Bluestone Hardrock Quarry
SSD-76210271

ENVIRONMENTAL IMPACT STATEMENT

PREPARED FOR

BLUESTONE HARDROCK PTY LTD

MAY 2026

Document Control

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ACKNOWLEDGEMENT OF COUNTRY

Barr Planning acknowledges the Traditional Custodians of country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past and present and all Aboriginal and Torres Strait Islander peoples today, through considerate and respectful approaches to our work, and seeking to facilitate a balance between the transformation of land and the preservation of the natural and cultural environment.

'Connection' by Aboriginal Artist, Lauren Freestone

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Glossary and Abbreviations

Terminology	Meaning
ACHAR	Aboriginal Cultural Heritage Assessment Report
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AS	Australian Standard
ASS	Acid Sulfate Soils
BAM	Biodiversity Assessment Method
BC Act	Biodiversity Conservation Act 2016
BCA	Building Code of Australia
BDAR	Biodiversity Development Assessment Report
CMP	Construction Management Plan
Codes SEPP	State Environmental Planning Policy (Exempt and Complying Development Codes) 2008
Council	Singleton Council
CTMP	Construction Traffic Management Plan
DCP	Development Control Plan
DP	Deposited Plan
DPHI	NSW Department of Planning, Housing and Industry
DSI	Detailed Site Investigation (Contamination)
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979
EP&A Regulation	Environmental Planning and Assessment Regulations 2021
EPA	NSW Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental Planning Instrument
ESD	Ecologically Sustainable Development
HIS	Heritage Impact Statement
HMS	Hazardous Materials Survey
LGA	Local Government Area
DP	Deposited Plan
m	Metre

Terminology	Meaning
m^2	Square Metres
N/A	Not applicable
NIA	Noise Impact Assessment
NSW	New South Wales
OEH	Office of Environment and Heritage
PSI	Preliminary Site Investigation (Contamination)
RAPs	Registered Aboriginal Parties
RL	Reduced Level
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SEPP Systems	State Environmental Planning Policy (Planning Systems) 2021
SEPP T&I	State Environmental Planning Policy (Transport and Infrastructure) 2021
SIA	Social Impact Assessment
SLEP 2013	*Singleton Local Environmental Plan 2013*
SSD	State Significant Development
SSDA	State Significant Development Application
TfNSW	Transport for New South Wales
The Minister	The Minister for Planning and Public Spaces
tpa	Tonnes per annum
WM Act	*Water Management Act, 2000*
WMP	Waste Management Plan

REAP Declaration

Declaration by registered environmental assessment practitioner	
Name	Rob Dwyer
Registration number	7608
Organisation registered with	Planning Institute of Australia

The undersigned declares that this EIS:

- has been prepared in accordance with Section 190 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 Development 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.

Signed

Date 07 May 2026

Executive Summary

This Environmental Impact Statement (EIS) has been prepared by Barr Property and Planning Pty Ltd (Barr Planning), on behalf of Bluestone Hardrock Pty Ltd (the Applicant). The EIS is submitted to the New South Wales Department of Planning, Housing and Infrastructure (DPHI), in support of an application for State Significant Development (SSD) (SSD-76210271) being the development of a hardrock quarry in the localities of Elderslie and Glendon Brook, New South Wales.

The Site

The site is located within the Singleton local government area (LGA) and is on the traditional lands of the Wonnarua people. The total area of the Project site is approximately 186 hectares (ha) however the total disturbance area is approximately 63.4ha.

The site is zoned RU1 – Primary Production pursuant to *Singleton Local Environmental Plan 2013* (SLEP 2013). The site is bordered by land similarly zoned for rural use to the northwest and south. Natural characteristics are dominated by areas of remnant vegetation on steeper terrain and ridges, with gentler sloping ground in valleys cleared for agricultural grazing.

Access to the Project site is off Springvale Road and the proposed haulage route for material is south along Stanhope Road, Elderslie Road, New England Highway and Wine Country Drive.

The Project

The Project is a quarry for the extraction of hardrock and gravel to supply aggregate and conglomerate suitable for road base and concrete batching in the local region. Key aspects of the Project are provided in the following table.

Project Element	Summary of the Project
Proposed Development	Hardrock Quarry.
Legal Property Description	▪ Lot 65 DP 752473, Blind Creek Road, Glendon Brook. ▪ Lot 904 DP 1061259, Blind Creek Road, Elderslie. ▪ Lot 903 DP 1061259, Blind Creek Road, Elderslie. ▪ Lot 5 DP 1102521, 253 Springvale Road, Elderslie.
Resource Extraction Method	Traditional drilling and blasting
Resource	Quarry extraction of high-quality Tuff and Agglomerate from a reduced level (RL) of 215m AHD down to RL 110m AHD.
Project Site Area	186ha.
Disturbance Areas	Total Disturbance Area – 63.4ha, broken down as per below.
	37.8ha - Pit Area.
	4.3ha – Stockpile and Laydown Area.
	16.2ha - Processing Area.
	0.5ha - Weighbridge and Office Area.

Project Element	Summary of the Project
	1.3ha – Haul Road 1.
	3.3ha – Haul Road 2.
Annual Production	Up to 1,000,000 tonnes.
Quarry Life	Up to 30 Years (under this application).
Potential Resource Life	Up to 50 years.
Hours of Operation	**Extraction and processing operations** ▪ 7am to 5pm (Monday to Friday). ▪ 8am to 1pm (Saturday).
	Internal product transfers to stockpiles ▪ 7am to 5pm (Monday to Friday). ▪ 8am to 1pm (Saturday).
	Haulage from the development site ▪ 6.30am to 4pm (Monday to Friday). ▪ No haulage on Saturday, Sunday or a Public Holiday.
Hours of Operation	**Drilling and Blasting activities** Blasting between 9am to 5pm Monday to Friday only. On average one (1) blast per week, carried out by an external contractor.
	Maintenance activities ▪ 6am to 6pm (Monday to Saturday). ▪ No work on Sundays and Public Holidays.
	Construction hours ▪ 7am to 5pm (Monday to Friday). ▪ 8am to 3pm (Saturday). ▪ No work on Sundays and Public Holidays.
Operational Workforce	At full operation, up to 15 full-time staff, with further support from the local and regional construction industry and associated haulage contractors.
Product Transport	▪ Road haulage of product via semi-trailer / truck and dog trailer.
	▪ On average 110 laden trucks per day in order to meet peak production.
	▪ Maximum of 30 laden trucks per hour at peak rates.
	▪ Maximum daily extraction rate of 7,000 tonnes per day.
Transport Route	▪ The road transport route from the site extends over approximately 13km from the site entrance to the Hunter Expressway interchange at Branxton. The road transport route incorporates Springvale Road, Stanhope Road, Elderslie Road

Project Element	Summary of the Project
	and the New England Highway. Elderslie Road was previously used by the Great Greta Coal Mine to haul coal.
	▪ The road transport route includes use of the Elderslie Bridge which crosses the Hunter River. The bridge is located 600m south of the intersection of Elderslie Road and Stanhope Road and has a mass restriction of 50 tonnes.
Water Management	Erosion and sediment control devices such as catch drains, road drainage, dirty water dams and clean water dams.
Utilities	▪ Power supply from existing electricity network and diesel generators. ▪ Water supply sourced from onsite dams, surface water runoff, and rainwater tanks. Potable water imported as needed.
Operational Activities and Areas	▪ Site office and employee facilities. ▪ Car parking. ▪ Existing site access from Springvale Road via Haul Road 1 (sealed) to Weighbridge and Office Area. ▪ Use of Haul Road 1 and Haul Road 2. ▪ Workshop and fuel storage – to be initially located at the Weighbridge and Office Area. ▪ Fuel and supply deliveries. ▪ Equipment storage. ▪ Waste management. ▪ Equipment parking areas. ▪ Processing Area including crusher and screening plant. ▪ Raw material stockpiles. ▪ Product stockpiles and truck loading areas. ▪ Truck parking. ▪ Weighbridge. ▪ Environmental management measures include road watering, site rehabilitation, etc. ▪ Use of ancillary plant and equipment.
Rehabilitation	Rehabilitation of the development will initially be limited to areas of immediate disturbance such as road batters, access road construction and sediment dams. Progressive rehabilitation of the quarry benches will occur as they become available, with the majority of the rehabilitation taking place at the completion of resource extraction when the quarry floor, stockpile areas, and portions of the infrastructure areas will be rehabilitated.

The Project has been designed to enable the viable extraction of the identified hardrock resource in order to meet identified demands for the resource from housing release areas within the Upper and Lower Hunter and meet the requirements of several major infrastructure projects in the region. A reliable and affordable supply of hardrock quarry products is required for these areas and projects.

Planning Framework

The proposed hardrock quarry seeks to extract 1 million tonnes of extractive materials per year, and a total resource amount of 30 million tonnes. As such, the proposal is declared State Significant Development in accordance with Section 2.6 of *State Environmental Planning Policy (Planning Systems) 2021 (*SEPP), and Clause 7 of Schedule 1 of the SEPP.

The development is permissible under the sites' RU1 Primary Production land use zoning and achieves the objectives of the zone.

All other approvals required for the proposed development to proceed have been identified and are considered achievable. These include approval under Section 68 of the *Local Government Act, 1993* (LG Act) to operate a system of sewer management, an approval under Section 138 of the *Roads Act 1993* and Environmental Protection Licenses and Water Access License (if required).

The proposed quarry has addressed all pre-conditions to exercising the power to grant approval, including the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* – Matters of National Environmental Significance, *Protection of the Environment Operations Act 1997* (PoEO Act) - Section 48 and Schedule 1 (19) and *State Environmental Planning Policy (Resources and Energy) 2021* – Section 2.17.

All mandatory matters for consideration of the proposed quarry have been addressed including assessment of the Project against the objects of the *Environmental Planning and Assessment Act, 1979* (EP&A Act), with compliance either achieved or not applicable to the proposed State Significant Development.

EDC and Job creation

The Project has an Estimated Development Cost (EDC) of $24,105,465.53 excluding GST.

The Project will contribute substantially to local employment and economic activity through the following:

- Construction phase: approximately 15 construction jobs, supporting local jobs and supply chains.
- Operational phase: approximately 15 full-time equivalent jobs.
- Broader economic benefits include increased local expenditure, activation of surrounding businesses and support for the localities of Branxton and beyond.

Assessment

A comprehensive suite of technical studies has been prepared to assess the environmental, social and economic impacts of the Project. Key findings include:

Biodiversity

The layout of the quarry and associated infrastructure has undergone an iterative design process, taking into consideration engineering, surface water, traffic and transport and biodiversity values. Avoidance of impacts on native vegetation, fauna habitats watercourses and other biodiversity values have been taken into consideration in the design. Avoidance and impact minimisation measures, include:

- Minimising impacts to better-quality vegetation.

- Avoidance of Biodiversity Values land.
- Haul roads have been located to utilise existing tracks and fire trails within the property, minimising the level of impact for road construction.
- Avoidance of nine waterbodies (dams and creek lines) that provide suitable foraging habitat for *Southern Myotis*.
- Avoidance of 20 hollow-bearing trees providing potential habitat for the hollow dependent threatened species.

The Project's ability to avoid impacts to biodiversity is restricted by the location of the resource, with complete avoidance being impractical if the opportunity to provide a reliable and affordable supply of hardrock quarry product to the local market is to be met.

Purchase and retirement of ecosystem credits and species credits, as generated through the application of the Biodiversity Assessment Method (BAM) Credit Calculator, will be required for the proposed development.

Noise and Blasting

Predicted project noise levels do not exceed the Voluntary Land Acquisition and Mitigation Policy (VLAMP) criteria at any receiver location. Additionally, predicted project noise levels do not exceed the VLAMP criteria on any privately owned vacant lands.

Furthermore, sleep disturbance is not anticipated during the morning shoulder period between 5am and 7am, as emissions from maximum noise events are predicted to satisfy the maximum noise trigger levels.

Road noise emissions associated with the project are anticipated to satisfy the relevant Road Noise Policy (RNP) criteria at all receivers along the proposed transportation route.

Blasting emissions are predicted to meet the required blasting emission criteria at the closest receivers for blasts.

Air Quality

Results indicate that the Project and approved operations would not result in any exceedances of the criteria for PM2.5, PM10, TSP or dust deposition at any privately-owned receptor due to emissions from the Project, or with consideration of other sources and background air quality levels. Nevertheless, the Project would apply appropriate air quality management measures to minimise air emissions from the site.

Water Resources

The disturbance footprint will not encroach into the proposed riparian corridor buffers which are in accordance with the NSW DCCEEW (2025) recommended ranges, thereby ensuring the long-term integrity of these corridors.

The proposed pit has been located to avoid significant adverse impacts on water quality, bed and bank stability, aquatic and riparian habitats, and ecological processes in accordance with Clause 7.6 (Riparian Land and Watercourses) of the SLEP 2013.

Sediment and erosion control principles in accordance with Landcom (2004) *Managing Urban Stormwater: Soils and Construction* (the Blue Book) will be adopted by the Quarry surface water management strategy to ensure the management of water during construction and operation has minimal impact on the receiving environment.

The site water balance results show that at all three stages (year 16, year 30, and a potential year 50), the site will be provided with sufficient non-potable and potable water supply from the sediment basins and rainwater tank (supplied by roof water) under all modelled scenarios including average, dry, and wet years, as well as under climate change scenarios which have been included for long-term sensitivity purposes. On this basis, it is expected that surface water collection and re-use within the site will be sufficient to meet site demands without reliance on external water tanker supply.

The proposed quarry pit, laydown, processing, stockpile areas and most of the roads are situated along ridge lines, minimising exposure to any overland flows. Overland flows can be readily managed via stormwater infrastructure as described above. All watercourse crossings will be designed to convey the 1% AEP flood event and as such no offsite flood impacts are expected as a result of the proposed watercourse crossings which are all contained within the site boundary. The proposed development will not cause detrimental offsite flood impacts.

Groundwater inflows into the excavation pit are expected to low due to the low permeability of the underlying geology, reaching a peak rate of 22 kL/day after 30 years. It is expected that all groundwater inflow will be lost via evaporation or alternatively reused for site activities such as dust suppression.

Peak groundwater drawdown at the maximum pit extents (at 30 years) will be largely confined to the quarry extents and will not detrimentally impact on any other groundwater users or groundwater dependent ecosystems.

Heritage

One newly recorded Aboriginal site was identified in the Project site. This site is an isolated mudstone flake, located adjacent to an existing unsealed farm track. It was identified in a disturbed, secondary context from the construction of the adjacent farm track. This conforms to predictive modelling that isolated finds can be recorded anywhere, including in highly disturbed landforms. The artefact will be collected prior to construction of the project and moved to a safe location in consultation with the registered Aboriginal Parties. An Aboriginal Cultural Heritage Management Plan will be prepared and will detail the procedures for the surface artefact collection and provide a strategy for the long-term curation of the artefact.

Traffic and Transport

Modelling of all intersections has shown that all road intersections currently operate with excellent levels of service and would continue to do so through to at least 2035 with normal background traffic growth. The exception is the right turn out of New England Highway onto Wine Country Drive which is currently performing at a low level of service, however the additional development traffic from the quarry has no impact on the current level of delays being experienced.

