recreation use) ■ JJ Kelly Park (active recreation use) ■ Greenhouse Park (passive recreation use).
NCA2 (Mount St Thomas) - North-west of ASMAP	Residents within Mount St Thomas, located to the northwest of the Project site. The residential area of Mount St Thomas nearest to Port Kembla currently experiences noise exposure from the local road network, heavy rail, and the Port Kembla industrial area.	N/A
NCA3 (Cringila (North)) - South of ASMAP	Cringila (North), located to the south of the Project site. The residential area of Cringila nearest to Port Kembla currently experiences noise exposure from the local road network, heavy rail, Port Kembla industrial area, and commercial premises which front Five Islands Road and Lake Avenue	■ Centenary Park, Cringila (active recreation use) ■ Cringila Lions Football Club (active recreation use) ■ Bilal Mosque (place of worship).
CA4 (Cringila (South)) - Further south of ASMAP	Cringila (South) residents are located slightly further south of NCA 3. These residents are positioned at a higher elevation, potentially resulting in higher exposure to noise from the Port Kembla industrial area, the local road network, heavy rail and nearby commercial.	■ Cringila Public School (school).

Table 7-8 Noise Monitoring Results – Ambient Noise Levels

NCA ID	Ambient Level per Period, $L_{Aeq, period}$ in dB(A)			Rating Background Level (RBL), L_{A90} in dB(A)		
	Day	Evening	Night	Day	Evening	Night
NCA1	61	57	55	47	43	38
NCA2	59	57	55	49	47	46
NCA3	54	51	50	43	44	40
NCA4	56	53	50	44	45	39

Notes:
Time Period is defined as:
- Day-time period is from 0700 to 1800 (Monday to Saturday) and 0800 to 1800 (Sundays and Public Holidays);
- Evening period is from 1800 to 2200; and
- Night-time period is from 2200 to 0700 (Monday to Saturday) and 2200 to 0800h (Sundays and Public Holidays).

PRINCES HIGHWAY
PRESTON STREET
PRINCES MOTORWAY
PHILLIPS CRESCENT
BYRARONG AVENUE
ST JOHNS AVENUE
KIRALA AVENUE
TOORAK AVENUE
KELVIN ROAD
HEASLIP STREET
IRIS AVENUE
WILSON AVENUE
UNION STREET
BRIDGE STREET
ROBERTSON STREET
THE AVENUE
WALDRON STREET
MORAN PARADE
TARONGA AVENUE
MOUNT STREET
HILL STREET
OCEAN STREET
GLADSTONE AVENUE
MASTERS ROAD
EDNEY LANE
SPRINGHILL ROAD
WEST STREET
SWAN STREET
AUBURN STREET
KENNY STREET
KEIRA STREET
CHURCH STREET
EVANS STREET
BEACH STREET
CORRIMAL STREET
MILLER STREET
TATE STREET
PORT KEMBLA ROAD
SEAWALL ROAD
TARAGO ROAD
YAMPI WAY
TOM THUMB ROAD
FARRER ROAD
MORTON WAY
WAYNOTE PLACE
CHRISTY DRIVE
JARVIE ROAD
STEEL STREET
LAKE AVENUE
AUBURN PARADE
OLD PORT ROAD
FLINDERS STREET
FIVE ISLANDS ROAD
WATTLE STREET
FLAGSTAFF ROAD
STEELTOWN LANE
COMPER STREET
BRUCE ROAD
BARINA AVENUE
R1
R2
R3
R4

Legend

- Project Site
- Noise Sensitive Receivers

Noise Catchment Area

- NCA1 - Coniston
- NCA2 - Mount St Thomas
- NCA3 - Cringila (North)
- NCA4 - Cringila (South)
- Major Road
- Minor Road
- Path/Track

Source:
NSW DTDB and DCDB 2022
Nearmap Imagery July 2022

Noise Catchment Areas and Noise Sensitive Receivers

F7-2

Drawing No:	0650342_BSL_NA_G002_R0.mxd		Port Kembla Advanced Steel Manufacturing Precinct (ASMAP) Project
Date:	30/06/2023	Drawing Size: A4	
Drawn By:	VN	Reviewed By: DS	Client: BlueScope Steel Limited

Coordinate System: GDA 1994 MGA Zone 56

0 100 200m

N

ERM

7.3.4 Impact Assessment

7.3.4.1 Construction Noise

Construction noise management levels are given in the NSW *Interim Construction Noise Guideline* (ICNG) (DECCW 2009) and are based on measured/adopted background noise to minimise the annoyance from construction. Construction noise management levels are presented in **Table 7-9**.

Table 7-9 Construction Noise Management Levels

Receiver Type	Time of Day	Management Level $L_{Aeq,15min}$
Residential	Recommended Standard Hours: ■ Monday to Friday 7.00 am to 6.00 pm ■ Saturday 8.00 am to 1.00 pm ■ No work on Sundays or Public Holidays	Noise affected RBL + 10
		Highly noise affected 75 dB(A)
	Outside Recommended Standard Hours	Noise affected RBL + 5 dB(A)
Industrial premises	Consult with occupants of industrial premises when in use	75 (external)

Source: NSW Department of Environment and Climate Change (DECC) Interim Construction Noise Guideline 2009 (ICNG) (NSW DECC, 2009)

The construction noise impact was assessed by predicting the associated noise at the closest receptors for the noisiest machinery and equipment for each assumed construction stage. All machinery and equipment were modelled assuming a worst-case scenario of the noisiest source onsite. The Project is proposing construction work both during and outside the Recommended Standard Hours defined in the ICNG.

Based on the modelling conducted, the worst-case construction noise impact is predicted at the closest residential receiver R2 at a noise level of 50 dB(A) $L_{eq,15min}$, which complies with the 'Noise affected" Noise Management Level of 59 dB(A) $L_{eq,15min}$ by 9dB. Therefore, no specific construction noise management measures are required.

7.3.4.2 Traffic Noise

The *Road Noise Policy* (RNP) (NSW DECCW, 2011) sets out the assessment criteria for residences to be applied to particular types of projects, road categories and land uses. The relevant criteria are summarised in **Table 7-10**. The relative increase criteria as set out in the RNP applicable to the Project are summarised in **Table 7-11** .

Table 7-10 Road Traffic Noise Assessment Criteria for Residential Land Uses

Road Category	Assessment Criteria – $L_{eq(period)}$ in dB(A)	
	Day (7 am - 10 pm)	**Night (10 pm - 7 am)**
Freeway / Arterial / sub-arterial roads[1]	60 $L_{Aeq,15\ hour}$ (external)	55 $L_{Aeq,9\ hour}$ (external)
Local roads[2]	55 $L_{Aeq,1\ hour}$ (external)	50 $L_{Aeq,1\ hour}$ (external)

Note: Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments.
Existing residences affected by additional traffic on existing local roads generated by land use developments.

Table 7-11 Relative Increase Criteria for Residential Land Uses

Road Category	Type of Project/Land Use	Assessment Criteria – dB(A)	
		Day (7 a.m.–10 p.m.)	Night (10 p.m.–7 a.m.)
Freeway/arterial/ sub-arterial roads and transitways	New road corridor/ redevelopment of existing road/land use development with the potential to generate additional traffic on existing road	Existing traffic $L_{Aeq(15hr)}$ + 12 dB (external)	Existing traffic $L_{Aeq(9hr)}$ + 12 dB (external)

Source: NSW Department of Environment, Climate Change and Water (DECCW), Road Noise Policy (NSW DECCW, 2011)

During the construction phase, the predicted construction volumes are:

- During a 15-hour Day period (7am to 10pm) – Assume standard construction hours:
  - 39 Light Vehicles on average per hour (including semi-trailer); and
  - 5 Heavy Vehicles on average per hour (including one bus).
- During a 9-hour Night period (10pm to 7am), it is assumed that traffic movement will occur in the morning peak period from 6am to 7am:
  - 54 Light Vehicles on peak hour (including semi-trailer); and
  - 17 Heavy Vehicles on peak hour (including one bus).

The closest residential receiver to Springhill Road is R2, located to the north of the site and 200m north of Springhill Road. The predicted construction road traffic noise levels at R2 indicate an insignificant increase of up to 0.2dB (**Table 7-12**). An increase of less than 2dB is considered as a minor impact and is barely perceptible to the average person (NSW DECCW, 2011). It is concluded that no construction traffic noise impact is expected at the identified noise sensitive receivers.

Table 7-12 Predicted Construction Traffic Noise Levels at R2

Period	*Existing Traffic**			*Existing + Project Traffic*			*Noise Level Increase, dB*
	Traffic Volume (vehicles/period)		Predicted Noise Level, dB(A)	Traffic Volume (vehicles/period)		Predicted Traffic Level, dB(A)	
	LV	HV**		LV	HV**		
Day (7am to 10pm)	24,838	4,383	$L_{Aeq,15hr}$ 59.4	25,267	4,438	$L_{Aeq,15hr}$ 59.6	+0.2
Night (10pm to 7am)	3286	580	$L_{Aeq,9hr}$ 55.4	3,340	597	$L_{Aeq,9hr}$ 55.5	+0.1

Note: A façade refection of 2.5 dB has been applied to all calculated results as per the RNP.
LV = Light Vehicles; HV = Heavy Vehicles
* Source: Traffic Information Specialist, 22098 – Port Kembla ATC – Springhill Road, 19/07/2022
** HV assumed to be 15% of AADT

During the operation phase, the Project is anticipated to increase existing road traffic movements on the surrounding road network (Springhill Road) by up to 104 heavy vehicle movements per week and up to 18 light vehicles (staff) per day. Based on the available data, the average weekday traffic volumes (24 hours) on Springhill Road is approximately 40,000 (Annual Average Daily Traffic, or AADT, as reported in 2018). The road traffic generated by the Project is considered insignificant and will not generate an operational traffic noise impact at the NSRs.

7.3.4.3 Operational Noise

The *NSW Noise Policy for Industry 2017* (NPI) sets out procedure to determine the relevant project noise trigger levels (PTNLs) to assess operational noise from industrial developments.

The PNTLs applicable to the sensitive residential receivers are detailed in **Table 7-13**.

Table 7-13 Project Noise Trigger Levels (PNTLs) – NSW NPI Criteria

NCA ID / Receiver ID / Type	Assessment period[1]	PNTL[2] $L_{Aeq,15min}$ in dB(A)	Sleep Disturbance Criteria L_{Amax} in dB(A)
NCA1 / R1 / Industrial Interface (Residential Urban)	Day	63	-
	Evening	53	-
	Night	48	53
NCA2 / R2 / Industrial Interface (Residential Urban)	Day	63	-
	Evening	53	-
	Night	48	61
NCA3 / R3 / Industrial Interface (Residential Urban)	Day	63	-
	Evening	53	-
	Night	48	55
NCA4 / R4 / Industrial Interface (Residential Urban)	Day	63	-
	Evening	53	-
	Night	48	54

Notes:
1. Day-time period is from 0700 to 1800 (Monday to Saturday) and 0800 to 1800 (Sundays and Public Holidays; Evening period is from 1800 to 2200 and Night-time period is from 2200 to 0700 (Monday to Saturday) and 2200 to 0800h (Sundays and Public Holidays)
2.Project amenity noise levels have been converted to the $L_{Aeq, 15\ minute}$ noise descriptor using the following: $L_{Aeq, 15\ minute} = L_{Aeq, period} + 3$ dB (NSW Noise Policy for Industry, Section 2.2)

The Project replaces two existing furnaces with a new walking beam furnace. Noise emissions from the new furnace chamber and new exhaust stack were included in the model as well as internal mechanical plant noise from the Plate Mill and Plate Processing buildings which radiates through the building facades. The predicted operational noise assessment results at the identified noise sensitive receivers based on the modelled noise sources are presented in **Table 7-14**.

Table 7-14 Predicted Noise Levels at Receivers

Receiver ID	Assessment Criteria in dB(A) – Refer to Table 7-13				Predicted Noise Level[1] $L_{Aeq,15\text{-minute}}$ / $L_{A1,\ 1\ minute}$[2] in dB(A)			Margin of Exceedance[3]	
	NPI PTNL – Day $L_{Aeq,15\text{-minute}}$	NPI PTNL – Evening $L_{Aeq,15\text{-minute}}$	NPI PTNL – Night $L_{Aeq,15\text{-minute}}$	NPI Sleep Disturbance $L_{A1,\ 1\text{-minute}}$	Day	Evening	Night	NPI PTNL (Day / Evening / Night)	NPI Sleep Disturbance
R1	63	53	48	53	39	42	42	-24/-11/-6	-11
R2	63	53	48	61	44	46	46	-19/-7/-2	-15
R3	63	53	48	55	42	45	45	-21/-8/-3	-10
R4	63	53	48	54	39	42	42	-24/-11/-6	-12

Note:
1. Modelling Parameters:
Daytime: Stability category D with wind speed of 0.5m/s at 10m AGL;
Evening: Stability category D with wind speed of 3m/s at 10m AGL; and
Night-time: Stability category F with wind speed of 2m/s at 10m AGL.
2. In this assessment, L_{A1} parameter is equivalent to the L_{Aeq} parameter as the modelled noise sources are assumed to be constant and not impulsive.
3. Margin of exceedance; Negative values signify compliance and positive values signify exceedance of NPI PNTLs and sleep disturbance criteria.

The predicted results indicate the following:

- Compliance with the daytime operational noise criteria is achieved at all the identified nearest noise sensitive receivers by a minimum margin of compliance of 19 dB;
- Compliance with the evening operational noise criteria is achieved at all the identified nearest noise sensitive receivers by a minimum margin of compliance of 7 dB;
- Compliance with the night-time operational noise criteria is achieved at all the identified nearest noise sensitive receivers by a minimum margin of compliance of 2 dB; and
- Compliance with the sleep disturbance noise criteria is achieved at all the identified nearest noise sensitive receivers by a minimum margin of compliance of 10 dB.

7.3.4.4 Cumulative Impacts

The measured noise levels recorded in 2022 captured the existing noise environment at the identified noise sensitive receivers, including noise impacts from the local road network, heavy rail, the Port Kembla industrial area and commercial premises. Based on the conservative assumptions and resultant findings of this assessment, the cumulative impact at noise sensitive receivers are not expected to increase during any period.

7.3.5 Mitigation and Management

The following mitigation measures are recommended for the Project:

- Attended noise measurements should be conducted within the Plate Mill buildings when fully operational to confirm the internal reverberant levels of equipment;
- Detailed noise specification for the stack induction fan, when available should be reviewed against the modelling assumptions made in the NVIA. The noise specifications and assumed noise levels should not exceed the modelling assumptions;
- Should the configuration of the building façade be altered, the minimum acoustic performance as presented in the NVIA should be maintained. A review of the assessment may be required if significant changes are proposed; and
- A Construction Environmental Management Plan (CEMP) should be considered prior to commencing works to ensure 'best practice' measures are adhered to. The CEMP should include appropriate noise management strategies.

7.4 Preliminary Hazard Analysis

7.4.1 Background

A risk screening of dangerous goods and hazardous materials was carried out in accordance with the Hazardous and Offensive Development Application Guidelines published in January 2011, *'Applying SEPP 33'*. The risk screening determined that the proposed development is potentially hazardous and therefore a Preliminary Hazard Analysis (PHA) is required.

A Preliminary Hazard Analysis (PHA) was undertaken by Arriscar to support the EIS submission for the Project. The PHA is provided in **Appendix J** and is summarised within this section. The PHA was prepared in accordance with the Multi-level Risk Assessment Guideline (DPE, 2011) and Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis (DoP, 2011).

The objective of the PHA was to identify off-site risks posed by the Project to people, their property and the environment, and to assess the identified risks using relevant qualitative criteria. The PHA considered off-site risks (in the presence of existing and proposed controls) arising from potential hazardous events and conditions (e.g. equipment failure, operator error or external events), with specific focus on fixed installations on-site. It also considered relevant regulatory requirements as well as safe use and storage of Dangerous Goods (DG) classified under the Australian Dangerous Goods Code (ADG Code).

7.4.2 Methodology

The Multi-Level Risk Assessment approach (DPE, 2011) published by the NSW Department of Planning, Industry and Environment, was used as the basis for the PHA to determine the level of risk assessment required. The approach considered the development in context of its location, the quantity and type (e.g., hazardous nature) of dangerous goods stored and used, and the Project's technical and safety controls. The Multi-Level Risk Assessment Guidelines are intended to assist industry, consultants, and consent authorities to carry out and evaluate risk assessments at an appropriate level for the project being studied.

The levels which comprise the Multi-Level Risk Assessment approach are outlined in **Table 7-15** .

Table 7-15 Multi-Level Risk Assessment Levels

Level	Type of Analysis	Appropriate If:
1	Qualitative	No major off-site consequences and societal risk is negligible
2	Partially Quantitative	Off-site consequences but with low frequency of occurrence
3	Quantitative	Where 1 and 2 are exceeded

A detailed hazard identification (HAZID) study was conducted for the Project facilities and operations. Where an incident was identified, it was included in the recorded hazard identification table (Appendix A of PHA). The hazard identification table lists incident type, causes, consequences, and safeguards. This was performed using the word diagram format recommended in HIPAP No. 6 (DPE, 2011). Two hazards (relating to releases of coke oven gas (COG) and natural gas) were selected for detailed consequence analysis to confirm the Project would not result in impacts off the PKSW site.

7.4.3 Impact Assessment

7.4.3.1 Construction Phase

A construction safety assessment is not required under HIPAP No. 6. The storage of dangerous goods or hazardous materials in the Project Area (except as required for existing operations) is not expected during the construction phase.

7.4.3.2 Operation Phase

The PHA report (Table 4 of **Appendix J**) lists the dangerous goods which will be stored or used as part of the Project. A summary of the chemicals to be considered having regard to the screening criteria in SEPP (Resilience and Hazards) are listed in **Table 7-16**.

Table 7-16 Dangerous Goods Used in the Project

Chemical	DG Class	PG	Total Quantity	Threshold Quantity	SEPP Applies
Flammable and toxic gas (COG) Contains CO (toxic and flammable), H_2 (flammable) and H_2S and benzene (toxic)	2.1 Sub 2.3	N/A	Pipeline inventory	100 kg 100 kg	Yes. Maximum quantity that can be potentially released can exceed 100kg but restricted to pipeline inventory upon isolation
Corrosives (sodium nitrite and sodium hypochlorite)	8	II	< 4 tonnes	25 tonnes	No. Storage is less than the threshold
Flammable gas (NG)	2.1	N/A	Pipeline inventory	100 kg	Yes. Maximum quantity that can be potentially released can exceed 100kg but restricted to pipeline inventory upon isolation
Nitrogen gas	2.2	N/A			Not applicable
Oxygen gas	2.2	N/A			Not applicable

The SEPP (Resilience and Hazards) applies to the proposed development due to COG and NG releases potentially exceeding 100 kg threshold level without isolation. A HAZID workshop developed a list of Major Incidents and covered events with the potential to cause a fire, explosion, release of toxic gas, or worksite fatality from material handling operations. The consequences of Major Incidents involving COG and NG releases have been quantitatively analysed in depth.

From the consequence analysis of Major Incidents, the following conclusions were drawn:

- Except for the COG or NG release event, most of the events related to material handling and rotating machinery, with no dangerous goods involved;
- With the exception of COG or high pressure NG releases, the consequences of all other MIs identified are contained within the Project Area;
- The non-full bore COG (that is, a rupture of less than 250mm hole size) and high pressure NG release incidents consequences are contained within the Project Area;
- The full bore COG (that is, a rupture of 250mm hole size) and high pressure NG release incidents consequences are contained within the PKSW site boundary;
- For the worst case incident (COG pipe full bore failure of 250mm), the AEGL2 effect does not reach Springhill Road. The toxic gas effect does not reach residential areas or sensitive land uses;
- For high pressure NG releases and ignition, the jet fire radiation impact and vapour cloud explosion impact (for delayed ignition) does not reach Springhill Road;
- Significant damage to the Plate Mill building is expected in the event of a vapour cloud explosion from high pressure full bore (that is, hole size of 100mm) NG release;
- Low pressure NG releases within the Plate Mill building would have the potential to seriously affect personnel within the building; and
- A Level 2 consequence assessment is considered sufficient, as the results have shown that there are no adverse effects outside the PKSW boundary. A Level 3 risk assessment with frequency analysis and risk quantification is therefore not required.

A qualitative risk assessment was carried out for all identified Major Incidents. there are no effects that reach residential areas and sensitive land uses, it was not necessary to conduct a frequency analysis. The quantitative risk criteria in HIPAP No. 4 are implicitly satisfied.

7.4.4 Mitigation and Management

The following mitigation measures are recommended for the Project:

- The recommendations from the HAZID workshop, as detailed in the PHA, should be implemented in the design and during the operation of the Project.

7.5 Contamination

7.5.1 Background

The Project Area previously formed part of the Tom Thumb Lagoon prior to reclamation in the 1940s and 1950s, when the area was filled using industrial fill (predominantly slag and coal washery rejects). Since that time, the Project Area has been operated by BlueScope (and its predecessors) under an Environment Protection Licence (EPL) for various metal industry-related activities, being EPL 6092.

The current use of the Project Area includes the storage of steel products, two steel slab reheat furnaces, steel rolling mill, plate processing and transfer equipment. The site is on the list of contaminated sites notified to the NSW EPA, however the EPA has determined that the contamination is not significant enough to warrant regulation under the Contaminated Land Management Act 1997. EPL 6092 contains conditions relevant to monitoring and management of contamination across the land owned by BlueScope at Port Kembla.

A contamination investigation has been conducted to characterise the nature and extent of contamination that is present within the Project Area and its surrounds to meet the requirements of the SEARs. This information will be used to inform the management of contaminated media during excavation and dewatering.

7.5.2 Methodology

The contamination investigation incorporated the following scope of works:

- Desktop review of available site history data, including previous investigations;
- Site inspection to ground truth the findings of the desktop review;
- Intrusive investigation to below the proposed maximum excavation depth which varied from 0.5m to 17m below ground level at 17 locations and subsequent soil sampling, including:
  - Soil sampling from 8 soil bores within the slab yard and furnace area; and
  - Soil sampling from 9 locations within the Plate Processing area.
- Installation of 1 shallow and 1 deep nested set of groundwater wells;
- Collection of groundwater samples from 2 newly installed wells and 4 existing wells (6 locations);
- Hydraulic conductivity assessment of shallow and deep groundwater present within the Project Area; and
- Development of a Conceptual Site Model (CSM) to determine likely impact on the Project.

The assessment was carried out with consideration of the following guidelines:

- Managing Land Contamination Planning Guidelines: SEPP55 – Remediation of Land (DUAP, 1998);
- State Environmental Planning Policy (Resilience and Hazards) 2021;
- Contaminated Land Management Act 1997 (CLM Act);
- NSW EPA Contaminated Land Guidelines: Consultants Reporting on Contaminated Land (NSW EPA, 2020); and
- National Environment Protection (Assessment of Site Contamination) Amendment Measure (No.1) (ASC NEPM) (2013).

7.5.3 Impact Assessment

7.5.3.1 Potential Contaminants

Using the information provided from the desktop review, potential sources of contamination within the Project Area were identified. The sources and key potential contaminants of concern (COC) are included within **Table 7-17**.

Table 7-17 Preliminary Conceptual Site Model

Potential Source		Key Contaminants of Concern
On-site	Importation of potentially contaminated fill to reclaim land from Tom Thumb Lagoon	■ Total recoverable hydrocarbons (TRH) and benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN); ■ Heavy metals; ■ Cyanide and ammonia; ■ Polycyclic aromatic hydrocarbons (PAH) and chlorinated hydrocarbons (CHC) ■ Herbicides and pesticides, including phenoxy acid, organochlorine pesticides and (OCP) organophosphate pesticides (OPP); ■ Per- and ploy-fluoroalkyl substances (PFAS); and ■ Acidity.
	Spills and leaks from Coke Ovens Gas fired furnaces, machinery and mobile plant operation and maintenance	
	Spills and leaks from storage of potentially hazardous materials and waste	
	Potential use of herbicides and pesticides	
	Potential storage of aqueous film forming foam (AFFF) and use of AFFF	
	Potential use of polychlorinated biphenyls (PCBs) in electrical equipment	
	Potential leaks from sub-surface infrastructure including saltwater pipes	

Potential Source		Key Contaminants of Concern
	Naturally occurring ASS	
Off-site	Current and historical surrounding metal industry operations	Same as on-site

7.5.3.2 Soil

The soil profile was determined to be fill material up to 7.6 m below ground level (bgl), overlaying clay, sandy clay and sandstone. The fill material consisted of sandy and silty gravel containing slag and coal washery reject. No odours or staining were observed during the intrusive investigation. The highest PID measurement, 28 parts per million (ppm), was recorded within the fill material and is not considered to be representative of high concentrations of volatile organic compounds (VOCs).

There were no exceedances reported of the COC within the soil tested during the DSI. The soil was tested for Acid Sulfate Soils (ASS) and Potential Acid Sulfate Soils (PASS). Although there was no evidence of ASS at the site, there is PASS present within the natural clay layers, which will therefore need to be considered during excavation and dewatering. An Acid Sulfate Soils Management Plan (ASSMP) should be prepared as part of the CEMP to manage contamination during the construction phase of the Project.

7.5.3.3 Excess Spoil

As the soil did not exceed the adopted soil screening levels, the soil is considered suitable for beneficial re-use across the broader PKSW. However, the re-use of natural material needs to consider the presence of PASS material and the relevant mitigation or treatment required to ensure suitability for re-use.

Fill soil should not be re-used for landscaping due to the high level of anthropogenic inclusions (e.g. metal, plastics) observed. Therefore, fill material should not be used for surface soils or in proximity to sensitive ecological receivers. Any excess soil that is not to be re-used on-site can be disposed of as general solid waste (GSW) to a licensed waste facility.

7.5.3.4 Groundwater

The groundwater water ingress across the Project Area during the intrusive investigation was 3 to 5 m below ground level (bgl). The reported results and observations drawn from the groundwater investigation indicate:

- The groundwater is considered to present a low risk to human health;
- Ammonia (as N), chloride, sulfate (as SO_4) and sodium exceeded the aesthetic screening level for taste;
- Nickel, manganese and zinc exceeded the adopted ecological based criteria; and
- Higher manganese and iron concentrations were reported within the deeper aquifer, which may be attributed to the presence of estuarine sediments.

Due to the saline nature of the groundwater, and the depth to groundwater, it is considered that the groundwater quality is not suitable for extraction and beneficial use for drinking or irrigation purposes.

7.5.3.5 Aquifer Properties

The aquifer properties were assessed as part of the DSI (refer to Section 7.4 of **Appendix K**). A summary of the aquifer properties is included in **Table 7-18**.

Table 7-18 Aquifer Properties Summary

Aquifer Property	Key Findings
Standing Water Level (SWL)	■ Groundwater level of the shallow and the deep groundwater units suggest that groundwater is present within the shallow well at 2.85 m AHD, and that the deeper groundwater bearing zone unit is located from 14 – 17 m bgl. The SWL recorded within the deeper well was 1.53 m AHD. ■ The difference in the groundwater levels could reflect differences in aquifer recharge conditions between the two aquifers, with rainfall and/or leakage from saltwater pipes to the shallow groundwater and upgradient regional flow in the deeper groundwater the primary recharge source. These results indicate limited hydraulic conductivity exists between the two aquifers.
Hydraulic Conductivity	■ The hydraulic conductivity recorded within the shallow aquifer (approximately 3-6 m bgl) was very high (in the order of 100 m/day). However, due to the heterogenous nature of the fill material, there is likely to be variance in the hydraulic conductivity within the shallow aquifer. ■ The hydraulic conductivity of the deeper residual sands at MW05 was low (in the order of 1 - 10 m/day). ■ The hydraulic conductivity of the deeper aquifer (approximately 14-17 m bgl) was very low (in the order of 1 x 10^{-7} m/day). The difference between the two zones indicates the presence of a low permeability zone or aquitard separating the shallow (fill) aquifer and the deeper natural aquifer.
Geochemical Composition	■ The total dissolved solids (TDS) concentrations in both the shallow and deeper aquifer suggest that both aquifers may be influenced by the historical or estuarine origin of the soils at the Project Area. ■ Alternatively, there may be connectivity of both the shallow and deeper aquifer with the saline sea water in Port Kembla Harbour.
Hydraulic Connectivity	■ The lines of evidence presented above suggest that there is limited connection between shallow groundwater that is present within the fill and the deeper residual sandy units.

7.5.3.6 Conceptual Site Model

In order for a receptor to be exposed to a chemical contaminant deriving from or present at the site, a complete source-pathway-receptor (SPR) linkage must exist. The possible source-pathway-receptor (SPR) linkages where evaluated using a conceptual site model and the key findings for each exposure pathway are included in **Table 7-19**.

Table 7-19 Evaluation of Source, Pathways and Receptor (SPR) Linkages

Exposure Pathway	Key Findings
Heavy metals in soil	■ All CoPC were reported below the adopted assessment screening levels and are considered to pose a negligible risk to current industrial site users and future construction workers. ■ The fill under the investigation area is highly variable and therefore different conditions may be encountered and precautions should be taken when undertaking intrusive works to limit direct contact with soils and limit the potential for dust generation and air quality impacts. ■ Leaching of chemical substances into groundwater is potentially complete SPR linkage based on the concentrations of metals and inorganics reported greater than the adopted screening levels and the presence of industrial residues in fill soils.
PASS in natural clays and fill-clay mixtures	■ Natural clays and clayey fill underlying the investigation area are PASS. These may be present from 3.5m below ground level and will require management when disturbed to mitigate impacts to ecological receptors and built structures.

Exposure Pathway	Key Findings
Heavy metals and inorganics in groundwater	■ Given the industrial nature of the surrounding land, groundwater extraction and consumption/recreational use is not considered likely. ■ Workers may come into contact with groundwater during intrusive construction activities, however, the exceedances of the health screening levels are marginal and limited to manganese and could be mitigated through appropriate health and safety controls. ■ Exceedances of aesthetic water screening levels relating to drinking water quality (i.e. taste) are not considered to negatively impact workers. ■ There is potential risk for natural migration of contaminated groundwater into surface water bodies and potential risk to aquatic ecosystems and aesthetic impacts to recreational uses in Port Kembla Harbour. ■ The concentrations of ammonia, manganese, nickel and zinc may be representative of background water quality due to extensive filling and presence of estuarine sediments at and surrounding the investigation area.

7.5.3.7 Conclusions

Based on the results of the combined PSI and DSI, the following conclusions are made:

- The presence, nature and extent of contamination on and under the investigation area in fill sediments, and shallow ground water are considered to have been adequately assessed;
- CoPC in soil are considered unlikely to pose a risk to construction works or other site occupants. Notwithstanding, it is possible that soil contamination may exist and relevant precautions should be taken and outlined in the CEMP;
- Natural soils under the investigation area contain PASS and management procedures should be implemented;
- Groundwater represents a low risk to human health and it is considered that the quality of water will meet the requirements of the discharge licensed point prior to discharge into Allans Creek;
- The exceedances in groundwater from the deeper aquifer are unlikely to be relevant since an aquifer is present between the base of the excavation and the deeper aquifer; and
- The finding of the soil and targeted hydrogeological testing broadly confirm the conceptual hydrogeological model.

7.5.4 Mitigation and Management

The following mitigation measures are recommended for the Project:

- Prepare a CEMP including procedures to mitigate exposure to potential soil and groundwater contamination underlying the Project Area and outline the management procedures to support beneficial re-use of the excavated material;
- The contact between intrusive workers on-site should be limited to the extent practicable. This is to reduce incidental exposure to contamination due to the variable nature associated with contamination present within fill material;
- Preparation of an Acid Sulfate Soil Management Plan (ASSMP) as part of the CEMP to outline the relevant management procedures for PASS that is disturbed during the excavation of soils or during the disposal of groundwater during dewatering; and
- Groundwater quality during dewatering will be checked before disposal against the current EPL held by BlueScope which includes the Project Area. If the water quality is below that specified by the licence, additional assessment for treatment options or disposal of the groundwater will be conducted before dewatering commences.

7.6 Hydrology and Flooding

7.6.1 Background

PKSW is located within the Allans Creek catchment which drains into Tom Thumbs Lagoon. The Allans Creek catchment extends from Mount Kembla in the west to the discharge point into Tom Thumbs Lagoon south-east of the PKSW. The Allans Creek catchment is a mixed-use area, draining large open grassland and heavily vegetated mountain areas through residential and industrial development, into the Allans Creek watercourse. The Gurangaty Waterway also discharges into Tom Thumbs Lagoon which conveys runoff from the Wollongong City catchment to the north.

The PKSW is located on a local plateau above the surrounding watercourses. The Project Area is primarily impacted by overland flows draining from elevated areas in the east of the PKSW, but also partially affected by flows originating from areas to the north-west and north-east which drain into the Gurangaty Waterway and Allans Creek adjacent to the Project Area.

BMT prepared a Flood Impact Assessment (FIA) to inform the development of the Project which is included in **Appendix L**.

7.6.2 Methodology

The methodology for the FIA consisted of the following:

- Desktop review of available databases and documents to characterise the site existing flood behaviour;
- Development of a hydrologic model to simulate the rainfall run-off practices on the catchment; and
- Development of a hydraulic model using the Council's existing Allans Creek Flood Study model.

A full description of the model assumptions and parameters is included in Section 4 of the FIA (**Appendix L**). These models account for the 10%, 1%, 0.5% and 0.2% Annual Exceedance Probability (AEP) and Probable Maximum Flood (PMF) flood events in accordance with the SEARs.