The road network has sufficient spare capacity to cater for truck movements from the proposed quarry and the proposal will therefore not adversely impact the efficiency of the network.

The road network servicing the site is in good condition and is considered suitable in terms of road geometry, speed zoning and pavement construction for use by traffic generated by the quarry.

The proponent will work with Councils to contribute S7.11 contributions based on the proposed quarry's annual extraction tonnage. It is understood that such a contribution will provide sufficient funds to Councils to maintain and upgrade sections of the haul route if and when these works are required.

Approximately 300m of Springvale Road, from the entrance to the Project site to the Pet Motel, will need to be widened and upgraded to ensure it is suitable for heavy vehicles accessing the proposed

quarry. This upgrade will be part of a Voluntary Planning Agreement between Council and the proponent.

A Road Safety Audit of the existing one lane bridge over the Hunter River shows no significant road safety issues that cannot be addressed by routine maintenance by the respective Road Authority. It is therefore considered that the proposed haul route provides a suitable level of road safety for existing traffic volumes and should continue to do so for at least a further ten years.

Construction traffic generated by the development is minor and unlikely to exceed three (3) vehicles per hour.

Land Resources

The Project will provide a quarry that has stable slopes both in the short-term during quarry operation and as the final landform. The pit batters and benching technique that will be used in the quarry operations have been modelled and the assessment findings indicate that the final landform of the quarry can be constructed to facilitate future uses.

Desktop investigations have found that the historical land use of the Project site and surrounding land has been low-intensity agriculture, primarily grazing. The Project location will provide sufficient buffer distances to minimise potential impacts on other low-intensity agriculture uses.

Information provided within this EIS demonstrates that the Project and the Queensland-Hunter Gas Pipeline Project can both co-exist.

Waste

Waste impacts not anticipated as they will be managed through appropriate waste mitigation and management measures – in particular, the fact that waste will be reused or recycled where possible or disposed of in a licensed manner.

Hazards

The proposed bushfire protection measures, (principally Performance Based Solution) will provide adequate protection to life and property within the proposed quarry in the event of a bushfire occurring in the immediate locality.

Visual

Within the 3km visual catchment of the Project, a total of 55 buildings were identified to be potentially residential dwellings / private landholdings. Only 15 of these were located within the Zone of Theoretical Visibility and were considered for further assessment in the Landscape and Visual Impact Assessment. These are located along Springvale Road, Stanhope Road, and Cranky Corner Road South. According to the Assessment the overall significance of the visual effects from the Project to private and public viewpoints is considered to be low.

Social

Many of the social impacts from the Project are related to noise / blasting, air quality, traffic and other environmental impacts.

Key perceived negative social impacts identified included loss of amenity due to increased noise and vibration, traffic noise and traffic movements, changes to the visual landscape, changes to the natural environment, a reduced sense of safety on roads and air emissions.

Perceived benefits, including an increased supply and reliability of natural resource for local and regional businesses, increased employment opportunities and an improved income security for local and regional businesses.

Economics

The Project is expected to provide a sustained economic contribution to the region and the State, primarily through its long-term operational phase. On the assumptions adopted in the Economic Impact Assessment, the Project is estimated to generate a net economic benefit to NSW, supporting the conclusion that the development is justified on economic grounds. A key economic benefit of the project would be improving the security of supply of hardrock products to the domestic market to meet the needs of planned infrastructure and housing construction projects.

Rehabilitation

Quarry benches will generally be shaped to drain toward the rear of the bench in order to minimise erosion and control surface runoff. Drainage will be directed toward designated drainage paths or sediment control measures where necessary to prevent sediment migration from rehabilitated areas.

Surface drainage will be designed so that runoff occurs in a controlled manner and erosion potential is minimised. Where required, drainage structures such as contour drains, catch drains and sediment control measures will be incorporated to manage stormwater flows and maintain landform stability.

Where benches are suitable for rehabilitation, growth media and topsoil will be applied to support vegetation establishment. Vegetation will assist in stabilising soil surfaces, reducing erosion potential and enhancing the visual integration of the quarry with the surrounding landscape.

Overall, the final landform will be designed to achieve long-term stability with minimal maintenance requirements and to ensure that the rehabilitated quarry landform is compatible with the surrounding landscape and capable of supporting the agreed post-quarry land use.

A Rehabilitation Management Plan will be developed prior to the commencement of operations, consistent with relevant guidelines and in compliance with the required rehabilitation outcomes outlined within conditions of the development consent.

Stakeholder Engagement

Stakeholder engagement for the proposed quarry was undertaken with reference to Appendix A – 'Community engagement' of the DPHI Social Impact Assessment guideline, as it applies to the context of the project. Furthermore, the DPHI Undertaking Engagement Guidelines for State Significant Projects (March 2024) have also been used in designing and conducting, initial and subsequent engagement.

Community stakeholder engagement included the following.

- Establishment of a Project specific website by the applicant.
- Project introduction letter - distributed in hardcopy to approximately 2,354 properties surrounding the Project site.
- Online survey - The online survey form was prepared and distributed to the Project stakeholders. The online survey was voluntary and open to all community and Project stakeholders.
- Interviews – Were conducted by social impact experts in a semi-structured format using a list of predetermined questions to be used selectively and as a guide only. This format provided a

flexible structure which allowed the interviewer to create and ask questions about situations as they emerged and the interviewee to digress and express views freely.

- Stakeholder meetings – social impact experts met with representatives from Wanaruah Local Aboriginal Land Council, Singleton Council, Business Singleton as well as two property owners with strong opinions about the Project.
- Community 'drop-in' information sessions - The Project team hosted two community 'drop-in' information sessions to provide Project details and collect community feedback about the Project

As identified within the Social Impact Assessment for the Project, the key matters raised by the community during engagement included:

- Frustration because of traffic queuing (at Elderslie Bridge) and delays.
- Road pavement deterioration from Project related heavy vehicles.
- Potential property access and egress difficulties along the haul route.
- Airborne diesel particles and silica dust, and respiratory illness.
- Effects of vegetation clearing for the quarry area and potential loss of trees and effect on native animal habitats.
- Project's potential to reduce road user safety.
- Concerns regarding pedestrians and cyclists including school children.
- Increases in heavy-vehicle traffic could affect perceived and actual safety for non-motorised users, potentially discouraging active transport, outdoor recreation and independent mobility for young people.
- Blasting (short-duration high-intensity sound and vibration) will startle residents and animals, disrupt activities and generate anxiety about structural damage or safety.
- Concern about engine noise, braking, gear changes and physical impacts between trucks and road surfaces, particularly during early morning periods, along the haul route.
- Water pollution (surface water runoff and groundwater pollution).
- Potential visual exposure to the quarry site.
- Increased heavy-vehicle traffic may deter customers from travelling to or through the area, especially where routes become congested, perceived as unsafe, or less pleasant to drive.
- Reduced amenity associated with Project related noise, dust, traffic and visual intrusion may diminish the desirability of living in the area and therefore affect property values.
- The project may create local employment and commercial opportunities (e.g. suppliers and contractors).
- Population growth across the Hunter Region will drive demand for housing, infrastructure and services. Development and mining operations require aggregate.

These matters have been addressed through additional analysis and consideration of issues into the proposed mitigation measures.

Project Justification and Recommendation

The Project is consistent with the objectives of the EP&A Act and is therefore justified based on the findings identified by the environmental, social and economic investigations performed through the production of this EIS.

As a permissible activity under the current RU1 zoning, the quarry is strategically located and positioned on partly cleared area, while well situated to be able to utilise existing suitable road infrastructure to service both local and regional demand. The site has been carefully designed to minimise social and environmental impacts, which are further reduced when the management and mitigation measures described throughout the EIS are implemented.

The Project will contribute significantly to the identified increased demand for the target products throughout the local, regional and state markets where it is needed to service the requirements of construction and infrastructure projects.

The EIS has demonstrated the quarry will not result in any significant impacts during construction or operations, and no significant residual impacts following completion and rehabilitation. This demonstration has been achieved through a thorough identification of the existing environment, a detailed assessment of the potential environmental, social and economic impacts of the construction and operation of the proposed development, and an assessment of how this may contribute to cumulative impacts arising from existing or proposed activities in the associated areas. Any potential impacts identified as part of the EIS have been demonstrated to be able to be managed, mitigated or offset to ensure that the project can operate without significant impacts to the receiving environment and deliver Ecologically Sustainable Development.

The Project has been demonstrated to meet the objectives of ESD and objects under Section 1.3 of the EP&A Act, and coupled with the ‘overwhelmingly positive’ economic benefits and limited environment and social impacts identified, it is recommended that the Project be supported subject to the implementation of suitable conditions of consent reflecting the mitigation measures in this EIS.

1 Introduction

This Environmental Impact Statement (EIS) has been prepared on behalf of Bluestone Hardrock Pty Ltd (the Applicant) and accompanies State Significant Development Application (SSD-76210271) for the Bluestone Hardrock Quarry Project (the Project).

This EIS has been prepared in accordance with Department of Planning, Housing and Infrastructure (DPHI) State Significant Development Guidelines (March 2024), and should be read in conjunction with the Secretary's Environmental Assessment Requirements (SEARs) for the Project and the supporting technical documents provided at Appendix A through to Appendix Y.

1.1 Project Summary

The Project summary is as follows:

Table 1 Project Summary

Project Element	Summary of the Project
Application	SSD-76210271
Proposed Development	Hardrock Quarry
Project Site Area	Approximately 186 hectares (ha)
Total Disturbance Area within Project Site Area	Approximately 63.4ha
Site Description	▪ Lot 65 DP 752473 ▪ Lot 904 DP 1061259 ▪ Lot 903 DP 1061259 ▪ Lot 5 DP 1102521 Located at Elderslie and Glendon Brook.
Annual Production	Up to 1,000,000 tonnes.
Quarry Life	Up to 30 Years (under this application).
Extraction Rate	1,000,000 tonnes per annum (tpa).
Potential Resource Life	Up to 50 years.
General Infrastructure	Access road, electricity supply, on-site sewer management, weighbridge and site office.
Product Transport	Transport by truck with average of 220 movements (110 in and 110 out) per day.
Water Management	Erosion and sediment control devices such as catch drains, road drainage, dirty water dams and clean water dams.
Operational Workforce	At full operation up to 15 full-time staff, with further support from the local and regional construction industry and associated haulage contractors.

Project Element	Summary of the Project
Hours of Operation	**Construction hours** ▪ 7am to 5pm (Monday to Friday). ▪ 8am to 3pm (Saturday). ▪ No work on Sundays and Public Holidays.
	Extraction and processing operations ▪ 7am to 5pm (Monday to Friday). ▪ 8am to 1pm (Saturday).
	Internal product transfers to stockpiles ▪ 7am to 5pm (Monday to Friday). ▪ 8am to 1pm (Saturday).
	Haulage from the development site ▪ 6.30am to 4pm (Monday to Friday). ▪ No haulage on Saturday, Sunday or a Public Holiday.
	Drilling and Blasting activities Blasting between 9am to 5pm Monday to Friday only. On average one (1) blast per week, carried out by an external contractor.
	Maintenance activities ▪ 6am to 6pm (Monday to Saturday). ▪ No work on Sundays and Public Holidays.
Site Rehabilitation	Progressive

1.2 Project Overview

The proposed development involves the following key components:

- Total Project disturbance area of approximately 63.4ha, comprising:
  - 37.8ha - Pit Area.
  - 4.3ha - Stockpile and Laydown Area
  - 16.2ha - Processing Area.
  - 0.5ha - Weighbridge and Office Area
  - 1.3ha - Haul Road 1
  - 3.3ha - Haul Road 2
- Extraction activities will take place in the Pit Area and initially within elevated areas of the Processing Area and the Stockpile Areas. Extraction will occur between the hours of 7am and 5pm on weekdays, and between the hours of 8am and 1pm on Saturdays.
- Road haulage will occur between 6.30am and 4pm weekdays.
- No extraction activities will occur on Sunday or Public Holidays.

The Project is expected to produce up to 1,000,000tpa over a 30-year period for local and regional markets. As extraction operations progress, disturbed areas will be rehabilitated progressively (where possible) to ensure a safe and stable landform is achieved which will facilitate ongoing rural activities.

A Locality Plan identifying the Project site in its regional context is located at Figure 1. A Plan identifying the Project site and proposed layout is located at Figure 2.

1.3 Project Objectives

The construction and operation of the Project is based on the following identified objectives.

- To assist in meeting the high demand for concrete batching products and road construction materials in the Hunter and Newcastle region, as well as in the Sydney Metropolitan Area as required.
- To allow for the extraction of approximately 30 million tonnes of aggregate and conglomerate from the identified quarry footprint over a period of 30 years,
- To provide for the most environmentally, socially and economically viable option of carrying out the development on the site.
- To develop and implement robust monitoring and review processes consistent with current best practice standards.
- To, as far as feasible, minimise the impacts of the development on the surrounding landowners or adverse changes to the amenity of the area.

1.4 Applicants Details

The applicant of this Project is Bluestone Hardrock Pty Ltd. The applicants' details are summarised in Table 2 below.

Table 2 Applicant Details

Applicant Name	Bluestone Hardrock Pty Ltd
Applicant Address	253 Stanhope Road, Elderslie NSW 2335
ABN	56 682 074 746
Nominated Contact	Bluestone Hardrock
Contact Details	info@bluestonehardrock.com.au

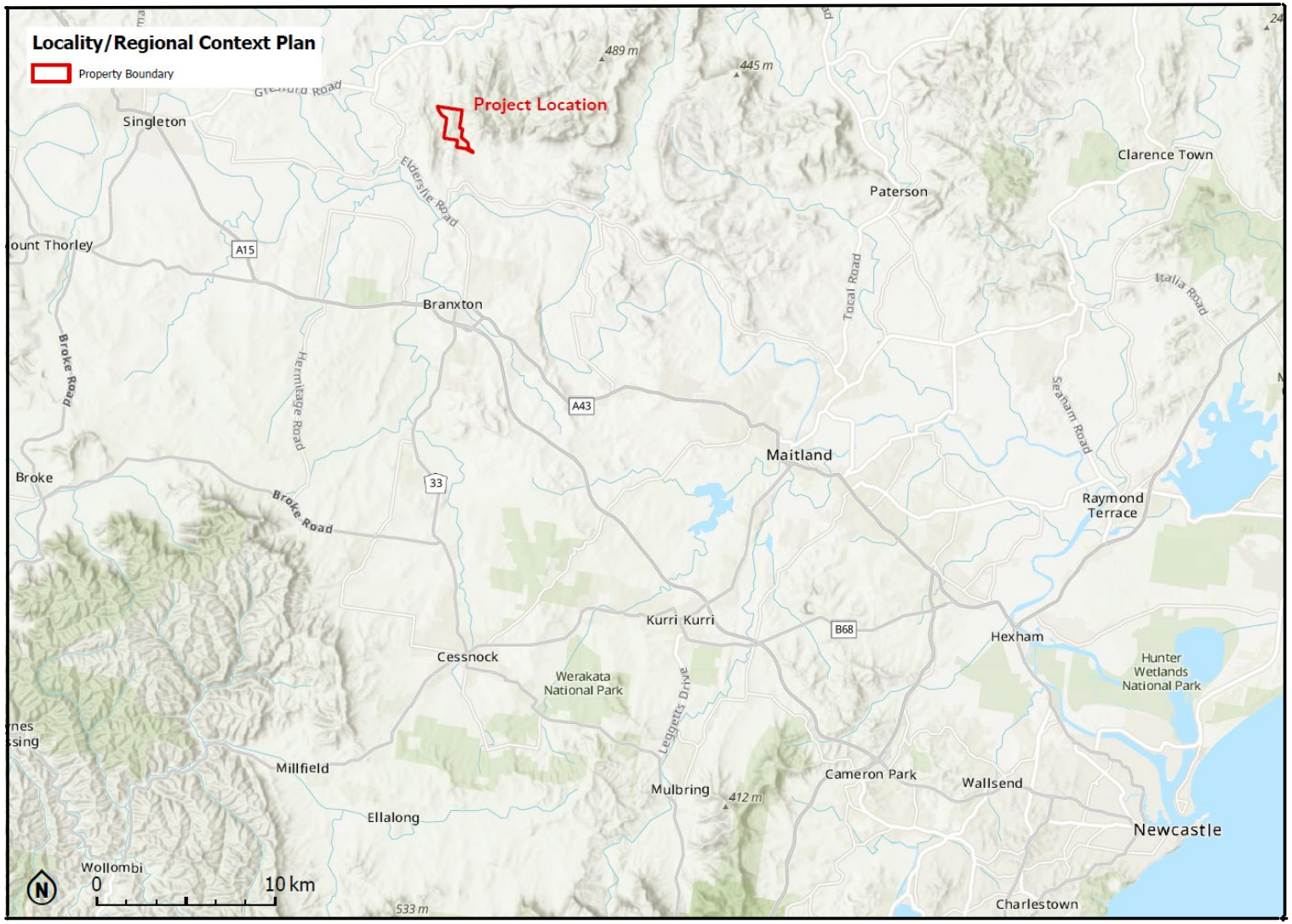


Figure 1 Locality Plan.