7.6.3 Impact Assessment

The existing flood conditions are described as follows:

- **Inundation extent and peak flood levels:** The predicted flood behaviour on the PKSW is characterised by shallow overland flows which drain from elevated areas in the east, north-east and north-west of the PKSW towards the west into available flood storage areas and south into Allans Creek via the flatter Project Area. As the magnitude of the flood event increases, flood storage areas to the west are rapidly filled by the increased flood depth and will overtop into the PKSW from the west;
- **Flood hazard:** In accordance with the National Flood Risk Advisory Group (AIDR, 2017), the Project Area is broadly classified as a H1 hazard in the 1% Annual Exceedance Probability (AEP) event, reflecting that it is subject primarily to local overland flows draining from the north-west and north-east. There are isolated pockets of higher hazard concentrated in trapped low points adjacent to buildings, although it is possible that some of these classifications are caused by artificial depressions within the underlying LiDAR (data gathered using remote sensing). In a few locations, LiDAR picks up on points below the ground level surface and the differences in elevation create trapped low points which result in hazard classifications of up to H6. However, these hazard classifications are unlikely to occur in reality, either due to the blockage of floodwater ingress (by local walls or bunds not included within the flood model) or the movement and drainage of shallow flows below ground;

- **Hydraulic categorisation** (also known as flood function) classifies the floodplain into floodway, flood storage and flood fringe. The hydraulic categories are defined in the Floodplain Development Manual (2005). The Hydraulic Modelling for the 1% AEP event determined that the Project Area is a flood fringe area with isolated areas of flood storage adjacent trapped low points in the model; and
- **Flood Planning Area:** The Flood Planning Area (FPA) is a mapped area of the floodplain that is below the flood planning level (FPL). In the Allans Creek catchment, the FPL is the 1% AEP peak flood level plus 0.5m of freeboard allowance as specified by Council. Areas within the FPA are subject to specific flood-related development controls. For this flood assessment, the FPA has been assumed as the 1% AEP extent in line with the approach adopted in the Allans Creek Flood Study. The results indicate that the Project Area falls partly within the FPA.

The development flood affectation impacts are as follows:

- **Flood inundation:** The Project Area is subject to shallow overland flows for all events up to the 1% AEP event, with the potential for isolated areas of deeper flooding adjacent to trapped low points along buildings and the railway track along the western boundary. In the 1% AEP event, flows draining from the east, north-west and north-east will partially traverse through the Project Area on their way to discharge points in flood storage areas to the west and the Allans Creek watercourse to the south. In rarer events, such as the 1 in 200 AEP and 1 in 500 AEP, depths will scale along the trapped low points and the railway track in the west. In addition, backwater flooding of the south-western corner of the Project Area would be expected from low-lying flood-storage areas to the west. In extreme events, such as the PMF, the flood storage area to the west of the PKSW would overtop high depths of floodwater into the Project Area creating widespread flooding with a hazard between H3 and H5 (considered unsafe for vehicles and people and with the potential to cause structural damage to buildings);
- **Peak flood level and velocity:** The Project will not result in any material changes to the external building footprint. As the Project will not modify the existing overland flood behaviour on PKSW, no change in peak flood level or velocity is expected for any event up to and including the PMF; and
- **Emergency management:** For all events up to the PMF flood, PKSW is currently subject to low-depth overland flows draining from elevated areas to the east, north-west and north-east. In the PMF flood, the Project Area would be subject to high depth, hazardous floodwaters. Minimal flood response time would be available in the event of a rare or extreme flood event and access to PKSW via Springhill Road to the north would also likely be cut in such an event. Given these conditions, shelter-in-place on the flood-free eastern portion of the PKSW is considered an appropriate emergency management response.

7.6.4 Mitigation and Management

There are no material proposed changes to existing external building footprint or ground levels as part of the development. The proposed works will not impact on existing emergency management arrangements. It is noted that shelter-in-place on existing flood-free areas on site is considered an appropriate emergency management response.

7.7 Coastal Hazards

7.7.1 Background

A Coastal Hazard Assessment (CHA) was prepared by BMT and is included at **Appendix M**. The Project Area is almost entirely above 5m AHD (Australian Height Datum) and is bounded by the Plate Mill drain which flows to Allans Creek, noting the drain is tidally connected during high tides. Otherwise, the Project Area is not exposed to or hydraulically connected to harbour or coastal waters under present climate, average meteorological conditions.

7.7.2 Methodology

BMT has developed a linked 1D/2D (one-dimensional/two dimensional) TUFLOW hydraulic model using the latest Heavily Parallelised Compute (HPC) solver. The model has been developed using Council's existing Allans Creek Flood Study (Advisian, 2019) model which has been expanded to include additional areas to the north of the Project Area, as well as additional discretisation of the Project Area.

The assessment considers the following key elements, with inputs to the modelling further defined in the CHA. Current tidal inundation, tide levels, coastal inundation and sea level rise projections were incorporated into a TUFLOW model. The full assumptions and inputs to the model are included in **Appendix M**.

7.7.3 Impact Assessment

The coincident inundation assessment has been based on the scenarios summarised in **Table 7-20**. These have been developed for compliance with the SEARs regarding coastal and flood hazards and for consistency with the Allans Creek Flood Study (Advisian 2019). Scenario 5F is not included with the Allans Creek Flood Study but has been included to address stakeholder comments.

Table 7-20 Coincident Inundation Scenario Definitions

Scenario ID (Allans Creek Flood Study)	Rainfall Scenario	Tailwater Scenario	Tailwater Level (m AHD)
5A	1% AEP	1% AEP	1.45
5B	1% AEP	1% AEP in 2050	1.85
5C	1% AEP	1% AEP in 2100	2.35
5D	1% AEP + 20% increase in rainfall intensity	1% AEP in 2050	1.85
5E	1% AEP + 20% increase in rainfall intensity	1% AEP in 2100	2.35
5F*	1% AEP	1% AEP in 2120	2.45

Note: 5F not included in the Allans Creek Flood Study

Scenario 5F is the most extreme downstream boundary level considered in the assessment, representing the 1% AEP coastal inundation level in the year 2120 (including 1.0 m sea level rise). This scenario sees the increased downstream boundary condition causing widespread flood level increases along watercourses and flood storage areas including Tom Thumbs Lagoon, Gurangaty Watercourse, Allans Creek, and the Plate Mill Drain that runs to the west of the Project Area. The increase has minimal effect on local overland flows discharging from higher elevations elsewhere. There is a minor encroachment from the Plate Mill Drain to the southwest corner of the Project Area; however, this is outside of the proposed development (building) footprint.

The key findings of the CHA are:

- The Project Area is elevated well above the tidal inundation and 1% AEP coastal inundation hazard levels under current and future climate scenarios (including sea level rise to the year 2120);
- 1% AEP in 2120 coastal inundation hazard levels interacting with catchment flooding causes widespread flood level increases along watercourses and flood storage areas including Tom Thumbs Lagoon, Gurangaty Watercourse, Allans Creek, and the Plate Mill Drain that runs to the west of the Project Area;
- Under 1% AEP in 2120 coincident event scenario, there is a minor encroachment of flood water from the Plate Mill Drain to the southwest corner of the Project Area, but this doesn't affect the proposed development (building) footprint; and
- The increased coastal water level under future climate scenarios has minimal effect on local overland flows discharging from higher elevations like those found on the PKSW.

7.7.4 Mitigation and Management

Overall, it is concluded that the potential effects of coastal processes and hazards on the proposed development or arising from the proposed development are negligible. No mitigation or management measures are necessary for the Project.

7.8 Water Supply and Quality

7.8.1 Background

A Water Quality Impact Assessment was prepared by ERM and is included at **Appendix N**. The WQIA considers the potential impacts to surface water and groundwater resources, the water balance for the Project, drainage considerations and water saving measures to be implemented by the Project.

Port Kembla Steel Works (PKSW) sources industrial fresh water (IFW) and potable water from Sydney Water. The IFW, which is comprised of approximately 85% recycled water, sourced from the Wollongong Water Recycling Plant, and 15% unfiltered Avon Dam water, is used in the steel manufacturing process. Potable water is a less significant water input to PKSW, comprising less than 3% of total industrial and domestic water consumption.

Seawater (salt water) from the Outer Harbour is used at PKSW for saltwater cooling. This water is returned to the Inner Harbour after use. The existing Plate Mill operations use salt water for the cooling of skids and posts inside the furnace. This cooling system will be replaced by the Project, which will utilise a closed-loop cooling system for furnace cooling, resulting in the elimination of, on average, discharge to the Plate Mill Drain licensed discharge point (ID85 under EPL 6092) of 32,000 kL/day of ‘once through’ saltwater cooling water.

IFW is currently used at the Plate Mill for emergency cooling and for filling seal pots and water seals, with other minor ancillary uses. Recirculated IFW (also referred to as general service water) is used for scale flushing. General service water is captured throughout the mill area in the scale drain (an open channel that runs under the length of the Plate Mill, which carries scale to a pit, called a scale pit, at the end of the channel) and pumped through BlueScope’s on-site wastewater treatment system, before being returned to the mill for reuse.

7.8.2 Existing Environment

The PKSW site is generally flat and resides upon a base of artificial fill, predominantly slag and coal washery rejects. The water quality within Allans Creek and the Inner, Middle and Outer Harbours of Port Kembla have historically been impacted by industrial discharges.

PKSW is located within the Allans Creek Water Catchment Area. PKSW is located within a highly disturbed area, with Allans Creek and the Port Kembla Inner Harbour (downstream of the wider PKSW site) also known to be historically contaminated.

There are no mapped aquatic or subterranean GDEs within 1km of the Project Area. There are terrestrial GDEs mapped within 1 km of the Project Area, but not within the Project Area itself. As such, it is considered unlikely that the Project will result in any impact on GDEs.

7.8.3 Impact Assessment

7.8.3.1 Site Water Balance

The current Plate Mill water use includes:

- Salt water for the cooling of skids and posts inside the furnace (majority of water make up);
- Industrial Fresh Water is used as emergency cooling in the event of loss of salt water and for filling seal pots and water seals, as well as seal glands in Furnace 1 stack (minimal use); and
- General service water (recirculated IFW) is used for scale flushing.

Under the Project, the following changes will be made to the water usage for the Plate Mill system:

- The use of recirculated IFW (following chemical dosing) for closed loop cooling (of skids, posts and lintels inside the furnace) rather than the use of salt water. The cooling water will be recirculated, with minimal water loss due to evaporation anticipated;
- The closed loop cooling water will be discharged into the general service water system under certain limited circumstances:
  - very small volumes of water may be discharged during normal operation, approximately every 3-6 months; and
  - if the closed loop cooling system needs to be drained for maintenance, however this is only expected to occur once every 5 years.
- The use of IFW for instrument cooling, such as cameras and sensors. This process will increase IFW use by approximately 15 – 60 kL/hr. The Project, during detailed design, will investigate options to reduce this to as low as feasibly possible;
- The use of general service water for water seals around the moving skid supports inside the furnace;
- Inclusion of an IFW connection in the Project design to allow for the use of IFW for filling seal pots, water seals and seal glands and for scale flushing if general service water is unavailable; and
- Once the new furnace is commissioned, the saltwater supply will be decommissioned (i.e. saltwater will no longer be pumped to the Plate Mill).

An overview of the water usage during the operational phase is presented in **Table 7-21** .

Table 7-21 Operational Project Water Balance

Water Supply Option	Activity (Current System)	Water Usage (kL/hr)	Activity (Proposed System)	Water Usage (kL/hr)
Potable Water	■ Used for on-site activities, including drinking, showers and amenities.	6.5	■ Same as current use (no change).	6.5
Industrial Fresh Water (IFW)	■ Largely used as input to the general water system. ■ Used for general washdown and fire hydrants/reels ■ Used to top up seal pots and water seals for furnace gas supply system ■ Used as emergency in the event of loss of salt water to the furnaces ■ General use elsewhere in the Plate Mill (minimal)	11	■ Used for general washdown and fire hydrants/reels ■ Used to top up seal pots and water seals for furnace gas supply system ■ Water for cooling instruments (this accounts for the increase to the use of IFW which will increase to a range of 26 – 71kL/hr) ■ Connection to replace general service water if unavailable.	26 - 71
Salt Water / Discharge Water	■ Cooling the furnace. ■ Salt water that has been used for cooling and descaling, discharged under the current licence conditions to the Plate Mill Drain	1,800	■ Will no longer be used within the Plate Mill system as it will be replaced by a closed loop cooling system.	-

Water Supply Option	Activity (Current System)	Water Usage (kL/hr)	Activity (Proposed System)	Water Usage (kL/hr)
Closed Loop Cooling Water	■ Not currently part of the cooling system; once through salt water is used.	N/A	■ Recirculated IFW, following chemical dosing, will be used throughout the closed loop cooling system. Only small amounts of make-up water will be required, for example due to small evaporation losses.	Negligible
General Service Water	■ Recirculated water used for cooling and descaling. ■ Used for seal trough flushing and scale flushing.	1,500 Rate of circulation (not additional water usage)	■ Recirculated water used for cooling and descaling ■ Used for seal trough flushing and scale flushing. ■	1,600 Rate of circulation (not additional water usage)

As a result of the Project, there is anticipated to be an increase to the flow rate of general service water to the furnace (flow rate increased by approximately 100 kL/hr). This will in turn result in an increased flow from the Plate Mill to the BlueScope's on-site wastewater treatment plant (WTP) prior to recirculation. The WTP has been assessed and has the capacity to treat the additional flow of general service water with no impact on water quality. The scale flushing flow is expected to remain the same.

Water is usually removed from the general service water system by transfer to the Hot Strip Mill recirculated general service system. In the event the Hot Strip Mill cannot accept the Plate Mill general service water, for example during major shutdowns, this water will be discharged via the 3500mm Plate Mill Drain (ID 85).

7.8.3.2 Stormwater and Wastewater Drainage

The Plate Mill Drain is currently monitored under EPL 6092, with sampling required 24 times per year with 15 days between each sampling event. The minimum and maximum values for all licenced pollutants, for the 2023 financial year, are presented in **Table 7-22**.

Table 7-22 Discharge Water Characterisation at Drainage Point (ID 85) (FY23)

Pollutant	Minimum	Maximum	100th Percentile Limit	Compliant?
Cadmium	<0.005 mg/L	<0.005 mg/L	0.05	Yes
Cyanide	<0.02 mg/L	<0.02 mg/L	0.1	Yes
Lead	<0.02 mg/L	<0.02 mg/L	0.1	Yes
Oil and Grease	<5 mg/L	<5 mg/L	20 mg/L	Yes
pH	8.0	8.2	6.5-9.0	Yes
Temperature	16.8 °C	26.2 °C	35 °C	Yes
Total Suspended Solids	<3 mg/L	15 mg/L	50 mg/L	Yes

The current reported monitoring values are below both the adopted assessment criteria, water quality objectives and EPL 6092 100th percentile measurements.

Within the Plate Mill there are various oil separators that collect water from several sumps; three of these are located in the Project Area. The collected water passes through the oil separators which separate oil and grease from the water. The oil and grease will be collected in a tank; the remaining water is treated prior to discharge to the Plate Mill drain.

When salt water to the Plate Mill Drain is turned off as part of the installation of the new furnace, the treated water from these three separators will be the only regular process water discharge to the Plate Mill Drain from the Project. BlueScope is currently investigating potential options for some or all of this process water discharge to be diverted into the general service water system.

PKSW has an established stormwater drainage system for operations containing a series of sumps and collection tanks that capture stormwater and any potential spills. Stormwater run-off from the Project Area drains to the Plate Mill Drain.

All sealed carpark areas have gutters and drains that discharge to the existing stormwater network, which have monitored discharge points to Allan's Creek. All unsealed areas are grated such that stormwater is directed into the existing drainage network.

Stormwater is captured within two areas of the Project Area:

- The area north of the scale pit will drain to the North Gate Drain; and
- The area south of the scale pit will drain to the Plate Mill Drain.

It is not anticipated that the Project will impact upon the existing stormwater drainage network.

7.8.3.3 Erosion and sediment control

A Conceptual Soil and Water Management Plan (SWMP) has been prepared by ERM and outlines the fundamental principles to be followed in the planning and implementation of erosion and sediment control measures for the Project (Appendix B in **Appendix N**). The Conceptual SWMP considers the *Managing Urban Stormwater: Soils and Construction* and provides guidance on the suite of best management practices that may be relevant to control soil and water impacts during construction and outlines how a combination of controls may be used during particular activities.