Source: The Spatial Lab

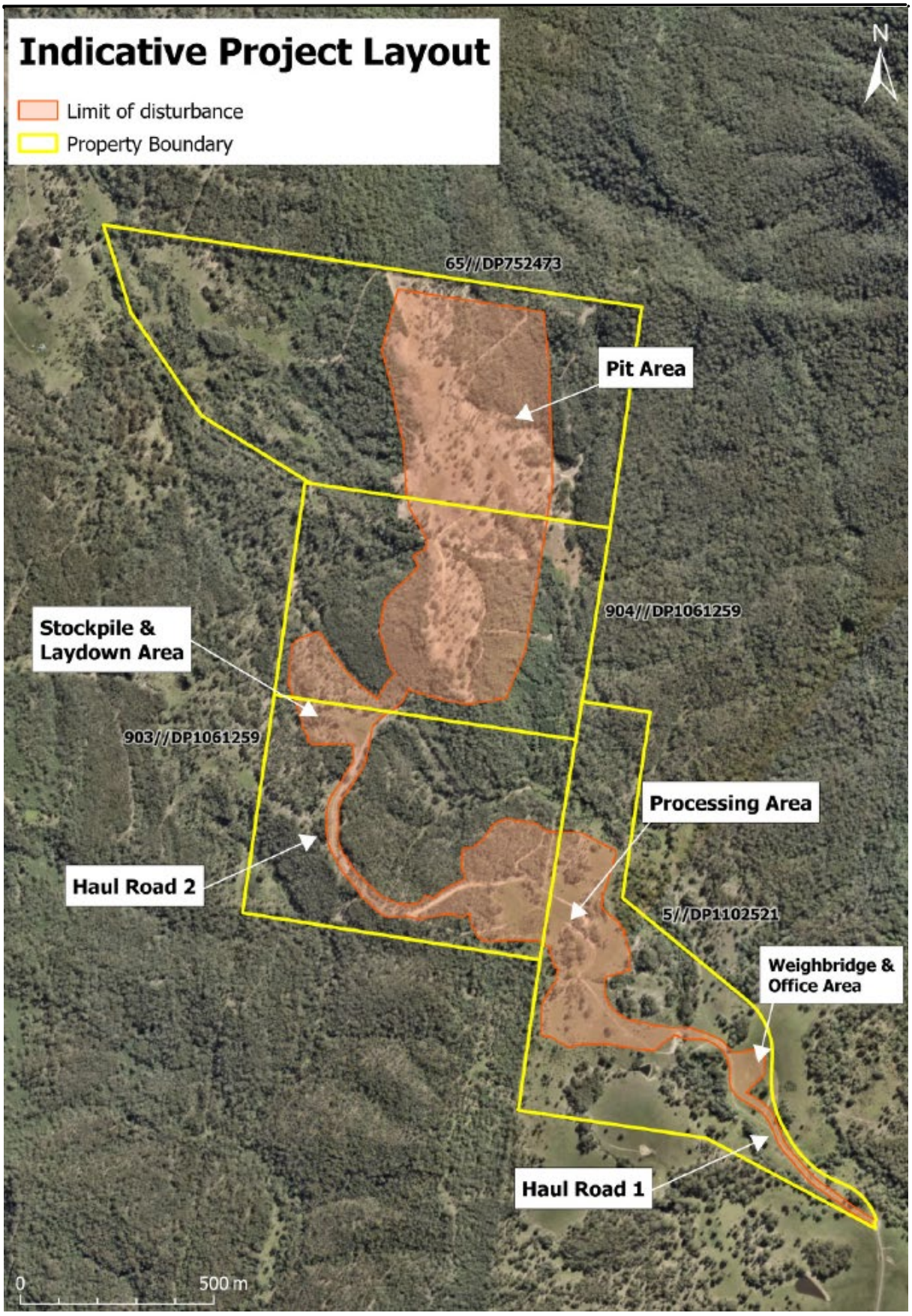


Figure 2 Project Site and Layout Plan.

Source: The Spatial Lab

1.5 Report Structure

This EIS provides the following:

Table 3 EIS Structure

Chapter	Content
1. Introduction	▪ Project Summary and Overview. ▪ Project Objectives. ▪ Applicant Details. ▪ Context map.
2. Strategic Context	▪ Key strategic issues and relevance and support to Government strategies, policies and plans ▪ Key features of the site and regional surrounds, environment and landscapes. ▪ Assessment of potential cumulative impacts ▪ Project justification and analysis of alternatives
3. The Project	▪ Comprehensive project description, objectives and area ▪ Summary of development including works, use of land and description of project details ▪ Staging details
4. Statutory Context	▪ Assessment of proposal against relevant legislation and environmental planning instruments
5. Engagement	▪ Summary of consultation processes and activities with community, Government agencies and Aboriginal stakeholders. ▪ Details of proposed ongoing consultation
6. Environmental Impact Assessment	▪ Condition of the existing environment ▪ Assessment of impact of proposal on environment ▪ Identification of mitigation measures
7. Project Justification and suitability of the site.	▪ Provides justification for project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development. ▪ Provides an overview of the suitability of the site for the Project.

1.6 Supporting Appendices and Technical Reports

This EIS is supported by the following documentation, including Technical Reports and Plans which have been prepared by the following specialised consultants, as outlined in the table below.

Table 4 Consultant Team

Document	Consultant	Appendix
SEARs Compliance Table	Barr Planning	A
Statutory Compliance Table	Barr Planning	B
Agency Engagement Table	Barr Planning	C
Mitigation Measures	Barr Planning	D

Document	Consultant	Appendix
Civil Engineering Plans	GCA	E
Biodiversity Development Assessment Report (BDAR)	Wedgetail Consulting	F
MNES Assessment	Wedgetail Consulting	G
Noise Impact Assessment	Muller Acoustic Consulting	H
Air Quality Impact and Greenhouse Gas Assessment	Todoroski Air Sciences	I
Water Resources Assessment	Martens and Associates	J
Aboriginal Cultural Heritage Assessment Report (ACHAR)	Oz Ark Environment and Heritage	K
Integrated Transport Assessment	Pavey Consulting Services	L
Hydrogeological Impact Assessment	Martens and Associates	M
Geotechnical and Pit Staging Assessment	Martens and Associates	N
Bush Fire Impact Assessment	Newcastle Bushfire Consulting	O
Landscape and Visual Impact Assessment	De Witt Consulting	P
Social Impact Assessment	Social Aspect Consulting	Q
Economic Impact Assessment	EPS	R
Preliminary Rehabilitation and Closure Plan	Bluestone Hardrock Pty Ltd	S
Preliminary Contamination Assessment	Martens and Associates	T
Estimated Development Cost Report	Corbett and Ryan QS	U
Queensland – Hunter Gas Pipeline Co-Existence Assessment	Bluestone Hardrock Pty Ltd	V
Historic Heritage Impact Assessment	Oz Ark Environment and Heritage	W
Waste Management Plan	Bluestone Hardrock Pty Ltd	X
Resource Feasibility Assessment	Martens and Associates	Y

2 Strategic Context

This section provides an overview of the importance of the Project within the strategic planning context. It identifies the relevant policies or plans which demonstrate the strategic planning context and need for the project and provides a description of how the project complies with the relevant policies and plans.

2.1 New South Wales State Strategies

2.1.1 Hunter Regional Plan 2041

The Hunter Regional Plan 2041 (HRP 2041) outlines a 20-year land use strategy for the Local Government Areas (LGAs) of Cessnock, Dungog, Lake Macquarie, Maitland, MidCoast, Muswellbrook, Newcastle, Port Stephens, Singleton, and Upper Hunter. It envisions the Hunter becoming the foremost regional economy in Australia by 2041, fostering connections among people and promoting environmental stewardship. Central to this vision is the development of a lively metropolitan city and the establishment of sustainable 15-minute neighbourhoods. The plan articulates nine objectives for the region, with relevance to the Project being:

- Objective 1: Diversify the Hunter's mining, energy, and industrial capabilities,
- Objective 3: Establish 15-minute neighbourhoods to encourage diverse, multi-modal, inclusive, and vibrant communities, and
- Objective 5: Plan for 'nimble neighbourhoods,' encompassing varied housing options and phased development.

The proposed quarry aligns with these objectives by contributing to the diversification of the Hunter's industrial capacity. Importantly, it plays a crucial role in supplying key construction materials in close proximity, essential for realising the desired infrastructure and housing development within the region.

2.1.2 Hunter Strategic Regional Integrated Transport Plan

The Hunter Strategic Regional Integrated Transport Plan is focused on short to medium-term deliverables, while maintaining an eye on a long-term vision for the Hunter.

The plan articulates seven objectives focused on enhancing connectivity, addressing traffic concerns, and improving safety across various modes of transportation, including roads, railways, footpaths, cycleways, and air travel.

The proposed quarry is positioned to broadly support the objectives outlined in this plan through the supply of aggregate products essential for constructing and maintaining transport infrastructure.

2.1.3 Hunter Central Coast Renewable Energy Zone

In December 2022, the NSW Government officially established the Hunter-Central Coast Renewable Energy Zone (HCCREZ), encompassing regions including the Upper Hunter, Muswellbrook, Singleton, Dungog, Cessnock, Maitland, Port Stephens, Newcastle, Lake Macquarie, and the Central Coast. This REZ aims to coordinate new and upgraded energy infrastructure to support the growth of renewable energy initiatives such as solar farms, large-scale battery storage, and potentially offshore wind developments (EnergyCo, 2022). The Project is well-positioned to contribute to this transition by supplying construction materials locally, in proximity to the infrastructure works.

2.1.4 Singleton Local Strategic Planning Statement 2041

The Singleton Local Strategic Planning Statement 2041 (SLSPS 2041) lists a range of planning priorities for the Singleton local government area (LGA). Planning Priority 4.4 of SLSPS 2041 states *"the mineral resource industry is productive, accountable and considerate of surrounding land uses"*. Similarly, the Hunter Regional Plan 2041 has as its Planning Priority 5 to *"promote sustainable use of mineral and energy resource"*, stating that development proposals for aggregate extraction should balance *"economic benefits with the protection of the environment and local communities"*.

The proposed quarry has been located to avoid land use conflicts and limit possible environmental impacts for the local community.

2.2 Key Features of the Site

The Project site is zoned RU1 – Primary Production under the *Singleton Local Environmental Plan 2013* (SLEP 2013). The site is bordered by land similarly zoned for rural use to the northwest and south. Land use in the area is dominated by areas of remnant vegetation on steeper terrain and ridges, with gentler sloping ground in valleys cleared for agricultural grazing. Homesteads are primarily located to the south of the Project site along the Stanhope and Elderslie roads. To the east of the Project site is the Tangory Nature Reserve, which is managed by the NSW National Parks and Wildlife Service (NPWS) and extends over an area of 500ha.

The town of Branxton / East Branxton is located approximately 10km from the Project site. Branxton / East Branxton has a population of 2,255 people per the 2021 census data. Coal mining is the main industry of employment for the town's inhabitants. Elderslie Road, which forms part of the proposed haul route, traverses the western section of the township of Branxton before joining the New England Highway / Maitland Street.

The larger town of Singleton is located approximately 17 km west of the Project site, with a population of 24,577 people per 2021 census data. Coal mining is also the main industry of employment in the town, and it is noted that coal mining is also a key land use in the wider area, with it providing for 20% of employment in the area. The proposed haul route does not approach Singleton and given the extensive separation distance between the proposed quarry and the town, the Project is unlikely to have adverse impacts on residents or infrastructure or services within the town.

An outline of the land uses within a 3km buffer surrounding the Project site is provided in the following table.

Table 5 Surrounding Land Use within 3km of the proposed development.

Direction	Existing Land Use Description
North	Land north of the Project site primarily consists of cleared vegetation and remnant vegetation. The Tangory Nature Reserve adjoins the Project site to the north, supporting remnant vegetation on undulating topography at the foothills of Tangory Mountain. There are no sensitive receptors within 3km of the site in a northerly direction.
East	Land east of the Project site comprises the Tangory Nature Reserve and remnant vegetation east of the reserve. Land east of Springvale Road has mostly been cleared for agricultural production with small lots extending along Springvale Road. It is noted that the Applicant owns all but two lots along this road.

Direction	Existing Land Use Description
South	South of the extraction area, remnant vegetation extends for approximately 2 km before transitioning to land partially cleared and used for grazing. Elderslie Airport is located approximately 4km south of the extraction area. Privately-owned residences occur along Springvale Road, Stanhope Road, Cranky Corner Road and Elderslie Road. The closest of these is the residence at the Hunter Pet Motel located on Lot 3 in DP1102521, which is approximately 700 m south of the proposed site office and 1.3 km south-east of the closest extraction area. The Hunter River also flows in an easterly direction 3.6 km south of the proposed quarry area. The proposed haul road traverses the Elderslie bridge, which spans the Hunter River.
West	Remnant vegetation extends in the majority of the 3km zone to the west of the Project site. The site is bordered by a steep ridge with an elevation of approximately 250 m, with some cleared land on the western foothills of the ridge.

Rural properties and homesteads are present mostly to the south of the Project site. Sensitive noise receptors within 2km of the Project site boundary are located on Figure 3.

Elderslie Airport is located approximately 4km south of the Project site. It has a single 700m long runway and is primarily used by parachuting clubs and skydiving centres.