7.8.4 Mitigation and Management

The following mitigation measures are recommended for the Project:

- A CEMP will be prepared including measures required to manage the potential erosion, sedimentation and water quality risks of the Project;
- A site-specific Erosion and Sediment Control Plan will be prepared in accordance with the *Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book* (Landcom, 2004) guideline. The Erosion and Sediment Control Plan will be updated throughout the construction period so that it remains relevant to the activities;
- Groundwater extracted during the dewatering process may require treatment prior to discharge to reduce the total suspended solids concentration or other contaminants before discharge to the existing drainage network;
- The Applicant must implement the Erosion and Sediment Control measures before the commencement of construction works and maintain the erosion and sediment control measures throughout the duration of construction of the development; and
- The Applicant will monitor Project operations and maintain the discharge from the Project operations in accordance with the existing licence conditions (EPL 6092).

7.9 Traffic and Transport

7.9.1 Background

A Traffic Impact Assessment (TIA) was prepared by Amber Organisation Pty Ltd (Amber) to evaluate the traffic and transport impacts and access arrangements during the construction and operation of the Project. The TIA is provided in **Appendix O**.

The TIA addresses the following key matters:

- Details of both light and heavy vehicle traffic volumes and proposed transport routes;
- An assessment of the potential traffic impacts of the project on road network function and safety;
- An assessment of the capacity of the existing road network to accommodate the type and volume of traffic generated by the project;
- Details of internal access roads and how these connect to the existing road network;
- Details of measures to mitigate and/or manage potential impacts; and
- Consideration of the capacity of the existing industrial freight rail network to accommodate the project.

The traffic assessment has been undertaken in accordance with the RTA Guide to Traffic Generating Developments and relevant Austroads Guidelines. It has also been undertaken in consultation with Transport for NSW (TfNSW).

7.9.2 Methodology

The TIA incorporated the following scope of works:

- Review of existing traffic and road safety data, including road accident history (crash data);
- Traffic volume survey and modelling at peak periods;
- Assessment of traffic impacts during construction and operation phases, regarding vehicle types, nominated transport routes, traffic volumes, and site access arrangements;
- A swept path diagram of vehicles manoeuvring and accessing the Project Area (refer Appendix F of **Appendix O**); and
- Mitigation measures to manage the traffic impacts and encourage sustainable travel patterns.

7.9.3 Existing Environment

The existing road network serving the Project comprises of local and state roads. The primary access to the Project will be provided via Springhill Road. Springhill Road is a State road that runs in a north-south to northeast-southwest alignment between Five Islands Road in Cringila to Swan Street in Wollongong, where it continues as Corrimal Street. Near the Project Area, it has a sealed carriageway with a concrete central median and three traffic lanes in each direction, with additional turning lanes provided at intersections. It has a posted speed limit of 80km/hr and on-street parking is prohibited.

State roads are the major arterial links throughout NSW and within major urban areas. The State road network of relevance to the Project include:

- **Masters Road:** runs in an east-west alignment between Springhill Road and The Avenue with a total length of approximately 1.2 kilometres. It has a sealed road surface with a concrete central median and three traffic lanes in each direction with additional lanes at intersections. On-street parking is prohibited;
- **Five Islands Road:** operates in a northwest to southeast alignment between the Princes Highway and Old Port Road in Port Kembla, where it continues as Military Road. Near the site it has a configuration consistent with Springhill Road and Masters Road, operating with three traffic lanes in each direction and a concrete central median; and
- **Princes Motorway:** the key road link between Sydney and Wollongong which is managed by TfNSW. It is generally configured with a dual carriageway with two through lanes in each direction. Access to the motorway is available from Masters Road and Five Islands Road.

The primary access to the Project Area via Springhill Road is known as Northgate. It forms a T-intersection with Springhill Road and provides access to internal roads and parking areas in the PKSW. The access is signalised and additional turning lanes are provided on all approaches. All roads to be used for access to the Project Area are approved for OSOM use.

There are 200 car parking spaces currently available which are expected to fully accommodate the expected workforce, visitors and contractors. In the unlikely event that the car parking capacity is exceeded during construction, overflow parking can be accommodated within the construction establishment/hardstand areas.

The available transport services within the vicinity of the Project infrastructure include:

- **Bus services:** Bus routes No. 51, 53, 57 and 65 operate along Springhill Road with stops located within 100 m of the Project access point (Northgate). All four of these services typically operate with hourly services during business hours Monday to Friday with limited services on weekends;
- **Train services:** Lysaghts Station (South Coast Line) is within 160m of the furnace construction site. Cringila Train Station (South Coast Line) is located approximately 2.5 km south of the Project Area. The South Coast Line provides access between Kiama and Sydney along with connections to other lines; and
- **Pedestrian and Cycle Infrastructure**: Springhill Road and surrounding State roads provide shared paths with 2m in width (TfNSW Cycleway Finder, 2022).

7.9.4 Impact Assessment

7.9.4.1 Daily and peak traffic volumes

The construction of the Project is anticipated to occur over a period of approximately 39 months, with peak construction activities to occur over 21 months. Approximately 95 full time equivalent (FTE) personnel are expected to be on-site during the peak construction phase. For the majority of the construction period, the proposed working hours are standard construction hours, as defined in the ICNG (refer **Section 4.3.2**). During maintenance shut down periods, some construction will be carried out 24 hours per day, 7 days per week.

Construction heavy vehicles accessing the Project Area range in size from a 19 m Articulated Vehicle (AV) to 8.8m medium and heavy rigid vehicles (MRV and HRV). It is anticipated that construction activities will generate approximately 38 heavy and 144 light vehicles per day during the peak construction period, as shown in **Table 7-23**. It is anticipated that 10 Restricted Access Vehicles (RAVs) and/or Over Size Over Mass (OSOM) vehicles could be required.

Table 7-23 Traffic Generation During Construction Periods

Vehicle Type	Vehicle Size	Average Vehicle Movements per Day		Peak Vehicle Movements per Day	
		Daily (vpd)	Peak Hour (vph)	Daily (vpd)	Peak Hour (vph)
Light Vehicle	Light Vehicle (car / 4WD)	70	30	102	30
	Shuttle Bus (12-seater)	4	2	4	2
Heavy Vehicle	MRV/HRV	6	1	32	4
	AV	2	1	6	2
Total		**82**	**34**	**144**	**38**

vpd = vehicles per day, vph = vehicles per hour

During the operational phase, there is anticipated to be an increase of up to 18 FTE employee. These staff would be spread across four shifts resulting in an increase of four to five staff onsite at any one time. The additional traffic generated is estimated to be up to 36 light vehicle movements and 22 heavy vehicle movements per day. As such, the additional traffic would have a negligible impact on the surrounding road network.

7.9.4.2 Road safety and road network capacity

All vehicles are proposed to enter and exit the Project Area at Northgate via Springhill Road. Existing traffic volumes were recorded during the morning and afternoon peak hours at the intersections of Springhill Road and Northgate, Springhill Road and Masters Road and Springhill Road and Five Islands Road. SIDRA analysis was undertaken for the existing conditions and the peak construction traffic (including cumulative impacts of surrounding projects).

The results of the SIDRA assessment show:

- Modest impacts as a result of the construction and cumulative traffic in both the morning and evening peak hours with small changes to average delays and queueing. The increase in traffic is to not expected to change the Level of Service of any movement. The biggest impact in the morning peak hour is the increase in 95th percentile queue on the right turn from Springhill Road (west approach) which increases by 20 metres but remains fully within the existing right turn lane of 130 metres;
- Negligible impacts during both peak hours in relation to the average delay which increases by less than 2 seconds and the 95th percentile queue length which increases by less than 6 metres. No change is expected to the Level of Service for any of the movements except for the right turn on the Springhill Road north approach during the morning peak (Los D to E), which is a result of the average delay increasing from 55.5 seconds to 57.2 seconds; and
- Small impacts to queue lengths for through movements on Five Islands Road from the east approach during both peak hours with increases to the 95th percentile queue expected to be in the order of 18 to 24 metres. The impacts to average delay are otherwise modest and generally less than 3 seconds with some movements recording improvements. There are impacts to the Level of Service to two movements in the evening peak due to the changes in average delay, with one movement moving from B to C and another improving from D to C. The changes are likely a result of minor changes to phase timing as a result of optimising the model.

A review was undertaken of road crash data available from TfNSW for the five year period between 2016-2020. A total of six crashes were reported on Springhill Road in the vicinity of Northgate. This is indicative of the high traffic volumes carried on the arterial road network.

Overall, the results show the Project impacts are within acceptable levels and do not have an adverse impact on road capacity, intersection performance or road safety.

7.9.4.3 Large vehicle access and egress

The Project Area will be accessed at Northgate via Springhill Road (**Figure 7-3**). Heavy vehicles will utilise internal access routes to transport material within the PKSW during the construction phase. These internal access routes are to be used to transport materials and plant between areas in the PKSW.

A swept path analysis has been prepared using 19 metre articulated vehicle (Appendix F of **Appendix O).** The assessment confirms the 19 metre AV vehicle is able to access the Project Area and the surrounding road network can accommodate large vehicles without any upgrades.

The swept path of the largest vehicle that could be expected for internal transportation was also assessed using a 26 metre B-Double travelling along these internal access routes (Appendix G of **Appendix O)**. The swept path confirms that access along these internal access routes is suitable for a vehicle of this size.

A swept path analysis was also undertaken for a 750 tonne 8-axel mobile crane combination. The assessment is included in Appendix H of **Appendix O** and confirms that the existing roads can accommodate mobile crane access.

West Wollongong
West Wollongong
West Wollongong
Mangerton
Wollongong
Figtree
Coniston
Mount Saint Thomas
Spring Hill
Unanderra
Port Kembla
PRINCES HIGHWAY
PRINCES MOTORWAY
MASTERS ROAD
SPRINGHILL ROAD
BLUESCOPE STEEL NORTHGATE ENTRANCE
YAMPI WAY
TOM THUMB ROAD
FIVE ISLANDS ROAD

Legend

- Site Boundary
- Local Road Network
- Major Road
- Minor Road
- Path/Track
- LGA
- Suburbs

Source:
EPI Land Zoning 2022
NSW DTDB and DCDB 2022
Nearmap Imagery July 2022

Road Network and Access around the Project Area

F3-4

Drawing No:	0650342s_BSL_CR_G012_R3.mxd		Port Kembla Advanced Steel Manufacturing Precinct (ASMAP) Project
Date:	22/08/2023	Drawing Size: A4	
Drawn By:	VN	Reviewed By: DS	Client: BlueScope Steel Limited

Coordinate System: GDA 1994 MGA Zone 56

0 200 400m

N

ERM

7.9.4.4 Road upgrades and infrastructure works

The TIA demonstrates that the existing road network can accommodate the construction and operational traffic and vehicle movements associated with the Project. No road upgrades or infrastructure works are required.

7.9.4.5 Rail network capacity

Freight rail between Port Kembla and Sydney and Newcastle generally occurs through rail corridors operated by Sydney Trains (TfNSW). Beyond Newcastle, the freight rail is predominantly operated by ARTC and other authorities (such as UGL Linx) depending on the final destination. The rail network provides services for steel, coal, grain and general freight.

BlueScope has a dedicated rail freight logistics specialist, Qube, which manage all rail freight demands from the PKSW. Its role involves managing requests for the various products from the PKSW to metropolitan and regional destinations across Australia. The current practice involves the suitable locomotive and wagon configurations based on the destination, size and timing for delivery of the freight. Application is then made with the rail network managers through the TfNSW Transport Access Portal. The portal enables a review of the proposed route by relevant rail authorities and whether there is sufficient capacity in consideration of other services.

The operation of the Project will generate potential increase in rail freight traffic. The destination of the additional rail freight is not yet known and, in any case, would vary based on when and where there is demand for the steel plate produced by the Project.

The Project will not have adverse impacts on the rail network capacity for the following reasons:

- BlueScope's PKSW currently operates with a freight logistics specialist that manages rail freight from the site across Australia;
- There is capacity in the rail network to accommodate the current operation of the PKSW and there are existing processes and procedures in place with TfNSW and relevant rail authorities to manage rail freight from the Project;
- Once the final destinations of the additional rail freight services are known further assessment will be undertaken of the rail freight routes through the TfNSW Transport Access Portal, consistent with current practices;
- The increase in rail freight is capable of being accommodated with measures identified to manage an increase; and
- The use of rail freight would reduce impacts from carbon emissions and heavy vehicles on public roads when transporting plate steel (used in wind farm projects) to renewable energy zones in NSW.

7.9.5 Mitigation and Management

The following mitigation measures are recommended for the Project:

- A CEMP will be prepared and will include measures related to construction traffic management and will provide additional information regarding:
  - road traffic volumes, distribution and vehicle types by hours and days of construction, and schedule for phasing/staging of the Project;
  - the origin, destination and routes for employee and contractor light traffic, heavy vehicle traffic, and oversize and overmass traffic;
  - A map of the primary haulage routes highlighting critical locations;
  - An induction process for vehicle operators and regular toolbox meetings.
  - A complaint resolution and disciplinary procedure; and

- Local climatic conditions that may impact road safety of employees throughout all phases.

- A Driver Code of Conduct is to be implemented as a measure to maintain safety within and around the site.

7.10 Visual

7.10.1 Background

A Visual Impact Assessment (VIA) has been undertaken by Moir Landscape Architecture to characterise the existing landscape, landscape values, landscape amenities, and any significant scenic vistas in order to satisfy the requirements of the SEARs.

The VIA aims to provide a qualitative and quantitative assessment of the visibility and potential visual impacts on the nearest receiving receptors resulting from the development of the Project.

The VIA is provided in **Appendix P**.

7.10.2 Methodology

The qualitative visual assessment is the first stage of the VIA. It was prepared utilising results from on-site investigations, including value judgements based on community responses to scenery, various maps, and additional desktop research. It also considered viewpoint analysis, informed by topographical maps, field work observations, and landscape character.

For the purposes of the VIA, the Study Area for the Project was defined as the area within 2 km of the Project Area. Extensive field work and survey for the Project was undertaken in April 2023 using key viewpoints within the locality of the Study Area.

7.10.3 Existing Environment

The Project is located in an area heavily modified and previously cleared of vegetation, which allowed the development of the PKSW. The existing character of the surrounding locality is largely defined by industrial subdivision and the immediate visual setting surrounding the Project is characterised by distribution centres and manufacturing facilities of similar size and scale with minimal vegetation.

The nearest vegetation within the Study Area is lining Springhill Road to the west of the Project Area. Remnant dense native vegetation is located to the north and south of the Project Area. Patches of vegetation exist within undulations in the residential suburbs of Cringila and Mount Saint Thomas and aligning riparian zones, including Allans Creek and American Creek (**Figure 7-4** and **Figure 7-5**).

Figure 7-4 View of the large-scale Port Kembla Industrial Precinct and Port Kembla Harbour

Figure 7-5 Dense vegetation surrounding PKSW along Springhill Road

7.10.4 Impact Assessment

A total of 16 viewpoints were selected based on a worst-case scenario and then assessed from varying distances and locations surrounding the Project. The locations of viewpoints are shown in **Figure 7-6**.

The viewpoints analysis considered the likely visual impacts of the Project on the existing landscape character and visual amenity. The viewpoints were taken only from accessible public land (typically walking tracks, roads, and lookouts). The visual impact of the viewpoint was assessed both on-site and through a desktop assessment utilising topographic and aerial information. For each viewpoint the visual sensitivity and visual magnitude have been assessed which, when combined, result in an overall visual impact for the viewpoint. The rating as a result of the combinations will result in high, moderate, low or negligible overall visual impacts.

Figure 7-6 Viewpoint Analysis Locations

The visual impact ratings are summarised in **Table 7-24**. The assessment concludes that two (2) viewpoints will experience low visual impact, and the remaining fourteen (14) are expected to have negligible visual impact.

Table 7-24 Viewpoint Visual Impact

Viewpoint No.	Visual Sensitivity	Visual Magnitude	Visual Impact of the Project	
			Rating	Summary
VP01	Low	Low	Low	The furnace stack will be partially visible due to proximity. The Project is likely to integrate into the existing landscape and is in keeping with that of the wider industrial character. The Project is unlikely to diminish or modify the existing character.
VP02	Low	Negligible	Negligible	A combination of intervening buildings and vegetation will likely screen views of the Project, thus not altering or diminishing key landscape features from this view.
VP03	Moderate	Negligible	Negligible	A combination of intervening buildings and vegetation will likely screen views of the Project, thus not altering or diminishing key landscape features from this view.
VP04	Low	Negligible	Negligible	Due to the distance and scale of the Project it is likely to be indiscernible, thus not altering or diminishing key landscape features from this view.