2.2.1 Geology

The site is located within Tamworth Belt which is in the southern section of the New England Fold Belt. The New England Fold Belt extends 1,500 km from Queensland to the Sydney Basin in the south and south-west. The Tamworth Belt has been split into numerous terranes defined by major faults; Emu Creek, Rouchel, Gresford, Myall and Hastings Blocks.

The site is situated within the southwestern portion of the allochronous Gresford Block, in close proximity to the Hunter–Mookie thrust fault that resulted in major east-west compression and shortening of the region.

The Singleton 1:250,000 Geological Map (Rasmus et al, 1969) lists the subject property to contain:

- Conglomerate acid tuffs and lithic red siltstones of the Wallaringa Formation;
- Intermediate to acid crystal and vitric tuff and lavas, conglomerate (agglomerate) and sandstone of the Gilmore Volcanics Group; and
- Conglomerate, lithic sandstone, shale and occasional thin coal of the Mt Johnstone Formation.

The target geological profile for the proposed hardrock quarry is the intermediate to acid crystal and vitric tuff and lavas of the Gilmore Volcanic Group (high-quality Tuff and Agglomerate).

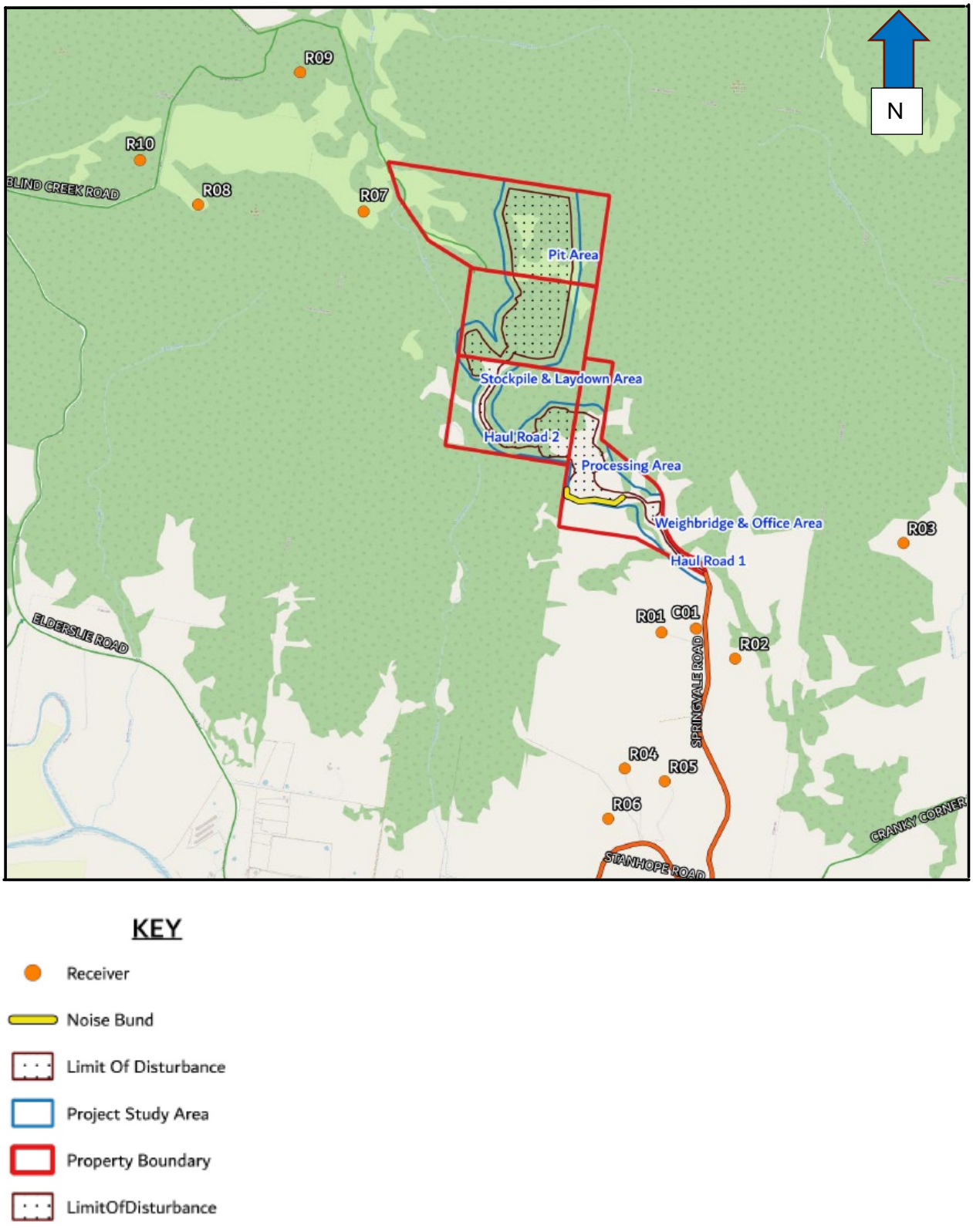


Figure 3 Sensitive Receptors and Project Site Location.

Source: Muller Acoustic Consulting

2.2.2 Topography

The site mostly extends over the western foothills of the Tangory Mountain, generally comprised of gently undulating land with several NW - SE striking ridgelines and saddles with peak elevations of up to 220m Australian Height Datum (AHD). Steeper slopes exist on the western face of the ridgelines, with grades of up to 60°. Shallower slopes exist along eastern faces (20 - 30°).

Elevations within the site range from approximately 70m AHD in the Weighbridge and Office Area to 220m AHD within the Pit Area. The proposed Weighbridge and proposed Office Area will be located on relatively flat land at the site entrance off Springvale Road. Proposed Haul Road 1 will cross two third order un-named drainage lines and one first order drainage line.

2.2.3 Soils

Soil profiles within the Project site are relatively shallow, typically extending from 0.8 m – 1.0 m below ground level with rock outcrops occurring throughout.

The NSW Soil and Land Information Database eSPADE (OEH, 2026) was accessed to provide preliminary information on soils within the Project site. Soil mapping indicates that the site is associated with two (2) soil landscapes, namely the Stanhope Soil Landscape and the Lochinvar Soil Landscape.

Most of the project area, including the majority of the proposed disturbance area, extends across the Stanhope Soil Landscape. The main soils of this landscape unit are brown podzolic soils on mid-lower slopes and yellow podzolic soils on the upper slopes. These soils are hard-setting, moderately permeable, imperfectly drained with low fertility and are subject to erosion.

The proposed Weighbridge and proposed Office Area in the southern section of the site are located within the Lochinvar soil landscape. The main soils within this landscape consist of non-calcic brown soils in gently sloping areas. These comprise a silty clay loam topsoil and brown medium clay subsoil. Key characteristics of these soils are a hard-setting surface, moderate drainage and moderate permeability, with moderate fertility and a moderate erosion hazard.

2.2.4 Land and Soil Capability

Land and soil capability assessment is based on the biophysical features of the land, including slope, wind hazard, soil pH, surface structural stability, salinity, rocky outcrop, water logging potential and existing erosion of a landform. Table 6 summarises the appropriate land use for each capability class.

The southernmost section of the site containing proposed Haul Road 1 is mapped as Land and Soil Capability Class 3. The remaining areas of the Project site extend over Land and Soil Capability Class 6 and Class 7. A description of these Land Classes is provided in Table 6.

Table 6 Land and Soil Class Capability Classes

Class	Most Intensive Use	Land Definition
Class 3	Regular cultivation, but must be consciously managed to prevent degradation	Suited to grazing, including the use of improved pastures. Cultivation is limited to cash or forage crops in rotation with pastures.
Class 6	Grazing only	Non-arable and often non-trafficable. Land suitable for grazing but not cultivation. Maintain or improve perennial pastures and preserve ground cover.
Class 7	Unsuitable for rural production	Includes steep (slope 33 to 50%) extremely erodible, or saline or shallow soils. Generally unsuited to agriculture or at best suited only to light grazing.

2.2.5 Biophysical Strategic Agricultural Land

Biophysical Strategic Agricultural Land (BSAL) is land with high-quality soil and water resources capable of sustaining high levels of productivity.

The southernmost section of the Project site, which will support the site office, weighbridge, car parking, and part of the access road, is mapped as BSAL on the NSW's central resource for Sharing and Enabling Data (SEED data portal), as shown in Figure 4.

No other land mapped as strategic agricultural land or Critical Industry Cluster Land (Equine or Viticulture) has been identified within the subject area.

2.2.6 Surface Water

The quarry site is located within the Luskintyre Water Source as part of the Hunter Catchment. The subject site is well above the 1% AEP flood height as a result of local topography.

The area around the subject site does not support permanent water features, however, there are several ephemeral drainage lines in proximity to the site, with overland flow draining via these drainage lines to a single catchment. The topography slopes towards the Processing Area and the Weighbridge and Office Area.

Proposed Haul Road 1 will cross two third order un-named drainage lines and one first order drainage line. The entire site is contained within a single catchment, with land use in the catchment principally consisting of conservation areas, light agricultural use (grazing) and rural living.

The volume and pattern of flows in the Hunter River system have been significantly altered by the construction and operation of Glenbawn and Glennies Creek dams. Large volumes of water are also taken and stored for power station use in Lake Liddell.

Water sharing plans have been developed to address environmental requirements downstream of the major dams and to ensure sustainable use of water by all water users. The subject site is downstream of the major dams and the area is covered by the Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2022.

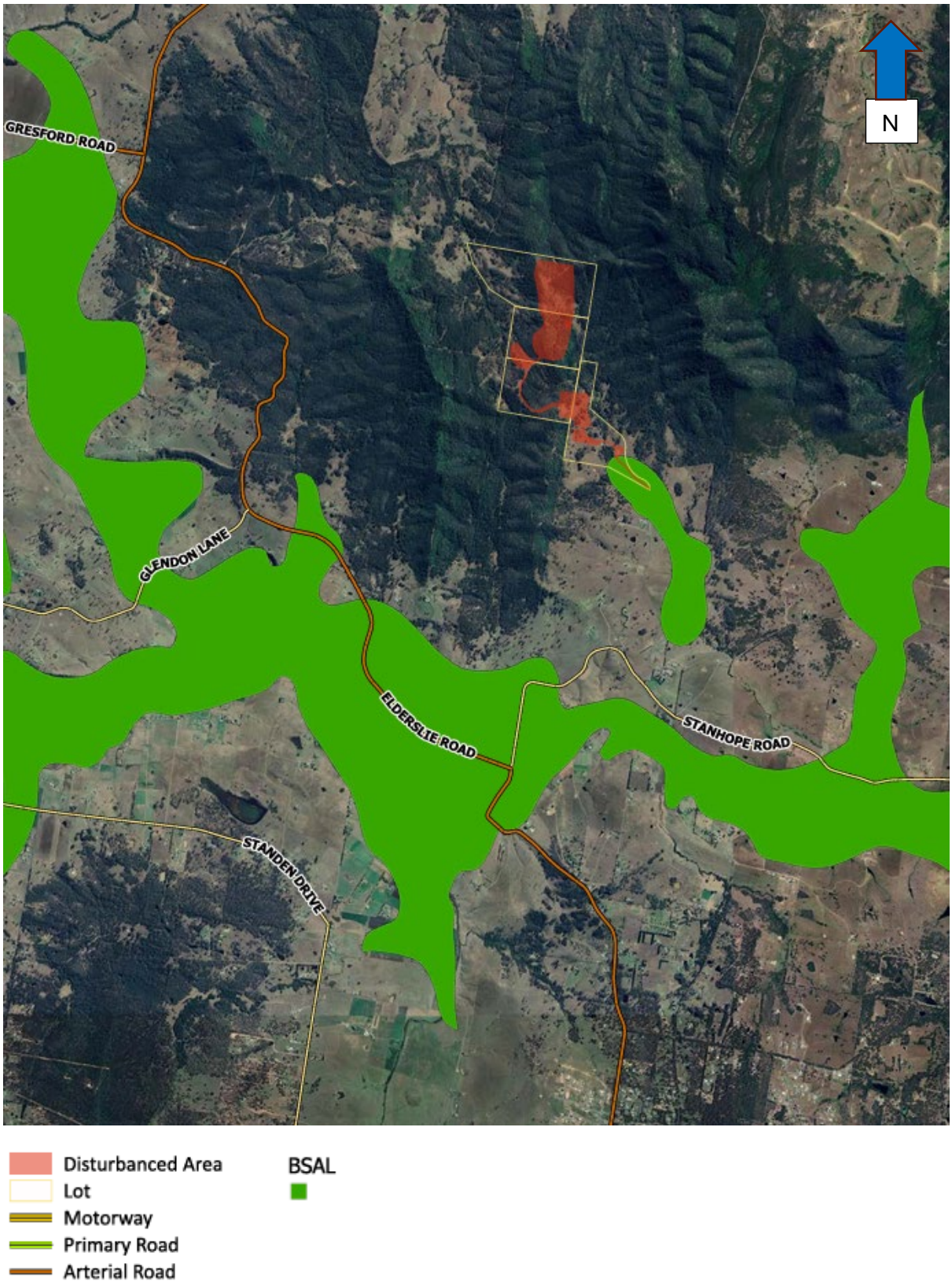


Figure 4 Biophysical Strategic Agricultural Land Mapping.

Source: Wedgetail Consulting

2.2.7 Groundwater

The proposal is located on fractured rock and is situated within the New England Fold Belt Coast Groundwater Source. The water sharing plan for the area is the North Coast Fractured and Porous Rock Groundwater Sources 2016.

The site is within the southern coastal section of a folded and fractured aquifer known as the New England Fold Belt, which extends from Port Stephens in the south to the NSW – QLD border in the north, and east of Moree. The New England Fold Belt Coast Groundwater Source is a fractured rock aquifer with groundwater contained within, and moving through, fractures in the rock that are present due to the folding and faulting of the rock formations. Yields are typically low, being around 1 L/s, however, yields up to 10 L/s may be obtained from highly fractured fault systems. Groundwater is typically recharged by direct rainfall infiltration. This combined with the degree of mineral leaching that has occurred over time, results in typically good-quality water.

The connection between surface and groundwater is low to moderate and the impact on in-stream values is low and is not a major contributor. The travel times between groundwater and surface water are years to decades.

The long-term annual extraction limit (calculated by the NSW Office of Water in accordance with the *Water Management Act 2000*) of the New England Fold Belt Coast groundwater source is 60,000 ML/year. The water sharing plan further defines the extraction limit while the total water requirements in 2016 were 35,468 (DPI Water, 2016). Therefore, it is considered that the current extraction rates from the groundwater source are within sustainable limits.

Publicly available bore logs were examined in the surrounding area (MinView, 2023). There are no registered bores within 2.5 km of the site.

Sensitive groundwater receptors can include municipal and private water supply wells, and groundwater-dependent ecosystems and permitted sites for Aboriginal water use. Evaluation of the area suggests there are no sensitive groundwater receptors in the immediate vicinity of the project site. Publicly available bore logs were examined within the locality of the proposed quarry site. There are no registered groundwater bores within 2.8 km of the subject site. A groundwater assessment has been prepared as part of the EIS to further assess potential groundwater impacts.

The preliminary resource assessment carried out for the proposal included the drilling of four (4) boreholes and the installation of three (3) groundwater monitoring wells in these boreholes.

Groundwater levels were measured in December 2017, with groundwater recorded at depths of 20.87 m below ground level (mBGL) at MW01/BH102, 30.54mBGL at MW02/BH103 and 33.80 mBGL at MW03/BH104.