Viewpoint No.	Visual Sensitivity	Visual Magnitude	Visual Impact of the Project	
			Rating	Summary
VP05	Low	Negligible	Negligible	A combination of intervening buildings and vegetation will likely screen views of the Project, thus not altering or diminishing key landscape features from this view.
VP06	Moderate	Negligible	Negligible	Due to the distance and scale of the Project it is likely to be indiscernible, thus not altering or diminishing key landscape features from this view.
VP07	Moderate	Negligible	Negligible	Not visible due to the existing vegetation.
VP08	Moderate	Negligible	Negligible	A combination of intervening buildings and vegetation will likely screen views of the Project, thus not altering or diminishing key landscape features from this view.
VP09	High	Negligible	Negligible	A combination of intervening buildings and vegetation will likely screen views of the Project, thus not altering or diminishing key landscape features from this view.
VP10	Moderate	Negligible	Negligible	Not visible due to the existing vegetation.
VP11	Moderate	Negligible	Negligible	Due to the distance and scale of the Project it is likely to be indiscernible, thus not altering or diminishing key landscape features from this view.
VP12	Low	Negligible	Negligible	A combination of intervening industrial elements and vegetation will likely screen views of the Project, thus not altering or diminishing key landscape features from this view.
VP13	Moderate	Negligible	Negligible	Due to the distance and scale of the Project it is likely to be indiscernible, thus not altering or diminishing key landscape features from this view.
VP14	Low	Low	Low	The furnace stack will be partially visible due to proximity. The Project is likely to integrate into the existing landscape and is in keeping with that of the wider industrial character. The Project is unlikely to diminish or modify the existing character.
VP15	Low	Negligible	Negligible	Due to the distance and scale of the Project it is likely to be indiscernible, thus not altering or diminishing key landscape features from this view.
VP16	Low	Negligible	Negligible	A combination of intervening industrial elements and vegetation will likely screen views of the Project, thus not altering or diminishing key landscape features from this view.

As stated above, the Project results in a low to negligible modification to the existing visual landscape character and is in keeping with the existing industrial character of PKSW. Aside from the new furnace stack, which is only partial visible outside the extent of PKSW (see **Figure 7-7**), the other elements of the Project are contained within the footprint of the existing buildings in the Hot Mills area.

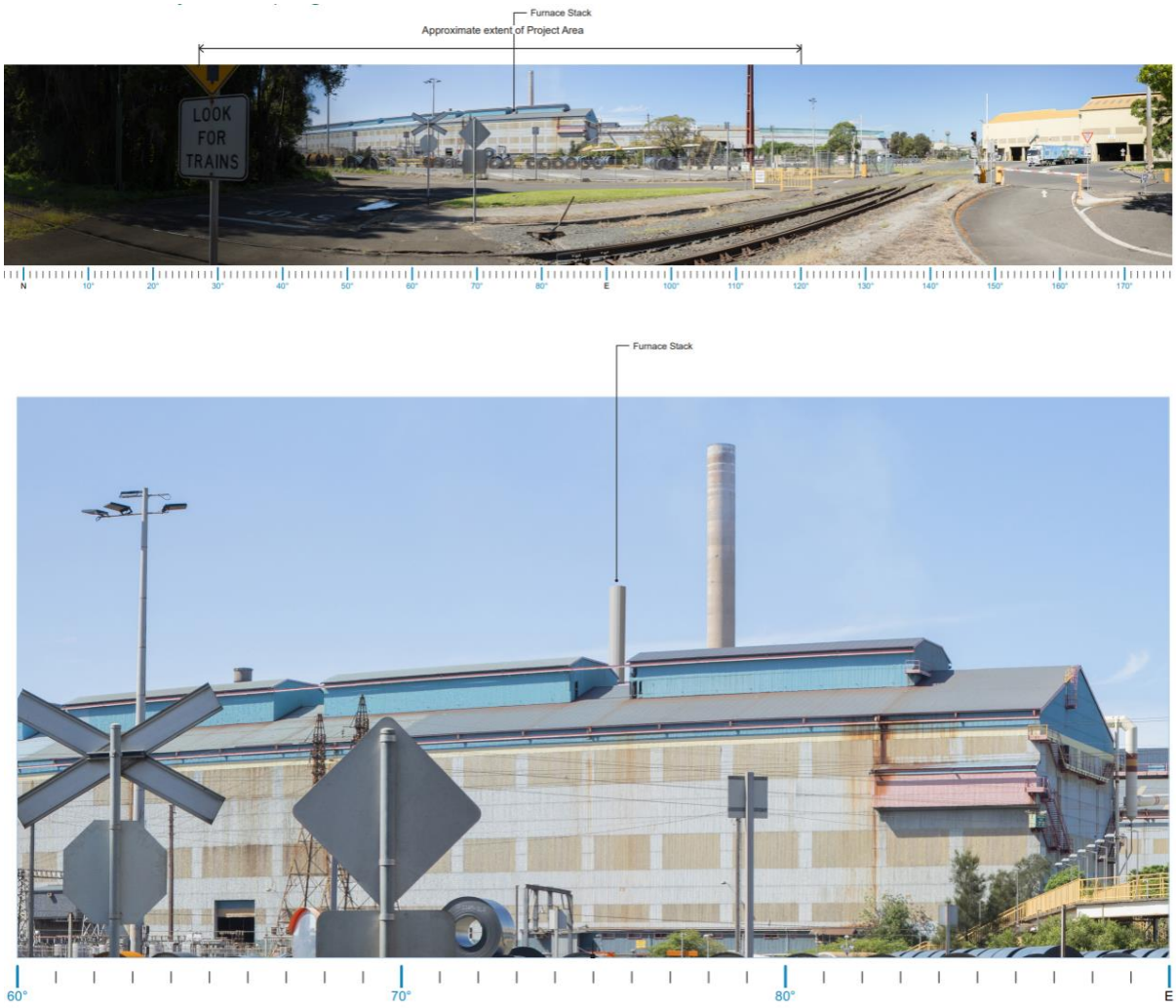


Figure 7-7 Photomontage of VP01 (Off Entry Road, Spring Hill)

7.10.5 Mitigation and Management

The Project will result in an overall low to negligible modification and there will be no adverse visual impacts requiring mitigation. Consideration should be given to the material finish of the furnace stack to minimise visual contrast with the existing furnace stacks within the PKSW.

7.11 Aboriginal Cultural Heritage

7.11.1 Background

ERM prepared an Aboriginal Cultural Heritage Survey Report (ACHSR) to assess the potential impacts of the Project on Aboriginal cultural heritage, and identify mitigation and risk management measures during construction and operation of the Project.

The ACHSR was prepared to address the requirements of the SEARs, as amended on 23 May 2023, and undertaken in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (Code of Practice) (DECCW 2010).

The ACHSR took into account the findings from a broader desktop assessment that was completed for the general area comprising the Project Area and surrounding areas, as well as consultation with the Project's RAPs to assess the potential for the Project to impact Aboriginal cultural heritage values.

The ACHSR is included at **Appendix Q**.

7.11.2 Methodology

7.11.2.1 Previously Recorded Sites

The AHIMS database provides an active list of known Aboriginal sites in NSW, recording the location, type and status of known Aboriginal sites. A basic search of the AHIMS database was undertaken on 2 August 2021 and identified one registered site (Site ID 52-2-3618) within the search parameters.

The search criterion was used to undertake an extensive search of the database, to obtain location data for the registered site. Mapping of the AHIMS extensive search results (**Figure 7-8**) indicate that the site identified in the search is comprised of an artefact scatter containing two flaked stone artefacts in a disturbed landscape associated with Springhill Road / The Horse Paddock approximately 280 m west of the Project Area.

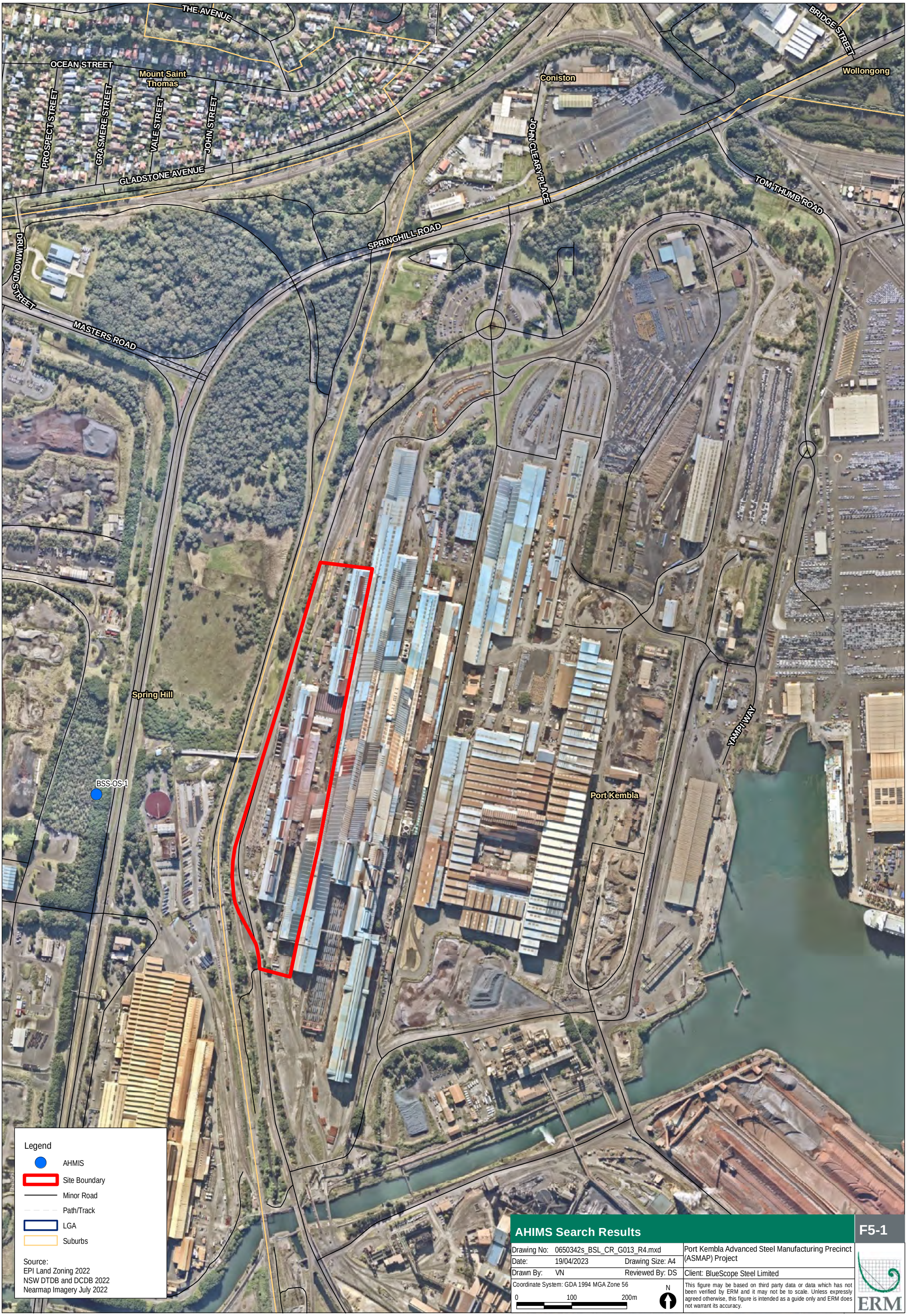
7.11.2.2 Predictive Model

Based on the results of the review of environmental and archaeological records, the following predictive statements have been devised:

- Areas of archaeological potential are likely to be associated with raised landforms in the vicinity of water sources including swamps and creek lines;
- Areas of archaeological potential may also be associated with ridge and spur landforms which are likely to have formed important travel routes;
- Prior to historic disturbance of the Project Area, Aboriginal cultural heritage sites within the Project Area are likely to have included stone artefact sites, shell midden, areas of potential archaeological deposits (PAD) or Aboriginal ceremonial sites; and
- Disturbances associated with construction and use of the Project Area are likely to have resulted in complete removal of archaeological deposits across the majority of the Project Area.

7.11.2.3 Aboriginal Community Consultation

A combined archaeological survey and site meeting was undertaken on 28 October 2022. All RAPs were invited to attend the site meeting which included survey of the Project Area. The meeting included discussion of the Project's assessment methodology and offered an opportunity for RAPs to provide any information regarding potential Aboriginal heritage values within the Project Area. A summary of the RAP consultation is provided in **Table 7-25**.



AHMIS Search Results

F5-1

Drawing No:	0650342s_BSL_CR_G013_R4.mxd		Port Kembla Advanced Steel Manufacturing Precinct (ASMAP) Project
Date:	19/04/2023	Drawing Size: A4	
Drawn By:	VN	Reviewed By: DS	Client: BlueScope Steel Limited
Coordinate System: GDA 1994 MGA Zone 56			This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

0 100 200m

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ERM

Table 7-25 RAP Consultation Summary

Assessment Stage	Description	Outcome
1 – Develop list of RAPs	84 Aboriginal parties and agencies were invited to register as RAPs for the ASMAP and HyKembla projects. An advertisement was printed in the Illawarra Mercury 20 September 2022.	18 parties registered as RAPs.
2	A site meeting and provision of assessment methodology was conducted on 25 October 2022.	12 RAPs representing 10 agencies attended the site visit and participated in the surveys. No comments on the assessment methodology were presented.
3	The development of the draft ACHSR, building upon the results of the desktop assessment, supplemented by the results of the Aboriginal heritage surveys undertaken in January and February 2023.	-
4a	Issue of draft ACHSR for RAP review was distributed to RAPs on 23 February 2023. The comments received from RAPs reemphasised the importance of acknowledging potential intangible Aboriginal heritage values of the Project Area.	Strengthened acknowledgement of potential intangible Aboriginal heritage values within the Project Area.
4b	Issue of revised ACHSR following project scope amendment was distributed to RAPs on 20 April 2023 (see letter in Appendix B of ACHSR).	No comments returned.

A log and copies of correspondence with Aboriginal community stakeholders is presented in Appendix C of the ACHSR (refer **Appendix Q**).

7.11.3 Impact Assessment

The significance assessment of Aboriginal cultural heritage sites recorded during the assessment is presented below. The significance assessment for each of the identified Aboriginal archaeological sites is provided in full in Chapter 7 of the ACHSR (refer **Appendix Q**).

- **Archaeological / scientific value:** No Aboriginal objects or areas of archaeological potential were identified within the Project Area and subsequently the Project Area is considered to demonstrate nil scientific significance;
- **Historic value:** No site recorded during the survey has specific historical significance as there are no known associations to specific people or events and subsequently the Project Area is considered to demonstrate nil historic significance;
- **Social or cultural value:** RAPs consistently stated that the area was once a cultural nexus for Aboriginal people and communities prior to European occupation. RAPs acknowledged the likelihood of objects or places of Aboriginal heritage significance being preserved within the Project Area are minimal to negligible. A representative of the ILALC emphasised the point that despite no objects or places of Aboriginal heritage significance being identified during the survey, nor previously recorded and registered on AHIMS, this does not preclude the presence of intangible heritage values within the Project Area, PKSW or surrounding area; and
- **Aesthetic value:** No Aboriginal objects or areas of archaeological potential were identified within the Project Area. All scope items associated with the Project are being conducted within an entirely disturbed and developed landscape. Subsequently the Project Area is considered to demonstrate negligible aesthetic significance.

7.11.4 Mitigation Measures

The following mitigation measures are recommended for the Project:

- If suspected Aboriginal heritage objects are found during works, the following Unexpected Finds Procedure should be followed and applies to the entire Project Area:
  - All activity in the immediate area should cease and the location should be cordoned off and an appropriately qualified heritage professional should be consulted;
  - Heritage NSW should be immediately contacted;
  - ILALC should be notified (potential Aboriginal objects only);
  - An appropriately qualified heritage professional should record the location and attributes of the Project Area and determine the significance of the find; and
  - Works will only recommence once the area has been cleared by further assessment by an appropriately qualified heritage professional and heritage permits (where required).
- In the event of the discovery of human skeletal material (or suspected human skeletal material) during Project activities in the Project Area the following steps should be followed:
  - All activities and/or works in the immediate area must cease;
  - The State Police must be contacted along with Heritage NSW; and
  - Any sand/soils removed from the near vicinity of the find must be identified and set aside for assessment by the investigating authorities.

7.12 Waste

7.12.1 Background

This waste assessment has been prepared for the Project to characterise and quantify the waste streams likely to be generated as a result of construction and operation of the Project, and to describe measures to manage these waste streams.

7.12.2 Methodology

Regulatory guidelines and instruments referred to in the preparation of this assessment include:

- ‘Waste Classification Guidelines’ (NSW EPA, 2014);
- ‘Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities’ (NSW EPA, 2012);
- ‘NSW Waste and Sustainable Material Strategy 2041’ (DPIE, 2021a);
- ‘NSW Plastics Action Plan’ (DPIE, 2021b);
- ‘Energy from Waste Policy Statement’ (NSW EPA, 2021a);
- ‘Energy from Waste Infrastructure Plan: Supporting the NSW Waste and Sustainable Materials Strategy 2041’ (NSW EPA, 2021b);
- ‘The National Waste Policy: Less Waste More Resources’ (Commonwealth of Australia, 2018);
- ‘Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities’ (NSW EPA, 2012);
- Wollongong DCP- ‘Chapter E3: Car Parking, Access, Servicing/ Loading Facilities and Traffic Management’ (Wollongong City Council , 2022); and
- ‘Standards for Managing Construction Waste in NSW’ (NSW EPA, 2018).