Data loggers were installed in each of the wells in January 2018 and have been logging groundwater information for the groundwater assessment as part of the EIS.

2.2.8 Vegetation

The Project site was historically cleared, with vegetation consisting of regrowth, with very little old growth trees observed during site inspections.

Vast swatches of vegetation are dominated by African Olive, which has taken over the undergrowth and shaded areas, excluding native vegetation entirely in some areas.

Vegetation within the subject lots was assessed by Wedgetail ecologists, with the following Plant Community Types (PCTs) identified:

- PCT 3110 “Greater Sydney Enriched Grey Myrtle Dry Rainforest”,
- PCT 3244 “Lower North Spotted Gum-Mahogany-Ironbark Sheltered Forest”,
- PCT 3315 “Central Hunter Ironbark – Spotted Gum Forest”,
- PCT 3315 “Central Hunter Ironbark – Spotted Gum Forest (Regrowth)”,
- PCT 3444 “Lower Hunter Spotted Gum – Ironbark Forest”,
- PCT 3446 “Lower North Foothills Ironbark-Box-Gum Grassy Forest”,
- PCT 3446 “Lower North Foothills Ironbark-Box-Gum Grassy Forest (Regrowth)”,
- PCT 4023 “Coastal Valleys Swamp Oak Riparian Forest”, and
- PCT 4073 “Lower North Hinterland River Oak Forest”.

Five of the PCTs have associations with threatened ecological communities, including PCT 3110, PCT 3315, PCT 3444, PCT 3446 and PCT 4023.

2.2.9 Climate

The climate in the Elderslie and Glendon Brook area is characterised by warm to hot summers and mild winters, with most rainfall occurring during the warmer months. Average monthly rainfall is typically highest in the summer, with January often receiving the greatest amount of rainfall. In contrast, the winter months—particularly June and July—tend to be drier.

Evaporation rates in the area generally exceed rainfall throughout most of the year, especially from late spring through early autumn (September to April), when evaporation can be two to three times greater than monthly rainfall totals. This pattern highlights the region’s relatively dry conditions during the hotter months.

Annual average rainfall in the area is approximately 850–950 mm, indicating a moderately dry to temperate climate. However, rainfall patterns are highly variable, with some months experiencing very little precipitation and others subject to heavy rainfall events, where monthly totals can exceed 150 mm depending on seasonal weather systems.

Evaporation follows a predictable seasonal cycle, peaking in the hotter months and decreasing during winter. Unlike rainfall, which can fluctuate significantly from month to month, evaporation tends to vary less dramatically, maintaining a steady seasonal trend.

2.3 Future Surrounding Development

Given the existing land use zoning around the Project site, as discussed further in Section 4.2, the potential for additional subdivision and construction of additional residences in the immediate vicinity of the Project is considered very limited.

The proposed road transport route for the Project will include the use of Elderslie Road from the intersection with Stanhope Road in the north through to the intersection with Maitland Street, East Branxton in the south. On the western side of Elderslie Road, commencing approximately 1km north of the Maitland Street intersection, is the Radford Park Estate which is part of the Branxton Urban Release Area as identified within the SLEP 2013. One hundred and thirty-nine (139) rural residential lots occupy the Radford Park Estate. Land to the immediate north and the immediate west of the Radford Park Estate is largely rural, although it has now been rezoned via a Planning Proposal

approved in September 2025. This area has the potential to provide an additional 150 to 200 lots. At the time of writing a development application for subdivision of this land had not been submitted.

2.4 Queensland-Hunter Gas Pipeline Project

The Queensland-Hunter Gas Pipeline Project (MP06_0286) was first approved in 2009 under the now repealed Part 3A provisions of the EP&A Act. An extension to MP06_0286 was approved in October 2019 to extend the lapse date to 11 February 2024. The Queensland-Hunter Gas Pipeline Project was acquired by Santos in August 2022. It is noted that Santos advised the then Department of Planning and Environment on 14th December 2023 that construction of Stage 1a of the Queensland-Hunter Gas Pipeline Project, which relates to early works involving the construction of temporary laydown yards at Quipolly (8km north of Quirindi), had commenced.

The resource within the Bluestone Hardrock Quarry Project site intersects with the indicative gas pipeline corridor for the Queensland-Hunter Gas Pipeline Project, as illustrated in Figure 5. At the time of writing no easements or other interests (such as an Access to Survey or Access to Land) were registered on the Certificate of Title of any of the lands within the Bluestone Hardrock Quarry Project site.

Conditions 2.3 and 2.4 of the Consolidated Project Approval for MP06_0286 are reproduced below and detail the obligations of the Gas Pipeline proponent with respect to consultation with affected landholders to resolve potential conflict where practicable when finalising the route alignment.

> *2.3 During the process of finalising the route alignment, the Proponent shall ensure consultation with relevant companies and titleholders of mineral and petroleum resource licences in relation to the potential for conflict between the route of the project and current and future resource exploration and extraction activities. The consultation shall aim to resolve any identified potential conflict where practicable.*
>
> *2.4 The route alignment of the project shall be within the corridor identified in the documents referred to in condition 1.1. Any deviations in route alignment outside this corridor shall only occur for the purpose of:*
>
> *a) reducing impacts to biodiversity, cultural heritage or human amenity;*
>
> *b) avoiding geological or topographical constraints, providing the deviations do not increase impacts to those areas referred to under a); and*
>
> *c) after consultation with potentially affected landholders and relevant agencies.*

The above conditions require the pipeline proponent to consult with affected landholders and developments and to minimise land use conflicts where practicable. The inclusion of these conditions recognises that the pipeline corridor may intersect with existing or proposed developments, and that consultation and design adjustments may be required to the pipeline route to enable coexistence.

The Applicant has engaged with Santos on numerous occasions since August 2022 (and earlier with the previous proponent) with respect to interface issues, construction methodology, blasting considerations and implications for long-term land use so that the Bluestone Hardrock Quarry Project and the Queensland-Hunter Gas Pipeline Project can co-exist without conflict. The Applicant has provided information to Santos to ensure that both projects can proceed concurrently or independently without making either project physically or legally incompatible.

Further discussion regarding the engagement with Santos is provided in Section 5 and in Appendix V of this EIS.

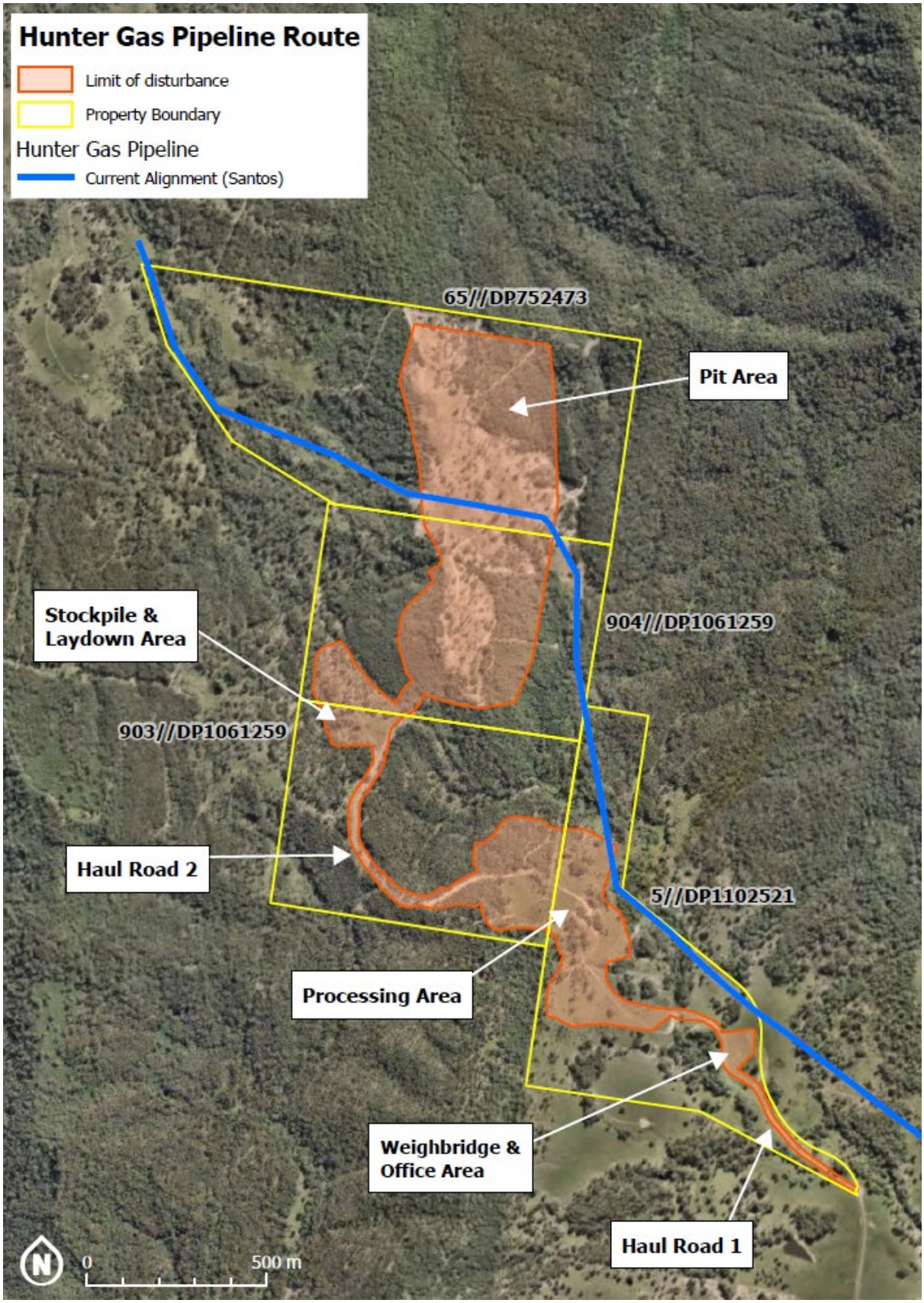


Figure 5 Queensland-Hunter Gas Pipeline Corridor and Project Site.

Source: The Spatial Lab

2.5 Demand for Construction Material

The construction sector is a key contributor to economic growth in NSW, employing approximately 400,000 workers. The need for infrastructure investment in NSW, including within the Hunter region, is identified in several key State and regional strategy documents, including:

- Hunter Strategic Regional Transport Plan (Transport for NSW (TfNSW), 2025), which sets the strategic direction for TfNSW to optimise the transport network and improve transport options for the Hunter by 2041. This includes establishing better road, rail and freight connections to support the growing Hunter region.
- Hunter Regional Plan 2041 which predicts that the Hunter region will require an additional 101,800 dwellings by 2041 to meet the needs of a growing population. The Plan also recognises the Hunter region as a leading regional economy and identifies the need for additional employment land, expanded freight and passenger rail networks, and better inter-regional transport connections.
- State Infrastructure Strategy 2022-2042: Staying ahead (NSW Government, 2022), which sets out Infrastructure NSW's independent advice to the NSW Government on the State's needs and strategic priorities for infrastructure over the long term. The Strategy identifies that the future infrastructure investment pipeline in NSW remains healthy and consistent with the commitments of the past 10 years. It also recommends that infrastructure spending should target freight and energy infrastructure and provide for productive regional industries and connected regional communities.

Recently the objects of the EP&A Act have been recast to respond to modern challenges such as the need for an increase in the supply of additional housing in NSW to align with the National Housing Accord. To accelerate the delivery of much needed homes and help meet the NSW target under the Accord, the NSW Government established the Housing Delivery Authority (HDA). To make construction of extra dwellings happen as quickly as possible, the HDA leads a new streamlined state significant development SSD pathway and a concurrent rezoning process. Over eleven such projects exist within the Hunter region all of which will require a reliable and affordable supply of hardrock quarry products over the next few years. The resource from the proposed quarry will be used in structural concrete, masonry products for construction, road base, sub-base layers and rail ballast.

To meet the identified housing targets a reliable and affordable supply of hardrock quarry products is required.

Further, to meet identified infrastructure needs, the NSW Government has committed over $118 billion in infrastructure spending over the four years from 2025. This infrastructure pipeline includes multi-billion dollar road and rail projects in the Sydney metropolitan area, new and upgraded education and health infrastructure throughout the State, and several major infrastructure projects within the Hunter region.

3 The Project

3.1 Project Summary

The Project is a quarry for the extraction of hardrock and gravel to supply aggregate and conglomerate suitable for road base and concrete batching in the local region. The Project site is within the locality of Elderslie and Glendon Brook, approximately 10km northwest of the community of East Branxton.

A Plan identifying the Project site and proposed layout is located at Figure 2. The Project includes:

- Vegetation clearing, earthworks and installation of surface water management controls to facilitate construction of the first section of Haul Road 1 which will be a sealed road approximately 600m in length from the northern end of Springvale Road to the western end of the proposed Weighbridge and Office Area. Construction of Haul Road 1 along this section will include a minor culvert crossing of a third order un-named drainage line.
- Vegetation clearing, earthworks and installation of surface water management controls for the construction of the Weighbridge and Office Area. Construction works will include erection of temporary buildings and facilities, installation of a weighbridge, installation of necessary infrastructure and other supporting services to facilitate operations at the site.
- Vegetation clearing, earthworks and installation of surface water management controls to facilitate construction of the second section of Haul Road 1 which will be unsealed and will extend approximately 150m from the Weighbridge and Office Area to the Processing Area. Construction of Haul Road 1 along this section will include minor culvert crossings of two un-named drainage lines, one being a first order and the second being a third order drainage line.
- Clearing of vegetation, installation of surface water management controls and overburden removal for the creation of the Processing Area. Establishment of the Processing Area may require extraction of hardrock from to achieve finished design levels. Extraction in these parts will be undertaken through a combination of drilling and blasting with the resultant material, once processed, suitable for commercial sale.
- A mobile crusher and screening plant will be located in the Processing Area to process extracted material from within the Processing Area and ultimately the resource material from within the Pit Area. Once operations within the Pit Area are fully established the mobile crusher and screening plant will become fixed plant.
- Vegetation clearing, earthworks and installation of surface water management controls to facilitate construction of Haul Road 2, approximately 1,620m in length, from the Processing Area to a point approximately 750m within the Pit Area.
- Vegetation clearing, earthworks and installation of surface water management controls to facilitate construction of the Stockpile and Laydown Area immediately southwest of the Pit Area.
- Progressive vegetation clearing and extraction of the Pit Area with the high-quality resource being drilled, blasted and extracted, prior to transporting to the Processing Area.
- Installation of surface water management controls to manage runoff within the Pit Area and the Processing Area.

- Stripping and stockpiling of topsoil for future rehabilitation will be carried out during all stages of construction and operation. Topsoil will be stockpiled in the Stockpile Area immediately southwest of the Pit Area.
- Extraction and processing of up to 1 million tonnes of resource per annum, for 30 years.
- Transport of processed material along Springvale Road, Stanhope Road, Elderslie Road to the New England Highway, Wine Country Drive, the Hunter Expressway and the local region.
- Progressive rehabilitation works within the Pit Area.

The Project has been designed to facilitate the efficient and economically viable extraction of the identified hardrock resource, while ensuring that potential environmental and community impacts are avoided or minimised wherever practicable. In addition, the Project is expected to generate a range of socioeconomic benefits that will support regional development.

The key aspects of the Project are provided in Table 7.

Table 7 Key Aspects of the Project

Project Element	Summary of the Project
Proposed Development	Hardrock Quarry
Legal Property Description	▪ Lot 65 DP 752473, Blind Creek Road, Glendon Brook. ▪ Lot 904 DP 1061259, Blind Creek Road, Elderslie. ▪ Lot 903 DP 1061259, Blind Creek Road, Elderslie. ▪ Lot 5 DP 1102521, 253 Springvale Road, Elderslie.
Resource Extraction Method	Traditional drilling and blasting
Resource	Quarry extraction of high-quality Tuff and Agglomerate from a reduced level (RL) of 215m AHD down to RL 110m AHD.
Project Site Area	186ha.
Disturbance Areas	Total Disturbance Area – 63.4ha, broken down as per below.
	37.8ha - Pit Area.
	4.3ha – Stockpile and Laydown Area
	16.2ha - Processing Area.
	0.5ha - Weighbridge and Office Area
	1.3ha – Haul Road 1
	3.3ha – Haul Road 2
Annual Production	Up to 1,000,000 tonnes.
Quarry Life	Up to 30 Years (under this application).
Potential Resource Life	Up to 50 years.
Hours of Operation	**Extraction and processing operations** ▪ 7am to 5pm (Monday to Friday). ▪ 8am to 1pm (Saturday).

Project Element	Summary of the Project
Hours of Operation	**Internal product transfers to stockpiles** ▪ 7am to 5pm (Monday to Friday). ▪ 8am to 1pm (Saturday).
	Haulage from the development site ▪ 6.30am to 4pm (Monday to Friday). ▪ No haulage on Saturday, Sunday or a Public Holiday.
	Drilling and Blasting activities Blasting between 9am to 5pm Monday to Friday only. On average one (1) blast per week, carried out by an external contractor.
	Maintenance activities ▪ 6am to 6pm (Monday to Saturday). ▪ No work on Sundays and Public Holidays.
	Construction hours ▪ 7am to 5pm (Monday to Friday). ▪ 8am to 3pm (Saturday). ▪ No work on Sundays and Public Holidays.
Operational Workforce	At full operation, up to 15 full-time staff, with further support from the local and regional construction industry and associated haulage contractors.
Product Transport	▪ Road haulage of product via semi-trailer / truck and dog trailer.
	▪ On average 110 laden trucks per day in order to meet peak production.
	▪ Maximum of 30 laden trucks per hour at peak rates.
	▪ Maximum daily extraction rate of 7,000 tonnes per day.
Transport Route	▪ The road transport route from the site extends over approximately 13km from the site entrance to the Hunter Expressway interchange at Branxton. The road transport route incorporates Springvale Road, Stanhope Road, Elderslie Road and the New England Highway. Elderslie Road was previously used by the Great Greta Coal Mine to haul coal.
	▪ The road transport route includes use of the Elderslie Bridge which crosses the Hunter River. The bridge is located 600m south of the intersection of Elderslie Road and Stanhope Road and has a mass restriction of 50 tonnes.
Water Management	Erosion and sediment control devices such as catch drains, road drainage, dirty water dams and clean water dams.
Utilities	▪ Power supply from existing electricity network and diesel generators.

Project Element	Summary of the Project
	▪ Water supply sourced from onsite dams, surface water runoff, and rainwater tanks. Potable water imported as needed
Operational Activities and Areas	▪ Site office and employee facilities. ▪ Car parking. ▪ Existing site access from Springvale Road via Haul Road 1 (sealed) to Weighbridge and Office Area. ▪ Use of Haul Road 1 and Haul Road 2. ▪ Workshop and fuel storage – to be initially located at the Weighbridge and Office Area. ▪ Fuel and supply deliveries. ▪ Equipment storage. ▪ Waste management. ▪ Equipment parking areas. ▪ Processing Area including crusher and screening plant. ▪ Raw material stockpiles. ▪ Product stockpiles and truck loading areas. ▪ Truck parking. ▪ Weighbridge. ▪ Environmental management measures including road watering, site rehabilitation, etc. ▪ Use of ancillary plant and equipment.
Rehabilitation	Rehabilitation of the development will initially be limited to areas of immediate disturbance such as road batters, access road construction and sediment dams. Progressive rehabilitation of the quarry benches will occur as they become available, with the majority of the rehabilitation taking place at the completion of resource extraction when the quarry floor, stockpile areas, and portions of the infrastructure areas will be rehabilitated.

3.2 Project Site and Disturbance Area

The total area of the Project site is approximately 186ha, however the total disturbance area is approximately 63.4ha.

3.3 Detailed Project Description

This section provides a detailed description of the scope of works for which approval is sought and the basis on which the EIS has been undertaken. Civil Engineering Plans, identifying the various components of the design and layout, are contained in Appendix E.

3.3.1 Physical Layout and Design

- The main extraction area (Pit Area) is located within Lot 65 DP 752473 and Lot 904 DP 1061259. The Pit Area covers an area of approximately 37.8ha and contains a high-quality Tuff and Agglomerate resource. The high-quality resource would be drilled, blasted and extracted, prior to processing. The Pit Area would be developed to a floor level of approximately 110m AHD, with extraction undertaken creating several benches with nominal height of 15m.

- The Processing Area is located within Lot 903 DP 1061259 and Lot 5 DP 1102521 and covers an area of approximately 16.2ha. Establishment of the Processing Area during the construction phase will involve drilling and blasting to achieve the required finished design levels. This will produce a product that is suitable for use in the establishment of internal roads and infrastructure on site. Excess material will be stockpiled and sold. Mobile plant will be used for processing material. The finished product will be transferred to designated stockpile locations within the Processing Area prior to loading onto registered haulage trucks.
- The Stockpile and Laydown Area is located partly within Lot 903 and partly within Lot 904 of DP 1061259. The Stockpile and Laydown Area covers an area of approximately 4.3ha and is located southwest of the Pit Area. The Stockpile and Laydown Area will be used to accommodate stripped topsoil for future rehabilitation use, the storage of equipment and materials, parking for construction vehicles and parking for operational vehicles to support the day-to-day quarry operations within the Pit Area.
- The Weighbridge and Office Area is approximately 0.5ha in area and will accommodate the site office, weighbridge and workshop store. The area will also provide parking for light vehicles as well as parking for registered haulage trucks as required.

3.3.2 Extraction

Immediately prior to extraction, vegetation will be cleared using a dozer or excavator in clearly defined areas within the approved disturbance area. Vegetation removal will be undertaken in accordance with biodiversity management procedures. Prior to disturbance, erosion and sediment control structures will be established. The control structures will direct freshwater runoff away from disturbed areas and will contain sediment laden water on site for treatment.

Extraction of the target hardrock resource will be undertaken through a combination of drilling and blasting. Blasting will be carried out by experienced and licensed drill and blast contractors, with all explosives delivered to site from approved off-site suppliers. No explosives will be stored on-site. Blasting will occur no more than once per week and only within the hours of 9am to 5pm, Monday to Friday, in accordance with regulatory requirements. It is anticipated that up to 40 blasts per year will be required. Following each blast, the material will be loaded into dump trucks using an excavator or front-end loader and transported via Haul Road 2 to the Processing Area for crushing and screening.

Dozers will be required to be used within the Pit Area to construct loading areas and relocate the blasted material as required to improve operational efficiencies.

3.3.3 Product Processing and Stockpiling

Extracted rock will be processed in the Processing Area. Initially a mobile crusher and screening plant will be used, however this plant will become fixed once extraction within the Pit Area commences.

All hardrock material will produce concrete grade aggregates, manufactured sand and dust, ballast and road base. The finished product will be transferred to designated stockpile locations within the Processing Area prior to loading onto registered haulage trucks.

3.3.4 Internal Haul Roads

Two internal haul roads (Haul Road 1 and Haul Road 2) will be used to provide transport links between key operational areas within the Project site. These roads will be designed to accommodate the safe and efficient movement of heavy vehicles such as haul trucks and loaders, enabling the transport of raw material from the Pit Area to the Processing Area. They will also support access for registered haulage trucks, service vehicles and site personnel.

The haul roads will be constructed to appropriate engineering standards, will be maintained regularly, and will be managed for dust suppression using water carts to minimise environmental impacts and ensure safe operating conditions. Speed limits of 30km/hr will be maintained on site to ensure internal traffic safety.

The first section of Haul Road 1 will be sealed for approximately 600m in length from the northern end of Springvale Road to the western end of the proposed Weighbridge and Office Area. The remaining section of Haul Road 1 and the entire length of Haul Road 2 will be unsealed and will be regularly sprayed with water using a water cart as required to manage dust impacts during the handling and transporting of materials.

3.3.5 Loading of Registered Haulage Trucks

Registered haulage trucks (road trucks) will access the site via quarry gates at the northern end of Springvale Road and drive along the sealed section of Haul Road 1 until they arrive at the Weighbridge and Office Area.

The road trucks will then proceed to the Processing Area to be loaded with material from the designated stockpile locations using a front-end loader. Loaded trucks will then proceed to the weighbridge to be weighed and travel southeast along Haul Road 1 exiting the site through the quarry gates and travelling south along Springvale Road.

3.3.6 Site Access

The single access point to the Project site for light and heavy vehicles will be at the northern end of Springvale Road. Springvale Road is an unmarked 2-lane sealed road of variable width and maintained by Council. Pavement widening of Springvale Road from the Hunter Pet Motel (169 Springvale Road) to the Project site may be required.

3.3.7 Haulage from the Site

The haulage route from the site comprises a bitumen-sealed road surface for the entire length, significantly reducing the potential for dust generation from off-site freight movements. In addition, all transported material loads will be covered during transit to further minimise the risk of dust emissions.

Loaded trucks (semi-trailer / truck and dog trailer with maximum weight fully laden of 50 tonnes) will leave the site and travel approximately 2.1km south along Springvale Road to the intersection with Stanhope Road. Vehicles will turn right at the intersection and travel approximately 2.5km, generally in a southwest direction to the intersection with Elderslie Road. Vehicles will then travel along Elderslie Road, generally in a south direction, for approximately 6.3km to the intersection with the New England Highway / Maitland Street, East Branxton. Vehicles will then turn left and travel in an easterly direction to the New England Highway / Wine Country Drive intersection. Loaded trucks would then continue to travel in an easterly direction along the New England Highway or in most cases turn right into Wine Country Drive and enter the Hunter Expressway via the interchange located 800m to the southwest. The route for haulage from the Project Site is illustrated in Figure 6.

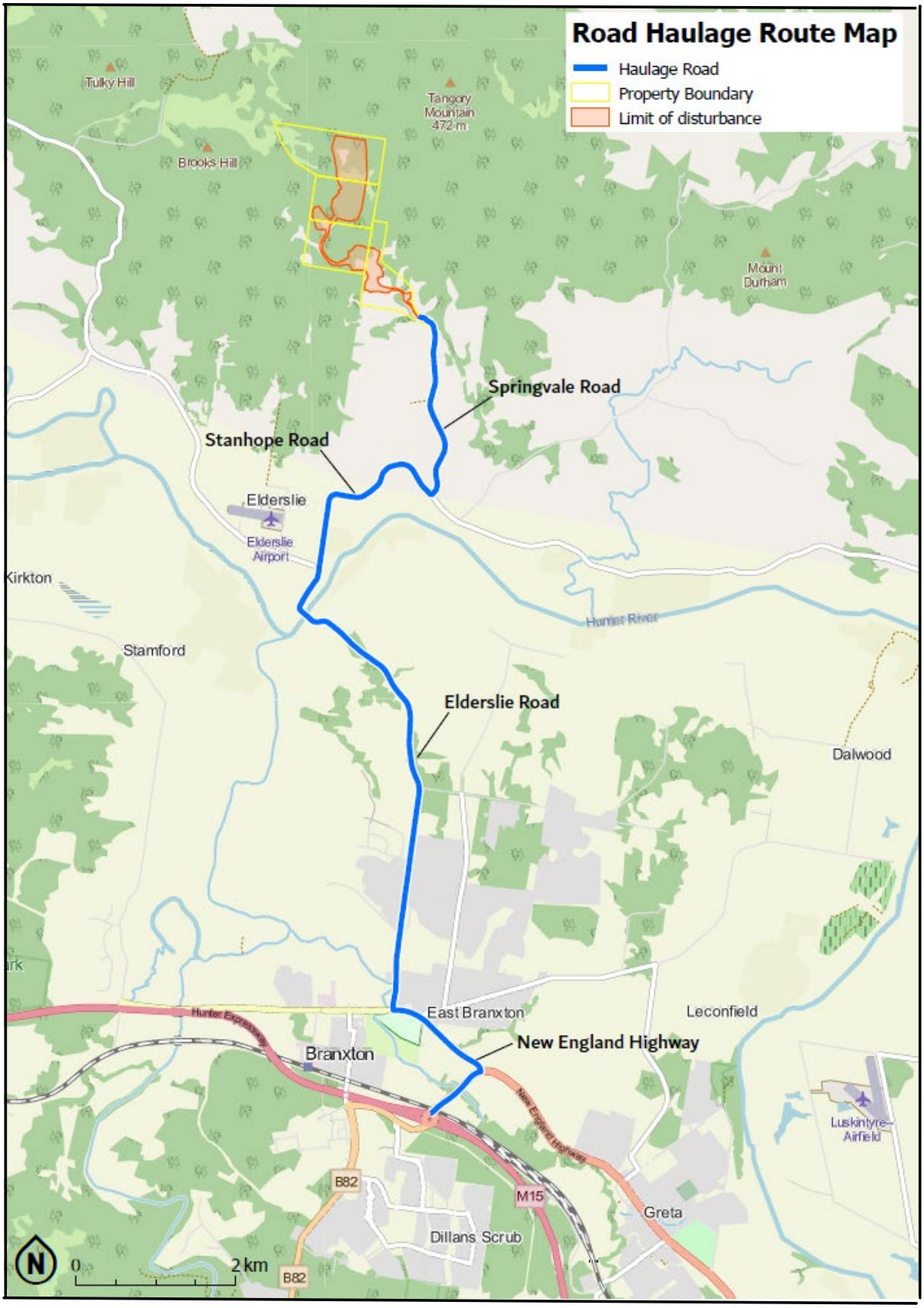


Figure 6 Road Haulage Route Map

Source: The Spatial Lab

3.3.8 Water Management

Sediment and erosion control principles consistent with Managing Urban Stormwater: Soils and Construction (the Blue Book) will be adopted by all surface water management plans, construction activities and all operational activities. Construction and operation activities will separate clean and dirty water to minimise runoff contamination. Clean water upstream of disturbance areas will be managed through upstream diversion channels / bunds. Dirty water management measures will include roadside channels along the haul roads, catch drains/ channels at the perimeter of disturbance areas to direct stormwater runoff to sediment basins, and sediment basins to collect and treat runoff. Design of the watercourse / drainage line crossings will be consistent with the NSW Department of Planning Environment Fact Sheet, Controlled activities – Guidelines for watercourse crossings on waterfront land.