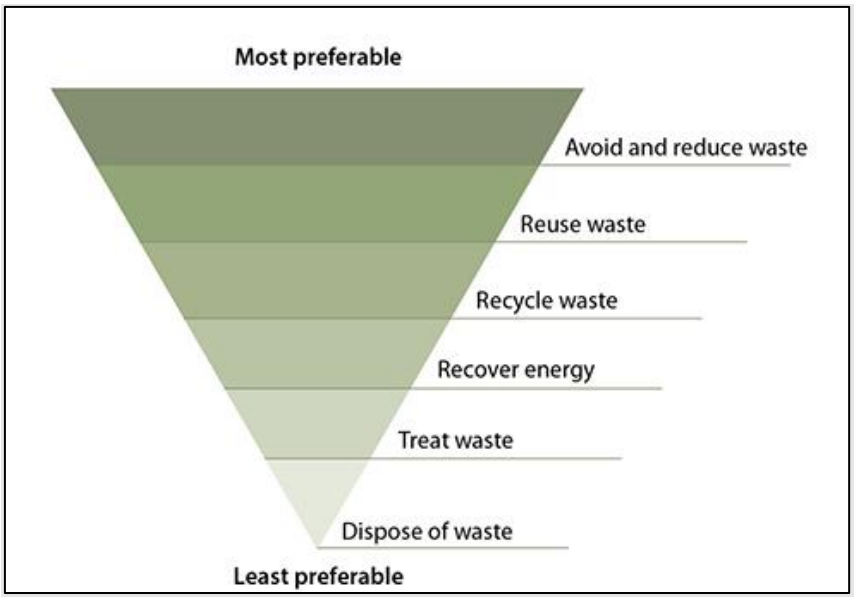
The requirements of the POEO Act and *Waste Avoidance and Resource Recovery Act 2001* (WARR Act) will also be considered during construction and operation of the Project, to ensure the effective management of wastes on-site.

The scope of works for waste management include the following tasks:

- Review of waste legislation and policy to ensure Project compliance;
- Determination of potential waste streams generated during construction, operation and decommissioning associated with the Project; and
- Establishment of Project specific waste mitigation and management options.

One of BlueScope's aspirational targets for the environment is to eliminate waste, by driving resource efficiently and proactively contributing to building a circular economy. This target is consistent with the principles of the NSW 'Waste and Sustainable Materials Strategy 2041', which focuses on the transition of NSW to a circular economy, by minimising what is thrown away, and to use and reuse resources more efficiently, making them as productive as possible.

Best practice for waste management relies upon the waste hierarchy set out in **Figure 7-9** and is considered in this assessment and in the development of BlueScope's waste management processes.



Source: (NSW EPA, 2022)

Figure 7-9 Waste Hierarchy

The Waste Classification Guidelines covers the classification of wastes into groups that pose similar risks to the environment and human health. These classifications are undertaken to assess wastes for offsite disposal:

- Special waste;
- Liquid waste;
- Hazardous waste;
- Restricted solid waste;
- General solid waste (putrescible); and
- General solid waste (non-putrescible).

7.12.3 Impact Assessment

7.12.3.1 Construction Phase

Waste will be generated during the demolition, earthworks and construction activities of the Project. Waste collection during construction phase will include the provision of dedicated waste collection areas and skips for disposal or recycling. The positions of the designated waste areas within the Project Area will change according to the progression of construction works, which will consider health and safety, and accessibility. All waste will be adequately contained to ensure it does not provide off-site impacts.

Some types of waste, that cannot be safely reused onsite or recycled, will be disposed of at a licence waste facility in accordance with the 'Waste Classification Guidelines: Part 1 Classifying Waste' (NSW EPA, 2014).

It is expected that most of the waste generated during the construction phase would be classified as general solid waste, either putrescible or non-putrescible. Packaging material such as timber pallets, timber dunnage, cardboard, various plastics, ferrous and non-ferrous metals and other recyclables will be recycled or reused onsite (to the extent practicable). All existing concrete to be demolished will be recycled and taken to SCE Recycling, located in Warrawong or a similar facility. General waste is taken to Banks Meadow for disposal, paper and cardboard is recycled via Flag Staff at Unanderra, comingled recycling is taken to the Visy Resource Recovery Park at Whytes Gully and specific recyclables will be managed via the existing site recycling processes.

The predominant types and classification of waste streams generated by the Project are listed in **Table 7-26**.

Table 7-26 Identification of Waste Streams and Classification during Construction

Waste Type	Indicative Quantities	Waste Stream	Source	Classification
Excavated Spoil	6000t	Recycle	Furnace basement excavation	General solid waste (non-putrescible)
Packaging and consumables	30t	Recycle	Packaging materials for new equipment and consumables	N/A
General Waste	30-80t	Disposal	Mixed wastes associated with consumables used during the construction.	General solid waste (non-putrescible)
Green waste	5 t	Reuse	Site establishment and clearing of Project Area	General solid waste (non-putrescible)
Concrete	1121 m^3	Recycle	Existing redundant structures	General solid waste (non-putrescible)
Reinforcing steel	98 t	Recycle	Existing redundant structures	General solid waste (non-putrescible)
Structural steel	10 t	Recycle	Surplus structural steel bracing materials	General solid waste (non-putrescible)
Roof and wall cladding	3 t	Recycle	Surplus and damaged sheeting	General solid waste (non-putrescible)

Waste streams generated across all Project phases will be managed using the waste hierarchy, as illustrated in **Figure 7-9**. As an overarching principle, the waste minimisation hierarchy of avoid / reduce / reuse / recycle / dispose will be applied wherever possible to all decommissioning and construction wastes.

BlueScope has existing waste management systems in place which have proven capable of dealing with temporary increases in waste streams during shutdown activities and which are therefore well placed to manage waste streams generated as a result of the Project. Hazardous materials or substances are not expected to be generated as part of the Project construction works.

7.12.3.2 Operation Phase

During the operational phase of the Project the waste streams are expected to be generally consistent with existing operating conditions and will be managed in accordance with existing waste management processes. These waste streams will include quantities of putrescible and non-putrescible general waste associated with site amenities, offices, operational and maintenance activities, such as fuels, chemicals and lubricants, redundant equipment, consumables, packaging materials.

The streams of waste generated at the operational phase will continue to be managed in accordance with EPL 6092 and where required assessed and classified in accordance with the 'Waste Classification Guidelines'.

The waste streams associated with the Project operation, waste type and classification, and quantity are detailed in **Table 7-27**. Dedicated waste collection areas and bins for disposal or recycling will be provided throughout the operation of the Project.

Waste collection and recycling bins will be located nearby the generation sources and will be clearly labelled. The main waste collection area will be located within the Plate Mill Processing facility or in a fully screened area. Waste bins sizes will be confirmed with waste services contractors and will vary on the number of collections per week and actual generation rates (estimated volumes in **Table 7-27** are based on two collections per week).

Table 7-27 Identification of Project Operation Waste Streams and Classifications

Waste Type	Indicative Quantities	Waste Stream	Source	Classification
General Solid waste	40 - 60t p.a.	Disposal	Materials, consumables and general waste from operations, maintenance activities.	General solid waste (putrescible and non-putrescible)
General Recyclables	4 – 10t p.a.	Recycled Offsite	General consumables, packaging, amenities and office facilities	N/A
Scale	350t p.a.	Recycle	Heating of slabs inside reheat furnace	General solid waste (non-putrescible)
Spent Refractories	458m^3 – 60m^3 p.a.	Reuse or Recycle	Furnace lining	General solid waste (non-putrescible)
Coke Ovens Gas (COG) Condensate	8m^3 p.a.	Recycle	Seal pots and Gas Mains	Hazardous waste
Spent Oils and Grease	<1500L p.a.	Reuse or Recycle	Hydraulic and Grease systems	Liquid Waste

7.12.4 Mitigation and Management

The following mitigation measures are recommended for the Project:

- The CEMP shall include waste management measures addressing the following:
  - Separation of recyclable and non-recyclable materials where possible;
  - Separation of materials for reuse within the Port Kembla Steelworks site;
  - Waste receptacles will be collected on a regular basis by licensed contractors and transported for off-site disposal at an appropriately licenced landfill or recycling facility;
  - Awareness of waste minimisation practices and recycling requirements will be included in the Project induction;
  - All waste disposal will be in accordance with the POEO Act and 'Waste Classification Guidelines' (EPA, 2014) and EPL 6092; and
  - Waste tracking will occur for any types and quantities of waste that trigger the requirement for tracking.

7.13 Biodiversity

A BDAR waiver application was submitted to DPE, which included an assessment of the biodiversity values within the Project Area. A waiver to the provision of a BDAR was granted on 16 December 2022 (refer **Appendix R**).

7.13.1 Methodology

The biodiversity features and values associated with the Project have been assessed through desktop review, which provided an overview of the biodiversity values that exist within the Project Area.

The desktop review included analysis of the following online resources:

- A search of the NSW BioNet database for threatened species records;
- Assessment against the relevant biodiversity values contained within the *Biodiversity Conservation Act 2016* (BC Act) (Sections 1.5 and 6.3) and the *Biodiversity Conservation Regulation 2017* (BC Regulation) (Clauses 1.4 and 6.1); and
- Historical imagery accessed from the Department of Customer Service's 'Spatial Collaboration Portal' (https://portal.spatial.nsw.gov.au/).

7.13.2 Existing Environment

The Project Area is located on land that had been historically cleared and contains planted and landscaped vegetation in a modified condition only.

The nearest non-planted native tree vegetation is located adjacent to the Project Area on the north-western boundary, with the nearest element of the Project (internal access road hardstand) being approximately 18 m from this vegetation. The vegetation is mapped as Plant Community Type (PCT) 1326 Woollybutt - White Stringybark - Forest Red Gum grassy woodland on coastal lowlands, southern Sydney Basin Bioregion and South East Corner Bioregion and PCT 694 Illawarra Escarpment Blackbutt Forest. PCT 1326 is associated with threatened ecological communities (TECs) Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion and River-flat Eucalypt Forest on Coastal Floodplains of Southern New South Wales and Eastern Victoria. Both TECs are listed under the BC Act and EPBC Act.

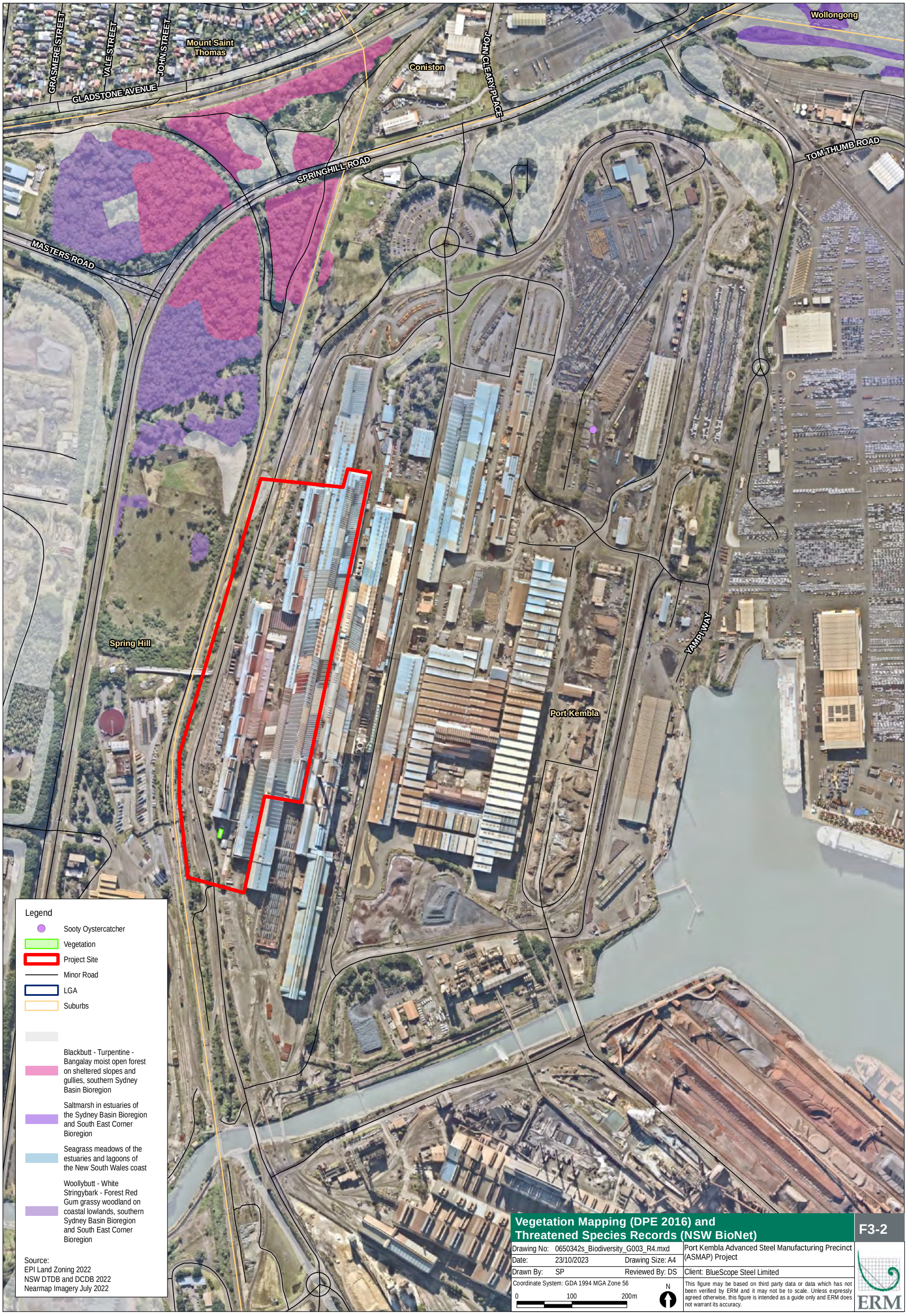
A search of the NSW BioNet database for threatened species records within a 5km buffer of the Project Area from the last 50 years was undertaken on 19 July 2022. One (1) threatened species was recorded within the Project Area, the Sooty Oystercatcher (Haematopus fuliginosus) from 2001, with accuracy of 100m. Additional threatened species recorded within 1 km of the Project Area include:

- Green and Golden Bell Frog (*Litoria aurea);*
- Grey-headed Flying Fox (*Pteropus poliocephalus)*; and
- Black-necked Stork (Ephippiorhynchus asiaticus).

Habitat for the Green and Golden Bell Frog and Black-necked Stork is not present within the Project Area; however, highly mobile species may fly over the Project Area as part of their generalist habitat requirements.

Limited suitable habitat for the Grey-headed Flying Fox is present within the Project Area, in the form of *Eucalyptus, Corymbia, Ficus* and *Lophostemon* species, which are not considered to make up a PCT. These trees are not considered critical foraging habitat for the Grey-headed Flying-fox, as they are not utilised as roosts and are not unique to the locality with similar vegetation planted across the broader Project Area.

Threatened species records and vegetation mapping completed by the Department of Planning and Environment (2016) are presented in **Figure 7-10**.


GRASMERE STREET
VALE STREET
JOHN STREET
Mount Saint Thomas
GLADSTONE AVENUE
Coniston
JOHN CLEARY PLACE
Wollongong
SPRINGHILL ROAD
TOM THUMB ROAD
MASTERS ROAD
Spring Hill
Port Kembla
YAMPI WAY
Legend
Sooty Oystercatcher
Vegetation
Project Site
Minor Road
LGA
Suburbs
Blackbutt - Turpentine - Bangalay moist open forest on sheltered slopes and gullies, southern Sydney Basin Bioregion
Saltmarsh in estuaries of the Sydney Basin Bioregion and South East Corner Bioregion
Seagrass meadows of the estuaries and lagoons of the New South Wales coast
Woollybutt - White Stringybark - Forest Red Gum grassy woodland on coastal lowlands, southern Sydney Basin Bioregion and South East Corner Bioregion
Source:
EPI Land Zoning 2022
NSW DTDB and DCDB 2022
Nearmap Imagery July 2022
Vegetation Mapping (DPE 2016) and Threatened Species Records (NSW BioNet)
F3-2
Drawing No: 0650342s_Biodiversity_G003_R4.mxd
Date: 23/10/2023
Drawing Size: A4
Drawn By: SP
Reviewed By: DS
Coordinate System: GDA 1994 MGA Zone 56
0
100
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Port Kembla Advanced Steel Manufacturing Precinct (ASMAP) Project
Client: BlueScope Steel Limited
This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
ERM

7.13.3 Impact Assessment

The Project will result in the disturbance of small areas of planted vegetation. The Project will require the removal of an Illawarra Fig (*Ficus rubiginosa*) and two Brushbox trees (*Lophostemnon confertus*) to facilitate the construction laydown area.

Given the long history of disturbance and the modified condition of the Project Area and its continued use for heavy industry, limited biodiversity values are present within it. Further, the Project Area is unlikely to support or to provide roosting habitat for any threatened species.

The Project is unlikely to have an impact on any other native vegetation communities, with no direct or indirect impacts, including erosion or sedimentation, or pests and weeds, to areas of native vegetation and habitat located on land adjacent to the Project Area. No threatened species are dependent on the limited resources present within the Project Area, and there will be no significant impact to biodiversity values as a result of the Project.

7.13.4 Mitigation and Management Measures

A BDAR Waiver has been granted for the project. There will be no significant impacts to biodiversity values as result of the Project. As such, no mitigation or management measures are necessary for the Project.

7.14 Social

7.14.1 Background

A Social Impact Assessment (SIA) was prepared by ERM discuss the potential social and economic impacts associated with the Project. The SIA is included at **Appendix S**.

The SIA was prepared to address the requirements of the Secretary's Environmental Assessment Requirements (SEARs) as amended on 23 May 2023, and was undertaken in accordance with the *Social Impact Assessment Guideline: For State Significant Projects* (the Guideline) (DPE, 2023a) and *Technical Supplement: Social Impact Assessment Guideline for State Significant Projects* (the Technical Supplement) (DPE, 2023b).

7.14.2 Methodology

The impact assessment methodology follows that outlined in DPE's Technical Supplement (2021b). **Figure 7-11** outlines the steps taken to complete the SIA, which are described in the following sections.

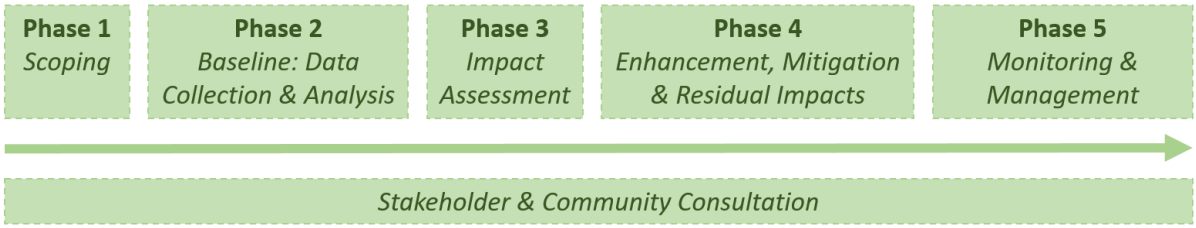

Figure 7-11 SIA Process

In accordance with the Guideline, a scoping exercise was first undertaken to determine the Social Locality for the Project, which includes the Project Area, the surrounding area wherein noise, visual, air quality and other amenity impacts may occur, as well as the communities that may provide workers or goods and services to the Project. Overall, the key drivers of social change that may affect communities in the Social Locality resulting from the Project relate to:

- Procurement opportunities for local businesses and employment opportunities for the local workforce;
- Potential disruptions due to construction related activities (noise, dust, transportation of materials and workers, etc); and
- Potential amenity (noise, air quality) and traffic impacts during operations.

In assessing the potential impacts, the SIA has considered the:

- Characteristics of the Project, including the timing, duration and intensity of activities (where known);
- Baseline data and the identification of vulnerable social groups;
- Issues raised by stakeholders during the engagement process; and
- Outcomes from technical studies undertaken by the Project, principally noise, air quality, traffic visual, and cultural heritage.

Additionally, the assessment of social impacts has factored in the long-established Industrial land uses in the Port Kembla Steelworks (PKSW), and specifically within the Project Area.

7.14.3 Impact Assessment

The Social Locality is characterised by steady growth in Indigenous and retiree populations in the three (3) Statistical Areas' Level 2 (SA2) adjacent to the Port Kembla industrial area. The SA2's surrounding the Project Area do not vary significantly in terms of population and median age. Key demographic differences between surrounding SA2's, include the smaller retiree population in Wollongong – East, larger Indigenous population in Berkeley - Lake Heights - Cringila, and significant population growth in Wollongong – East. These local SA2 demographic trends stand out relative to local government area (LGA), Illawarra SA4 and State averages.

Table 7-28 Key Population Indicators across the Project's Social Locality

ABS Statistical Area	Census Year	Pop.	Pop. Δ (avg. annual growth rate, %)	Median Age	Indigenous Pop. (%)	Pop. over 65 Years of Age (%)
Wollongong LGA	*2021*	214,564	1.07	39	3.2	18.6
	2016	203,630		39	2.6	17.7
Wollongong- East SA2	*2021*	16,020	2.94	39	2.1	20.1
	2016	13,967		36	1.4	19.9
Wollongong- West SA2	*2021*	16,551	-0.18	34	2.1	14.6
	2016	16,702		32	1.8	13.8
Berkeley- Lake Heights- Cringila SA2	*2021*	14,200	0.58	39	5.2	18.2
	2016	13,801		38	4.0	17.8
Illawarra SA4	*2021*	313,842	1.39	40	3.6	19.1
	2016	293,494		39	2.8	17.8
NSW Code 1 (STE)	*2021*	8,072,163	1.58	39	4.8	17.7
	2016	7,480,228		38	2.9	16.2

The latest available ABS Socio-Economic Index For Areas (SEIFA) indicators across the Project's Social Locality are reported in **Table 7-29** (SEIFA is a measure of socio-economic advantage and disadvantage). Areas with higher percentiles indicates a higher degree of advantage and a relatively low incidence of disadvantage (ABS, 2018; ABS, 2023). The Berkeley – Lake Heights – Cringila SA2 exhibits a significant degree of socio-economic disadvantage and experienced the smallest percentile increase. Meanwhile, Wollongong East and West SA2's have a moderate Index of Relative Socio-economic Advantage and Disadvantage (IRSAD), rating below the Wollongong LGA average. However, since 2016 both SA2's have trended closer to the Wollongong LGA average.

Table 7-29 SEIFA Indicators across the Project's Social Locality*

ABS Statistical Area	Census Year	SEIFA (percentile in NSW)
Wollongong LGA **LGA18450**	2016	72
	2021	78
Wollongong – East SA2 **SA2-107041548**	2016	59
	2021	66
Wollongong – West SA2 **SA2-107041549**	2016	47
	2021	56
Berkeley – Lake Heights – Cringila SA2 **SA1- 107011545**	2016	7
	2021	9
Illawarra SA4 **SA4-107**	**	**
NSW **Code 1 (STE)**	**	**

**SEIFA data from the 2016 and 2021 Census is provided in ABS (2018) and ABS (2023).*
***SEIFA is not provided for ABS SA4 and STE Statistical Areas.*

Table 7-30 characterises the economic profile of the Social Locality through the key industries and areas of employment for three (3) SA2s, one (1) SA4, and one (1) LGA, and NSW as a whole.

Table 7-30 Key Industries for Select ABS Statistical Areas

Location	Workforce, Key Occupations, and Industries
Wollongong LGA **LGA18450**	■ 58.3% of the LGA's residents reported being in the workforce. ■ The top occupations reported were Professionals (25.1%), Technicians and Trades Workers (14.0%), Community and Personal Service Workers (12.9%), Clerical and Administrative Workers (12.5%), Managers (11.6%), Labourers (8.4%), Sales Workers (7.8%) and Machinery Operators and Drivers (6.1%). ■ Of the employed people in this LGA, the top industries of employment were Hospitals (5.2%), Other Social Assistance Services (3.1%), Aged Care Residential Services (2.6%), Higher Education (2.6%) and Take Away Food Services (2.5%).
Wollongong – East SA2 **SA2107041548**	■ 60.1 % of the SA2's residents reported being in the workforce. ■ The top occupations reported were Professionals (32.4%), Managers (13.2%), Community and Personal Service Workers (13.1%), Clerical and Administrative Workers (12.3%), Technicians and Trades Workers (10.0%), Sales Workers (7.7%), Labourers (6.0%) and Machinery Operators and Drivers (3.8%). ■ Of the employed people in this SA2, the top industries of employment were Hospitals (5.9%), Cafes and Restaurant (4.4%), Higher Education (3.7%), Other Social Assistance Services (2.4%) and Secondary Education (2.4%).

Location	Workforce, Key Occupations, and Industries
Wollongong – West SA2 **SA2-107041549**	■ 60.9 % of the SA2's residents reported being in the workforce. ■ The top occupations reported were Professionals (29.6%), Community and Personal Service Workers (13.4%) Technicians and Trades Workers (11.9%), Clerical and Administrative Workers (11.4%), Managers (10.2%), Sales Workers (8.3%), Labourers (8.0%) and Machinery Operators and Drivers (5.5%). ■ Of the employed people in this SA2, the top industries of employment were Hospitals (6.5%), Higher Education (3.6%) Cafes and Restaurants (3.5%), Other Social Assistance Services (3.1%) and Aged Care Residential Services (2.9%).
Berkeley – Lake Heights – Cringila SA2 **SA1- 107011545**	■ 49.4 % of the SA2's residents reported being in the workforce. ■ The top occupations reported were Technicians and Trades Workers (16.7%), Labourers (14.7%), Professionals (13.9%), Community and Personal Service Workers (13.5%), Clerical and Administrative Workers (12.1%), Machinery Operators and Drivers (9.6%), Sales Workers (9.1%), and Managers (7.7%). ■ Of the employed people in this SA2, the top industries of employment were Aged Care Residential Services (4.1%), Hospitals (3.7%), Other Social Assistance Services (3.7%), Takeaway Food Services (3.5%), Supermarket and Grocery Stores (3.3%),
Illawarra SA4 **SA4-107**	■ 58.1 % of the SA4's residents reported being in the workforce. ■ The top occupations reported were Professionals (23.3%), Technicians and Trades Workers (14.7%), Community and Personal Service Workers (13.2%), Clerical and Administrative Workers (12.6%), Managers (11.5%). Labourers (8.6%), Sales Workers (8.1%), and Machinery Operators and Drivers (6.5%). ■ Of the employed people in this SA4, the top industries of employment were Hospitals (5.1%), Other Social Assistance Services (3.1%), Aged Care Residential Services (2.7%), Supermarket and Grocery Stores (2.6%), and Primary Education (2.5%).
NSW **Code 1 (STE)**	■ 58.7% of the State's residents reported being in the workforce. ■ The top occupations reported in NSW were Professionals (25.8%), Managers (14.6%), Clerical and Administrative Workers (13.0%), Technicians and Trades Workers (11.9%), Community and Personal Service Workers (10.6%), Labourers (8.2%), Sales Workers (8.0%), and Machinery Operators and Drivers (6.0%). ■ Of the employed people in NSW, the top industries of employment were Hospitals (4.2%), Supermarket and Grocery Stores (2.5%), Other Social Assistance Services (2.4%), Computer System Design and Related Services (2.3%), and Aged Care Residential Services (2.2%).

The construction and operation of the Project will result in a number of positive socioeconomic outcomes for the Wollongong LGA and the wider NSW economy, summarised below:

- The Project will generate up to 95 full time equivalent (FTE) new jobs during peak construction and an average of 60 FTE across the construction phase and has an expected capital expenditure of approximately $217-250 million;
- The Project will generate 18 FTE permanent jobs during the operation phase;
- Stakeholder engagement revealed overwhelming support for the Project and a community perception that BlueScope is providing transparent and inclusive engagement;
- The Project aims to enhance the supply of Australian steel by upgrading the existing plate steel production facility; and
- The Project has had its social impacts comprehensively assessed, alongside a substantial stakeholder engagement process, as reported throughout the EIS.

7.14.4 Mitigation and Management

The following mitigation measures are recommended:

- Maintain the established 'contact procedure for complaints and enquires' currently in-effect at PKSW, to appropriately manage stakeholder concerns that may arise including during day-to-day construction activities;
- Ensuring cultural heritage awareness and acknowledgement measures are embedded within induction training for employees, including an understanding of the duty of care requirements;
- The Project will uphold existing relationships with local suppliers established through previous PKSW activities, where procurement requirements can be met; and
- Create awareness amongst the community, in partnership with LGAs and other partner organisations to foster a better understanding as to the ways prospective workers may be able to take part in the project.

7.15 Development Contributions

Wollongong City-Wide Development Contributions Plan 2022 (the Plan) applies to all applications for development consent and complying development certificates required to be made by or under Part 4 of the EP&A Act in respect of development on land to which the Plan applies, which includes the Project Area. The Plan levies contributions under Section 7.12 of the EP&A Act and it aims is to "assist the Council to provide the appropriate public facilities which are required to maintain and enhance amenity and service delivery within the area".

Section 208(3) of the EP&A Regulations sets out the calculable costs and expenses to be taken account of that have been or will be incurred by the Applicant in carrying out the development. The 'cost of works' as defined in s208(3) is used when calculating the Section 7.12 contributions payable to Council rather than the 'capital investment value' of the Project.

A Cost Estimate Report is provided at **Appendix G** and identifies the cost of carrying out development works to be $47.6 million. In accordance with the Section 7.12 Plan, a 1% levy contributions payment to Council is required based on the cost of carrying out the development. BlueScope submits that it be exempted from the requirement to pay a development contribution given that the Project will not create or contribute to extra demand for Council services and in recognition of the positive role BlueScope plays in the community.

7.16 Environmentally Sustainable Development

7.16.1 Background

The Commonwealth Government defines ecologically sustainable development in the *National Strategy for Ecologically Sustainable Development* (1992) as:

> *"using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased"*

The Commonwealth Government recognises the need for development to apply careful management measures to ensure both current and intergenerational quality of life is enhanced.

For the purposes of this EIS, the relevant definition is found in the EP&A Regulations, which defines the principles of ecologically sustainable development as follows:

> *"(3) **The precautionary principle** is 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.*
>
> *(4) In applying the precautionary principle, public and private decisions should be guided by—*
>
> *(a) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
>
> *(b) an assessment of the risk-weighted consequences of various options*
>
> *(5) The principle of **inter-generational equity** is that the present generation should ensure the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.*
>
> *(6) The principle of the **conservation of biological diversity and ecological integrity** is that the conservation of biological diversity and ecological integrity should be a fundamental consideration.*
>
> *(7) The principle of **improved valuation, pricing and incentive mechanisms** is that environmental factors should be included in the valuation of assets and services, such as—*
>
> *(a) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement, and*
>
> *(b) the users of goods and services should pay prices based on the full life cycle of the costs of providing the goods and services, including the use of natural resources and assets and the ultimate disposal of waste, and*
>
> *(c) established environmental goals 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."*

7.16.2 Application to the Project

7.16.2.1 The Precautionary Principle

The environmental impacts of the Project have been carefully evaluated in this EIS and to the extent such impacts may arise, measures have been adopted to avoid, mitigate, manage or offset such impacts. The Project does not present a credible risk of serious or irreversible impacts to the environment and has benefits for the State's ability to transition to a low carbon economy by providing a local source of plate steel for the wind tower manufacturing industry, amongst others.

7.16.2.2 Inter-generational Equity

The Project has been designed to maintain inter-generational equity in that it incorporates adequate environmental protection and impact mitigation and management measures to ensure environmental values are maintained and improved as a result of the Project development. The Project is intended to benefit both the current and future generations through its improved energy efficiency and increased supply of steel plate for use in projects including renewables projects.

7.16.2.3 Conservation of Biological Diversity and Ecological Integrity

The conservation of biological diversity refers to the maintenance of species richness, ecosystem diversity and health and the links and processes between them. The Project is not likely to have any significant impact on biodiversity values and a BDAR waiver has been issued in this regard (refer **Appendix R**).

7.16.2.4 Improved Valuation, Pricing and Incentive Mechanisms

The environmental consequences of the Project and mitigation measures with potential for adverse impacts have been considered and identified in this EIS (refer **Section 7**). Mitigation measures, including sustainability measures, will be implemented to reduce energy, water and waste requirements, taking into consideration whole-of life costing of the Project.

Measures for avoiding, reusing, recycling and managing waste during construction and operation will be employed to ensure resources are used responsibly in the first instance. Additional measures will be implemented to ensure environmental resources in the locality are not adversely impacted during the construction or operational phases.

7.16.3 ESD Measures

The BlueScope Group's Climate Action Report outlines the strategy and plans to address the decarbonisation challenge across BlueScope's global operations (BlueScope Steel Limited, 2021). The report articulates the BlueScope Group's commitment to medium-term (2030) targets and a longer-term net zero by 2050 goal, covering both Scope 1 and Scope 2 GHG emissions across BlueScope global operations. Achieving the 2050 net zero goal is highly dependent on several enablers, including the availability of affordable and reliable renewable energy and hydrogen, the availability of quality raw materials, appropriate public policy settings, and the commerciality of breakthrough technologies.