3.3.9 Fuel Usage, Storage and Energy

When fully operational it is estimated that approximately 15 kilolitres of fuel per month will be required to operate machinery and equipment. Fuel will be delivered to the site and stored in a bunded fuel storage area to ensure safe and compliant handling. Refueling activities will occur within appropriately bunded workshop and operations areas located initially within the Weighbridge and Office Area and later at the Stockpile and Laydown Area.

Over the anticipated 30-year life of the Project, advancements in technology may provide opportunities to transition away from traditional diesel-powered machinery. The proponent will monitor developments in low-emission and alternative energy sources and assess their suitability for future integration, where feasible, to support improved energy efficiency and sustainability outcomes.

3.3.10 Waste Management

Waste management for the Project will be undertaken in accordance with relevant NSW waste legislation, guidelines, and industry best practices to minimise environmental impacts and ensure safe, responsible disposal and recycling of materials.

A variety of waste streams will be generated during quarry operations, including:

- Sewage Waste: A septic tank system will be installed to manage sewage generated from staff amenities. The tank will be regularly inspected and pumped out by a licensed contractor as required, with waste transported to an approved treatment facility.
- General Waste and Recyclables: The site office and workshop will generate typical domestic waste including paper, packaging, food scraps, and other general refuse. Designated waste storage bins will be provided at the site, clearly separated into general waste and recyclables. These will be collected by licensed contractors and transported to a local transfer or recycling facility, subject to the availability of licensed service providers in the region.
- Waste Oils and Lubricants: Maintenance of plant and machinery will result in the generation of waste oils, greases, and other lubricants. These will be collected and stored in sealed, bunded containers in accordance with Australian Standards to prevent spills or contamination. Waste oil drums and intermediate bulk containers (IBCs) will be clearly labelled and stored in a covered area within the onsite workshop until removed from site by licensed waste contractors for appropriate treatment or recycling.
- Hazardous Waste: Any hazardous materials identified (e.g. oily rags, contaminated filters, or spent batteries) will be handled in accordance with relevant regulatory requirements. These

materials will be stored securely and disposed of through licensed hazardous waste disposal channels.

A site-specific Waste Management Plan has been developed to provide detailed procedures for the classification, handling, storage, transportation, and disposal of all waste types. The plan ensures that waste minimisation, recycling opportunities, and regulatory compliance are achieved throughout the life of the project.

3.3.11 Plant and Equipment

A fleet of mobile plant and equipment will be employed to support both the initial construction and ongoing operational activities of the Project. The indicative equipment expected to be used is provided in Table 8. It is noted however, that the specific types and configurations may evolve over time to accommodate changing operational requirements and advancements in technology, economic or other factors.

Table 8 Plant and Equipment

Plant and Equipment	Use
Dozer Grader	▪ Vegetation removal and initial site clearing ▪ Stripping and stockpiling of topsoil
Excavator	▪ Excavation and relocation of overburden materials ▪ Shaping and preparation of material placement areas ▪ Loading of dump trucks
Dump truck (rigid body and articulated)	Internal transport of materials across the site
Front-end loader	Material loading and stockpile management
Mobile/modular crushing and screening plant	Material processing
Drill rig	Drilling holes for blasting
Registered Haulage Trucks (e.g. semi-trailer / truck and dog trailer)	Road haulage of products to market
Water Cart	Suppression of dust on internal haul roads
Light 4WD vehicles, maintenance and servicing trucks	Support in day-to-day operational activities.

3.3.12 Services and Utilities

The following services and utilities will be required for the construction and operation of the Project.

- Electricity: The subject site has access to power and the extension of electricity to the Weighbridge and Office Area is possible. In other situations, diesel-powered generators will be used to generate electricity.
- Water: Surface water management systems have been designed to ensure that the Project is self-sufficient in terms of water supply. The Project's operational water supply needs will be met via the capture and reuse of runoff on site (collected in sediment control structures). Potable water

supply needs for staff amenities will be met via rainwater collection (tanks) from the roofs of the site office and workshop or trucked-in if required,

- Communications: Mobile phone reception is available onsite. UHF radio will also be used.
- Sewage: A Portaloo will be utilised on-site during construction activities. The Portaloo will be serviced by a licenced collection contractor and sewage disposed of at a licenced facility. For operations, an onsite wastewater management system will be installed to treat sewage generated from toilets at the site office. On-site wastewater treatment will require the preparation of an onsite sewage management plan (OSSMP) and a Section 68 activity approval from Singleton Council will be obtained.
- Refuelling and maintenance: Refuelling and routine maintenance of mobile plant and equipment will take place within a designated area and fuel storage compound located on-site. This area will incorporate one or more self-bunded diesel storage tanks with a combined capacity of approximately 30,000 litres, alongside a dedicated storage area for lubricants, including grease drums and intermediate bulk containers (IBCs) for oils. The refuelling and servicing areas will be fully bunded to safely manage any petrochemical spills in accordance with relevant Australian Standards. Waste materials, such as used oils and lubricants, will be stored in IBCs or similar containment and collected periodically by licensed waste contractors. For flexibility, mobile equipment may also be refuelled on-site using a service vehicle fitted with a portable diesel tank.

3.3.13 Hours of Operation

Operating hours have been separated into five key categories as listed in Table 9.

Table 9 Proposed Hours of Operation

Operation	Days	Hours
Extraction and Processing	Monday to Friday	7am - 5pm
	Saturday	8am - 1pm
	Sunday/Public Holidays	No Extraction and Processing
Internal product transfers to stockpiles	Monday to Friday	7am - 5pm
	Saturday	8am - 1pm
	Sunday/Public Holidays	No internal product transfers
Haulage from the development site	Monday to Friday	6:30am - 4pm
	Saturday/Sunday/Public Holidays	No Haulage
Drilling and Blasting	Monday to Friday	9am - 5pm
Maintenance	Monday to Saturday	6am - 6pm
	Sunday/Public Holidays	No Maintenance

3.3.14 Workforce

The Project is expected to employ up to 15 permanent staff on site. Some aspects of the operations, such as haulage of materials, will be provided by contractors.

The Project would also engage a range of service providers including diesel mechanics, fabricators and geotechnical specialists. Most of these would likely be employed from the local region. Consultants would also be engaged for monitoring and compliance purposes as required. Consultants may be engaged from outside of the region as independent consultants.

3.3.15 Vehicles and Parking

The site allows for parking of light vehicles and trucks across various areas of the Project site. Sufficient parking capacity is also available for all delivery trucks and maintenance vehicles.

3.3.16 Rehabilitation

The Project has been designed to enable progressive rehabilitation during the site's operational life, with final rehabilitation and decommissioning to be undertaken following the completion of extraction activities. Rehabilitation will focus on restoring the site to a safe, stable, and sustainable landform that is consistent with existing surrounding land uses.

Rehabilitation activities will commence as soon as practicable in areas where extraction and operational activities have ceased. This approach minimises the disturbed footprint at any one time and supports earlier establishment of vegetation and landform stability. Progressive rehabilitation will include:

- Backfilling and reshaping of exhausted areas where appropriate.
- Spreading of stored topsoil and organic material to promote revegetation.
- Implementation of erosion and sediment control measures.
- Revegetation using native species consistent with surrounding vegetation communities.
- Monitoring of rehabilitation success against completion criteria.

Rehabilitated areas will be maintained and monitored to ensure they meet stability, drainage, and revegetation standards in line with rehabilitation objectives and regulatory conditions.

At the cessation of quarry operations, all remaining infrastructure and operational facilities no longer required will be removed unless otherwise approved for ongoing use. Final rehabilitation and decommissioning activities will include:

- Demolition and removal of buildings, processing infrastructure, and internal access roads.
- Decommissioning of utilities and fuel storage areas in accordance with environmental and safety requirements.
- Contouring and stabilisation of final landforms to prevent erosion and facilitate appropriate drainage.
- Spreading of topsoil and revegetation across all disturbed areas.
- Implementation of long-term erosion and sediment control structures where necessary.
- Final land use preparation (e.g. transition to grazing, biodiversity conservation or another agreed end use).

A Rehabilitation Plan will be developed and updated throughout the life of the quarry in consultation with relevant government agencies and landholders. The plan will set out performance criteria, monitoring, and reporting processes to ensure that rehabilitation objectives are met and that the site is returned to a stable and non-polluting condition following closure.

3.3.17 Project Staging

The Project will be completed generally in accordance with the nominated indicative stages as per below. These stages are also illustrated in Figure 7.

STAGE 1 - Years 1-4

Construction of Haul Road 1 from Springvale Road to the Processing Area including the sealing of the haul road to the Weighbridge and Office Area and construction of creek crossings, sediment basins and water storage dams. This stage will also include construction of the weighbridge, office, amenities and workshop and installation of weighbridge equipment.

The construction of the Processing Area will involve drilling and blasting to achieve finished design levels for this area. The materials created from this area will be suitable for construction of roads and infrastructure for the Project and any surplus materials will be stockpiled and sold.

STAGE 2 - Years 4-5

Construction of Haul Road 2 from the Processing Area to the Pit Area, passing the proposed Stockpile and Laydown Area. This will involve the use of materials created from the construction of the Processing Area. Haul Road 2 will extend approximately 750m into the Pit Area to create access to the northern end of the pit to allow extraction in that area of the pit.

STAGE 3 - Years 5-30

Extraction of materials from the Pit Area using drilling and blasting and then loading and haulage of materials to the Processing Area where materials will be sold and transported via registered haulage trucks to their end use market.

STAGE 4 - Years 30-35

Pit closure and rehabilitation.

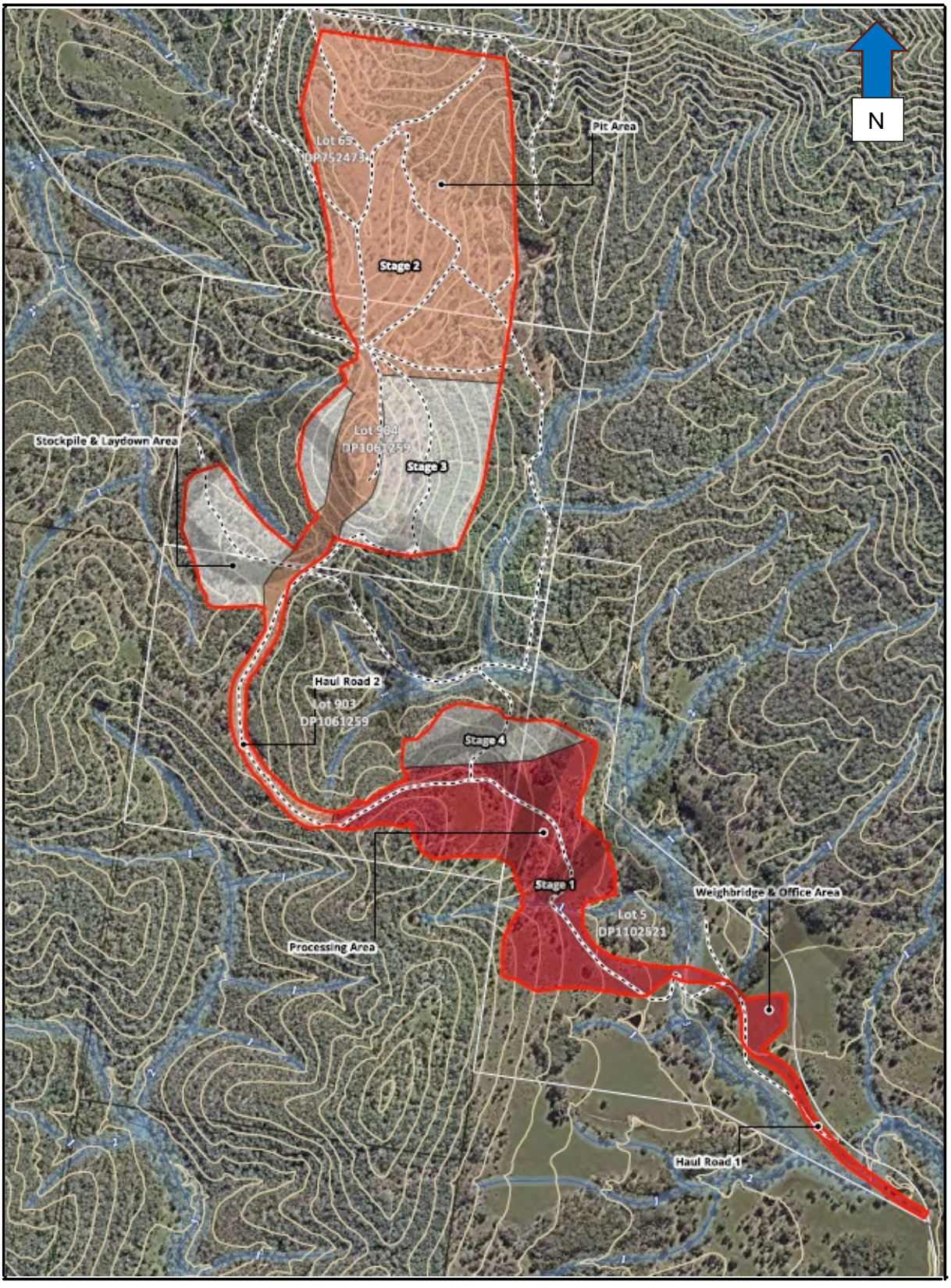


Figure 7 Project Staging Plan.

Source: Wedgetail Consulting

4 Statutory Context

4.1 Introduction

The key applicable statutory requirements for the project are identified within this section. Key statutory instruments include the EP&A Act, the EP&A Regulation, and other relevant NSW and Commonwealth legislation, plus State and local environmental planning instruments.

This section addresses:

- the approval pathway
- permissibility
- other approvals
- pre-conditions to exercising the power to grant approval
- mandatory matters for consideration.

Detailed consideration of statutory requirements is provided below and in the accompanying technical reports provided in Appendix E to Appendix Y.

4.2 Environmental Planning and Assessment Act 1979

The EP&A Act includes a definition of 'development' (at Section 1.5) being:

(1) For the purposes of this Act, development is any of the following:

(a) the use of land

(b) the subdivision of land

(c) the erection of a building

(d) the carrying out of a work

(e) the demolition of a building or work

(f) any other act, matter or thing that may be controlled by an environmental planning instrument.

(2) However, development does not include any act, matter or thing excluded by the regulations (either generally for the purposes of this Act or only for the purposes of specified provisions of this Act).

The proposed works are therefore considered to be development and the EP&A Act and its supporting instruments apply.

Section 3.18 of the EP&A Act further states that an environmental planning instrument may provide for specified development to be carried out without development consent, or with development consent.

4.3 Characterisation

Before the permissibility and consent requirements for a development can be identified, the works must be characterised in terms of the purpose of the development. The works involve the continued development and operation of a hardrock quarry.

The Project is best characterised as 'extractive industry' which is defined under the SLEP 2013 as:

> ***extractive industry*** means the winning or removal of extractive materials (otherwise than from a mine) by methods such as excavating, dredging, tunnelling or quarrying, including the storing, stockpiling or processing of extractive materials by methods such as recycling, washing, crushing, sawing or separating, but does not include turf farming.

The proposed Project is consistent with this definition of extractive industry.

4.4 Permissibility

The site is zoned RU1 – Primary Production pursuant to SLEP 2013 as illustrated in Figure 8. Extractive industries are a permissible use with development consent in the RU1 zone.