While breakthrough technologies are in the process of commercialisation, BlueScope's focus is on improving the emissions intensity of its existing infrastructure. Consistent with this focus, measures to improve emissions intensity, to minimise consumption of resources and reduce environmental impacts have been selected for the Project whenever reasonably practicable, as provided in **Table 7-31**.

Table 7-31 ESD Measures

Theme	Measure
Energy and GHG reduction	■ Reverse Cycle Air Conditioning to maintain temperature in external switch rooms; ■ Daylight sensors to adject LED light output and further reduce energy consumption; ■ Replacement of the two pusher furnaces with one walking beam furnace to reduce COG consumption per tonne of plate steel.
Water efficiency and conservation	■ Once through saltwater cooling for the existing furnaces will be replaced by closed-loop water cooling, which will reduce the volume of water discharged to the Plate Mill Drain and the heat load on the existing saltwater discharge into Allans Creek.
Materials	■ When choosing lubricating/ hydraulic oils, chemicals and other process and/ or maintenance consumables, the environmental impacts of these products will be considered; ■ Procurement policies and procedures for products and services that are produced responsibly and create long-term environmental, social and economic value for all stakeholders. BlueScope has a Responsible Sourcing Policy, Supplier Code of Conduct and Responsible Sourcing Standard which will be met throughout the Project's construction and operation;
Waste management practices	■ Reduction in scrapped plates through greater ability to process full range of plates through new Fourth Route and improved quality plate produced by the new walking beam furnace; ■ Define packaging requirements for components in contracts, reduce packaging or define specific types of packaging that can be recycled (e.g., clear plastics or green strapping), and reuse of items like pallets and containers; ■ Education for construction and operations personnel on recycling and waste management best practice; ■ Recycling of construction/ demolition materials and recycling stations for ongoing operations; ■ Internal reuse of excavated soils which will reduce transport emissions and impact on available landfill sites;
Sustainable transport	■ Engage local suppliers on some packages to reduce required transport; and ■ Direct route shipping where possible.

8. PROJECT JUSTIFICATION

8.1 Strategic Benefits

The aim of the Project is to improve the production capability and capacity of the Plate Mill to cater for increased demand for steel plate, including in the defence and renewable energy industries. The Project includes the replacement of two existing furnaces with a newer and more energy efficient furnace, with upgrades to associated plate processing plant and equipment located at the Plate Mill. The Project represents the most comprehensive upgrade of the Plate Mill since it was originally constructed; it will use best available technology to deliver a modernised and upgraded Plate Mill.

The Project is consistent with strategic and economic objectives for the local region as follows:

- Generates economic stimulus and delivers economic benefit to the Illawarra region and the NSW economy;
- Generates employment, leading to economic stimulus for the local community, residents and businesses, including provision of approximately 95 FTE jobs during peak construction periods and additional 18 FTE jobs during operation and maintenance;
- Delivers additional industrial facilities, larger employment typologies and creates high-value to support the growth of the industrial precinct of Port Kembla and deliver key employment opportunities within the surrounds and wider region; and
- Creates local source of steel products to support growth of downstream manufacturers, including the construction industry, defence sectors and renewable energy and the necessary electrical infrastructure to support these technologies and through its support for these industries will assist Australia in achieving its transition to a low carbon economy.

8.2 Design Principles

During the preparation of the EIS, the Project has been subject to an ongoing iterative design and siting process with the objective of developing an efficient Project that avoids and minimises any potentially adverse environmental or social impacts.

During the EIS phase, BlueScope has conducted a rigorous environmental assessment of the Project in accordance with the SEARs. The final Project layout for which approval is sought has considered identified environmental constraints and comments made in the stakeholder engagement process.

8.3 Community Views

Community views have shaped the Project during the preparation of the Scoping Report and EIS, which involved engagement with nearby neighbours, community and groups located within the industrial precinct of Port Kembla, nearby community and groups located, Aboriginal groups, government agencies and BlueScope employees in the Illawarra, as described in **Section 6**.

Engagement activities included emails, phone calls, briefings, forums, factsheets, face-to-face meetings, community open days, a town hall event, the BlueScope in the Illawarra website and hotline. The engagement purpose was to introduce the Project, identify stakeholders concerns and feedback, provide updates and invite stakeholders' representatives for drop in sessions and site tours.

The benefits of the Project have been well received: stakeholder feedback was positive, with recognition of the benefits of the Project as a source of employment opportunities, emissions reduction, energy efficiency savings and increased supply of steel plate, which will support renewable projects. **Section 6** and **Appendix D** indicate how the Project responds to each of the matters raised by the community, and how the concerns were considered in finalising the Project.

During engagement activities, key issues raised by stakeholders to date have included air quality, contamination, noise and vibration, road traffic, and utilities impacts. BlueScope welcomes ongoing community consultation and will continue to work with the community to address such issues (refer **Section 6**).

8.4 Environmental, Social and Economic Outcomes

The Project has been assessed considering the potential environmental, social and economic impacts as outlined below:

- **Environmental:** The Project has been designed to maximise the use of existing disturbed areas and to avoid or minimise impact to local air quality, soil and water, surrounding road network and sensitive noise receptors. Progressive design iterations for the Project infrastructure have continued with key drivers including the need to minimise and avoid adverse environmental and social impacts consistent with the Avoid-Minimise-Mitigate-Offset design hierarchy. Additionally, the Project addresses the principles of ecologically sustainable development (ESD) in accordance with the requirements of the EP&A Regulation and as outlined in **Section 7;**
- **Social:** The Project seeks to deliver employment uses to support the lifestyle of current and future residents within the Illawarra region. The construction workforce will generate more economic activity at local restaurants, shops and businesses;
- **Economic:** The Project will contribute to up to 95 construction jobs and additional 18 operational jobs. Additionally, the Project will facilitate the appropriate growth of steel plate production in accordance with current demands. The Project will generate economic stimulus and delivers economic benefit to the Illawarra region and NSW economy; and
- **Cumulative:** the Project is located within the broader Port Kembla Steel Works site. The cumulative impact of the Project and the existing operations at PKSW have been considered in the EIS. The Project does not give rise to material adverse impacts on the environmental quality and amenity of the surrounding area and sensitive receivers surrounding the PKSW.

The Project is not expected to have a significant impact on the environment. **Appendix C** provides a summary of the environmental management commitments of the Project which will be implemented to avoid, minimise and where necessary, offset the potential environmental impacts associated with the Project.

8.5 Conclusion

The Project will involve the construction and installation of a new walking beam furnace to replace the operation of the two (2) existing pusher furnaces, together with upgrades to the existing electrical infrastructure and modification of existing equipment and infrastructure associated with the Fourth Processing Route.

The Project will be developed on land which is highly disturbed and which has been historically cleared, and will not result in significant adverse impacts on the environment or the local community. Any adverse impacts will be significantly outweighed by the strong strategic and economic benefits which the Project will deliver.

The Project has been carefully designed and sited to minimise environmental impacts in consultation with the local community and relevant stakeholders. Any residual environmental and social impacts identified throughout the EIS and technical assessments will be managed through the mitigation and management measures summarised in **Section 7**.

The Project represents a positive addition to the local and wider NSW economy and through the implementation of proposed mitigation and management measures, it is considered that the Project is consistent with the objects of the EP&A Act and is in the public interest.

9. ABBREVIATIONS AND TERMINOLOGIES

9.1 Terminologies

Term	Description
Applicant	BlueScope Steel (AIS) Pty Ltd (BlueScope)
Application	Application for Development Consent under Part 4, Division 4.7 of EP&A Act
dB	dB is a logarithmic ratio between a measured level and a reference level. The reference level for sound power is 1 x 10-12 Watts and for sound pressure 2 x 10-5 Pascals.
dBA	dBA denotes a single number sound pressure level that includes a frequency weighting ("A-weighting") to reflect the subjective loudness of the sound level. The frequency of a sound affects its perceived loudness. Human hearing is less sensitive at low and very high frequencies, and so the A-weighting is used to account for this effect. An A-weighted decibel level is written as dBA.
Hot Mills	Hot Mills refers to the sub-precinct within the Port Kembla Steel Works where the Project Area is located. The Hot Mills is the area generally bounded by Allans Creeks to the south, Tom Thumbs Lagoon to the east, Springhill Road to the north and the rail line to the west.
Leq	The 'equivalent continuous sound level', Leq, is used to describe the level of a time-varying sound or vibration measurement. Leq is often used as the "average" level for a measurement where the level is fluctuating over time. Mathematically, it is the energy-average level over a period of time (e.g., the constant sound level that contains the equivalent sound energy as the measured level). When the dBA weighting is applied, the level is denoted dB LAeq.
Port Kembla Steel Works	The Port Kembla Steel Works refers to the entire site where BlueScope operates the existing integrated steelworks
Project	The Project refers to the proposal by the Applicant (BlueScope) to upgrade and modernise the existing steel manufacturing facilities within the Project Area including the Plate Mill (proposed Advanced Steel Manufacturing Precinct (ASMAP) Project) as described in this EIS.
Project Area	The Project Area refers to the location of the Project within the larger Port Kembla Steel Works
scale	Scale is a type of iron oxide with thin, flaky texture that is formed on the surface of the steel during the hot-rolling process. It is a by-product of manufacturing hot-rolled metal plates and sheets, occurring as the surface oxidizes during the heating, conditioning and hot rolling processes. The very high surface temperature combined with high roller pressures result in a smooth, bluish grey surface.

9.2 Abbreviations

Abbreviation	Description
ACHSR	Aboriginal Cultural Heritage Survey
ADG Code	Australian Dangerous Goods Code
AE	Annual Exceedance
AEP	Annual Exceedance Probability
ABN	Australian Business Number
ABS	Australian Bureau of Statistics
ADG Code	Australian Dangerous Goods Code
AGL	Above Ground Level
AHIMS	Aboriginal Heritage Information Management System
AHD	Australian Height Datum
AIS	Australian Iron and Steel
ANZG	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
Approved Methods	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW
AQIA	Air Quality Impact Assessment
AS	Australian Standard
AFFF	Aqueous film forming foam
ASS	Acid Sulfate Soils
AASS	Actual Acid Sulfate Soils
ASC	Australian Soil Classification
ASL	Above Sea Level
ASMAP	Advanced Steel Manufacturing Precinct
ASSMP	Acid Sulfate Soils Management Plan
AV	Articulated Vehicles
BCA	Building Code of Australia
BC Act	Biodiversity Conservation Act 2016
BCD	Biodiversity and Conservation
BDAR	Biodiversity Development Assessment Report
bgl	Below Ground Level
BlueScope	BlueScope Steel (AIS) Pty Ltd
BoM	Bureau of Meteorology
BOS	Basic Oxygen Steelmaking
BSL	BlueScope Steel Limited, parent company of BlueScope
BTEXN	benzene, toluene, ethylbenzene, xylenes and naphthalene
Burra Charter	The Australia International Council on Monuments and Sites, Charter for Places of Cultural Significance
CBD	Central Business District
CEMP	Construction Environmental Management Plan
CHA	Coastal Hazard Assessment
CHC	chlorinated hydrocarbons
CIV	Capital Investment Value
CSM	Conceptual Site Model
CO	Coke Ovens

Abbreviation	Description
COC	Contaminants of concern
COG	Coke Ovens Gas
DA	Development Application
DC	Direct Current
DCCEEW	Federal Department of Climate Change, Energy, Environment and Water
DECC	Department of Environment and Climate Change
DG	Dangerous Goods
DPE	NSW Department of Planning and Environment (formerly Department of Planning, Industry and Environment, DPIE)
DPIE	NSW Department of Planning, Industry and Environment (now Department of Planning and Environment, DPE)
DSI	Detailed site investigation
DQO	Data quality objectives
EHG	Environment and Heritage Group
EIS	Environmental Impact Statement
EL	Exploration License
EMS	Environmental Management Strategy
Engagement Guidelines	Undertaking Engagement Guidelines for State Significant Projects
ENM	Excavated Natural Material
EP&A Act	Environmental Planning & Assessment Act 1979
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
EPC	Engineering, Procurement, and Construction
EPIs	Environmental Planning Instruments
EPL	Environment Protection Licence
ERM	Environmental Resources Management Australia Pty Ltd
ESG	Environmental, Social and Governance
EWMS	Environmental Work Method Statement
FIA	Flood Impact Assessment
FPA	Flood Planning Area
FPL	Flood planning level
FTE	Full Time equivalent
GDE	Groundwater Dependent Ecosystem
GHG	Greenhouse Gas
GSW	General solid waste
HAZID	Hazard Identification study
HIPAP No. 4	Hazardous Industry Advisory Paper No. 4, ‘Risk Criteria for Land Use Safety Planning’
HIPAP No. 6	Hazardous Industry Planning Advisory Paper No. 6, ‘Hazard Analysis’
HPC	Heavily Parallelised Compute
HRV	Heavy Rigid Vehicles
HV	High Voltage
IAP	International Association of Public Participation
ICNG	NSW Interim Construction Noise Guideline
ILALC	Illawarrra Local Aboriginal Land Council
INP	NSW Environmental Noise Management – Industrial Noise Policy
IRSAD	Index of Relative Socio-economic Advantage and Disadvantage

Abbreviation	Description
ISLHD	Illawarra Shoalhaven Local Health District
km	Kilometres
km/h	kilometres per hour
kPa	KiloPascal
kV	kilovolt
LALC	Local Aboriginal Land Council
LEP	Local Employment Plan
LGA	Local Government Area
LiDAR	Light Detection and Ranging
LLS	Local Land Service
LV	low voltage
Master Plan	NSW Ports 2063 our 40 - Year Master Plan for Sustainable Growth
ML	megalitres
MMI	Modern Manufacturing Initiative
MRV	Medium Rigid Vehicles
MVA	Mega-volt-amperes
MW	Megawatt
N	Ammonia
NCA	Noise Catchment Area
Net Zero Plan	Net Zero Plan – NSW Government Net Zero Plan Stage 1: 2020-2023
NNTT	National Native Title Tribunal
NOX	Nitrogen Oxide
NPI	Noise Policy for Industry (2017)
NSR	Noise Sensitive Receivers
NSW	New South Wales
NSW EPA	NSW Environment Protection Authority
NTSCORP	National Native Title Services Corporation Ltd
NTV	Native Title Vision
NVIA	Noise and Vibration Impact Assessment
NZIIP	NSW Net Zero Industry and Innovation Program
OCP	organochlorine pesticides
OG	Out of Gauge is plate greater than 2500 mm, applies to road and rail
OPP	organophosphate pesticides
OSD	On-side detention
OSOM	Over size Over mass
PAD	Potential Archaeological deposits
PAH	Polycyclic aromatic hydrocarbons
PASS	Potential Acid Sulfate Soil
PCT	Plant Community Type
PFAS	Per- and ploy-fluoroalkyl substances
PHA	Preliminary Hazard Analysis
PKSW	Port Kembla Steelworks
PLC	Programmable logic controller
PM	Plate Mill
PMF	Probable Maximum Flood

Abbreviation	Description
POEO Act	Protection of the Environment Operations Act 1997
PPA	Power Purchase Agreement
ppm	Parts per million
PSI	Preliminary Site Investigation
RAP	Registered Aboriginal Party
RAV	Restricted Access Vehicle
RFS	NSW Rural Fire Service
Roads Act	Roads Act 1993
RNP	NSW Road Noise Policy
RTA	Roads and Traffic Authority
RTU	Remote Terminal Unit
SA1	ABS Statistical Area 1
SA2	ABS Statistical Area 2
SA4	ABS Statistical Area 4
SCADA	Supervisory control and data acquisition
SDG	Sustainable Development Goals
SEARs	Secretary's Environmental Assessment Requirements
SEIFA	ABS Socio-Economic Index for Areas
SEPP	State Environmental Planning Policy
SES	Stakeholder engagement strategy
SIA	Social Impact Assessment
SO4	Sulfate
SPR	Source pathway receiver
SSD	State Significant Development
SWL	Standing Water Level
SWMP	Soil and Water Management Plan
t	tonnes
TDS	Total dissolved solids
TECs	Threatened Ecological Communities
TfNSW	Transport for NSW
TIA	Traffic Impact Assessment
TOP	Take over point
TRH	Total recoverable hydrocarbons
V	Voltage or volts
VENM	Virgin Excavated Natural Material
VIA	Visual Impact Assessment
VOC	Volatile organic compound
WARR Act	Waste Avoidance and Resource Recovery Act 2001
WBF	Walking Beam Furnace
WCC	Wollongong City Council
WDCP 2009	Wollongong Development Control Plan 2009
WM Act	Water Management Act 2000
WMP	Waste Management Plan
Wollongong CSP	Our Wollongong Our Future 2032 Community Strategic Plan
Wollongong LEP	Wollongong Local Environmental Plan

Abbreviation	Description
Wollongong LSPS	Wollongong Local Strategic Planning Statement 2020
WQIA	Water Quality Impact Assessment
WTP	Wastewater Treatment Plant

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