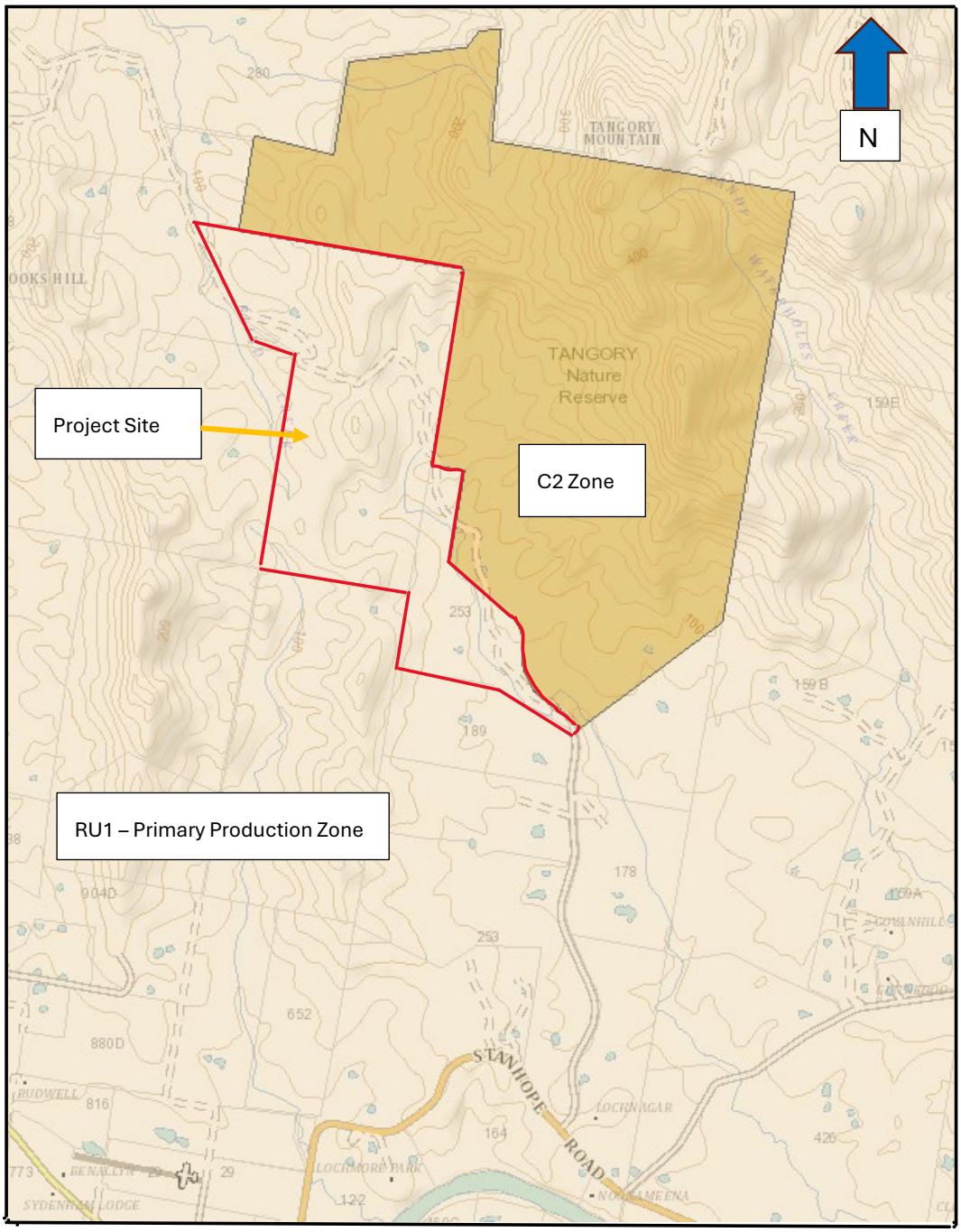


Figure 8 Zoning Plan.

Source: NSW Planning Spatial Viewer

4.5 Approval Pathway

The EP&A Act defines the statutory framework for planning approval and environmental assessment in NSW. The EP&A Act is administered by the Minister for Planning and Public Spaces, statutory authorities, and local councils. Under section 4.36 of the EP&A Act, a development is State significant if it is declared to be State significant development (SSD) by any State environmental planning policy (SEPP).

Section 4.36(2) of the EP&A Act provides:

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

The relevant SEPP which declares the development proposed by the project to be SSD is the Planning Systems SEPP.

Chapter 2 of the Planning Systems SEPP outlines the approval pathways for State and regional development.

Section 2.6 provides for certain development to be declared State significant development. It states:

> *(1) Development is declared to be State significant development for the purposes of the Act if—*
>
> *(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act, and*
>
> *(b) the development is specified in Schedule 1 or 2.*

Section 7 in Schedule 1 of the Planning Systems SEPP declares certain extractive industries to be State significant,

being:

> *(1) Development for the purpose of extractive industry that—*
>
> *(a) extracts more than 500,000 tonnes of extractive materials per year, or*
>
> *(b) extracts from a total resource (the subject of the development application) of more than 5 million tonnes, or*
>
> *(c) extracts from an environmentally sensitive area of State significance.*

The Project will extract more than 500,000 t of extractive materials per year. The Project is therefore classified as SSD and the consent authority is the Minister or the Independent Planning Commission (pursuant to section 4.5 of the EP&A Act).

Division 4.7 of Part 4 of the EP&A Act includes provisions for SSD, and section 4.40 provides that the evaluation of SSD projects requires consideration of the matters itemised under section 4.15 of the EP&A Act.

Development consent is required under the EP&A Act for extractive industries in NSW. The project requires approval under Part 4, Division 4.47 of the EP&A Act as a State Significant development.

Section 4.41 of the EP&A Act provides that if development consent is granted for a State Significant development, the following potentially relevant authorisations are not required:

- A permit under section 201,205 or 219 of the *Fisheries Management Act 1994*,
- An approval under Part 4, an excavation permits under section 139 of the *Heritage Act 1977*,
- An Aboriginal heritage impact permit under section 90 of the *National Parks and Wildlife Act 1974*,

- A bush fire safety authority under section 100B of the Rural Fires Act 1997, and
- 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 of the Water Management Act 2000.

4.6 Other Approvals Considered

4.6.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act, a proponent proposing to undertake an action that may or will have a significant impact on matters of national environmental significance (MNES), or the environment generally for 'Commonwealth agencies', is to be referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for determination as to whether or not it is a controlled action.

On 26 March 2026, the Project was determined to be a controlled action, requiring approval under the EPBC Act (EPBC 2026/10452) for likely impacts to listed threatened species. The Project will remove up to 59.30ha of native vegetation that is known habitat of the Grey-headed Flying-fox and may have impacts to other listed threatened species including the Regent Honeyeater, Swift Parrot, Spot-tailed Quoll, and South-eastern Glossy Black-Cockatoo. The Project will be assessed under the bilateral agreement between the Australian and NSW Governments. Under the bilateral agreement, the NSW Government assesses development applications on behalf of the Australian Government. The Australian Government remains the decision-maker for the EPBC Act approval, considering the assessment report prepared by DPHI. Supplementary SEARs have been prepared, are contained in Appendix A, and are to be read in conjunction with the SEARs previously issued by the NSW Planning Secretary.

4.6.2 Biodiversity Conservation Act 2016

The BC Act provides for the protection and conservation of biodiversity within NSW. Part 4 identifies the threatened biodiversity that will require consideration in the BDAR. Part 6 specifies how the development will be required to comply with the Biodiversity Offsets Scheme.

The EIS includes a Biodiversity Development Assessment Report (BDAR) and the Project will be subject to the Biodiversity Offsets Scheme.

4.6.3 Water Management Act 2000

The Quarry will not require a water use approval under s89 of the Act, a water use approval under s89 of the Act, or a water management approval under s 90 of the Act, or a controlled activity approval (other than an aquifer interference approval) under s 91 of the Act per s 4.41 of the EP&A Act.

4.6.4 National Parks & Wildlife Act 1974

An Aboriginal Cultural Heritage Assessment has been completed to identify potential impacts to Aboriginal objects. An Aboriginal Heritage Impact Permit is typically required under Section 90 of the NP&W Act to harm an Aboriginal object. Pursuant to Section 4.41 of the EP&A Act, an Aboriginal Heritage Impact Permit would not be required for the carrying out of the project, if approved.

4.6.5 Protection of the Environment Operations Act 1997

Section 48 of the *Protection of the Environment Operations Act 1997* (POEO Act) outlines that an environment protection licence (EPL) is required for any scheduled activities at a premise at which Schedule 1 of the Act indicates that a licence is required.

Crushing, grinding or separating activities with a capacity to process more than 150t of materials per day or 30,000 tpa, and land based extractive activities involving the extraction, processing or storage of more than 30,000 tpa of extractive materials, are scheduled activities under the POEO Act.

On determination of the project application, an application for an EPL will be lodged with the NSW Environment Protection Authority (EPA). If the proposed quarry is permitted as SSD under the EP&A Act, an EPL for related scheduled activities cannot be refused, with the prescribed EPL conditions consistent to those set out under the SDD approval documentation.

4.6.6 Roads Act 1993

The Project includes the provision for a private access road to join Springvale Road and widening of 300m of Springvale Road from the Project site.

The roadworks will require a Section 138 Approval from Singleton Council. This approval must be consistent with the specifications of the approval (if granted) for the SSD pursuant to section 4.42 of the EP&A Act.

4.6.7 Rural Fires Act 1997

The proposed SSD would be assessed in accordance with NSW RFS Planning for Bushfire Protection 2019. A Bush Fire Safety Authority under section 100B of the *Rural Fires Act 1997* is not required as the development does not entail subdivision or development for a special fire protection purpose. No separate approval is required.

4.7 Pre-conditions to Approvals

Pre-conditions for the consent authority in exercising the power to grant approval for the project are provided in the following table.

Table 10 Pre-conditions to being able to grant approval for the Project

Statutory Reference	Pre-condition	Relevance	Section in EIS
SEPP (Transport and Infrastructure) 2021, Section 2.48 Determination of development applications—other developments	Development likely to affect an electricity transmission or distribution network: The consent authority must give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and must take into consideration responses received within 21 days. The section applies to a development application including development carried out within or immediately adjacent to an easement for	There is electricity infrastructure and associated easements within the site. The Quarry currently connects to the electricity grid near the entrance to the site access road. Under the Project, the Quarry will maintain this connection without augmentation.	This table

Statutory Reference	Pre-condition	Relevance	Section in EIS
	electricity purposes (whether or not the electricity infrastructure is existing), or immediately adjacent to an electricity substation, or within 5 m of an exposed overhead electricity power line.		
SEPP (Transport and Infrastructure) 2021, Section 2.122 – Traffic generating development	The consent authority must give written notice of application to TfNSW.	The Project is a type of development specified in Column 1 of the Table to Schedule 3 that involves "any other purpose". The impact of project-related traffic is relevantly considered in the Integrated Transport Assessment (ITA) and the Npise and Vibration Impact Assessment (NVIA). TfNSW made traffic related comments and these matters are addressed within the ITA. It is noted that the project will not and will not generate 200 or more motor vehicle movements per hour.	Section 6.7 and Appendix L (ITA) Section 6.2 Appendix H (NVIA)
SLEP 2013, Clause 7.10 Essential Services	The consent authority must not grant consent unless it is satisfied that adequate arrangements are available for: 1. the supply of water 2. the supply of electricity 3.the disposal and management of sewage 4. stormwater drainage or on-site conservation 5. suitable vehicular access.	The quarry will: ▪ maintain a system of basins and dams for capture and supply of water ▪ connect to the electrical grid and operates on site generators ▪ connect to a septic system	This table Section 3.3.12 Section 6.4 Section 3.3.8 Section 6.7

Statutory Reference	Pre-condition	Relevance	Section in EIS
		▪ direct stormwater drainage for capture and re-use ▪ provide suitable vehicle access for trucks via the site access road These aspects are described in Section 3.	

4.8 Mandatory Considerations

The mandatory conditions that must be satisfied before the consent authority may grant approval to the Project are provided in sub-sections 4.8.1 – 4.8.3.

4.8.1 Relevant Objects of the EP&A Act

Table 11 Objectives of EP&A Act

Object	Consideration
(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,	The Project will provide for critically needed hard-rock products needed to support the infrastructure and civil construction pipeline in the Hunter and surrounding regions. Technical specialists have been engaged to assess and report on the potential for impacts on the surrounding natural and built environment. The impacts on the natural environment have been addressed and summarised in Chapter 6.
(b) to promote the supply, delivery and maintenance of housing, including affordable housing,	The Project will provide reliable and affordable supply of hardrock quarry products to meet the identified housing targets of NSW.
(c) to promote productivity through the development and management of the State and its resources,	The Project will provide for the timely provision of hardrock resources to meet current and future demands.
(d) to protect the environment, including the conservation of threatened species of native animals and plants and ecological communities and their habitats,	The Project has been designed to avoid and minimise direct and indirect impacts to biodiversity vales. The potential impacts of the project on biodiversity have been addressed in Section 6.1 of this EIS.
(e) to promote resilience to climate change and natural disasters through adaptation, mitigation, preparedness and prevention,	The Project identifies mitigation measures that will be implemented to ensure resilience to climate change and other climate risks.

Object	Consideration
(f) to promote the sustainable management of built and cultural heritage, including Aboriginal cultural heritage	The Project has been designed to minimise impacts upon built or cultural heritage values. The potential impacts of the project on Aboriginal heritage and built and cultural heritage have been addressed and summarised in sections 6.5 and 6.6, respectively.
(g) to promote good design, amenity and the proper construction and maintenance of built environments, including the protection of the health and safety of the occupants of buildings,	Not applicable to the Project.
(h) to provide opportunities for participation in environmental planning and assessment,	As described in Chapter 5, there have been a range of engagement activities to inform the community about the Project and seek community (and other stakeholder) feedback. This EIS provides further detailed information regarding the Project and its potential impacts. It will be placed on public exhibition by DPHI, and the community will be able to make formal submissions.
(i) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,	This EIS describes the economic, environmental and social context of the Project and of the potential impacts to allow for informed consideration of all relevant aspects in determining the application. The Project is consistent with the principles of ecological as described in Section 6.19 of this EIS.
(j) to promote a proportionate and risk-based approach to environmental planning and assessment.	The EIS provides a balanced, risk-based approach to the assessment of the matters affecting or likely to affect the environment by reason of the Project.
(k) to promote the orderly and economic use and development of land.	The orderly and economic use of land is best served by the Project. The Project is permissible under the relevant planning regime and predominately in accordance with the prevailing planning controls. The Project is orderly in that it has a dedicated site access road and provides sufficient buffer land to surrounding land uses.

4.8.2 Matters for Considerations under Section 4.15(1) of the EP&A Act

The proposal has been assessed in accordance with the matters for consideration listed in Section 4.15 of the EP&A Act as outlined below.

Table 12 Section 4.15 Matters for Consideration

Consideration	Comments
Environmental Planning Instruments (4.15(1)(a)(i))	State and Environmental Planning Instruments have been assessed in Chapter 4 of this EIS.
Draft Environmental Planning Instruments (4.15(1)(a)(ii))	An Explanation of Intended Effect of a proposed new SEPP relating to climate change and natural hazards, which will replace the State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP). The proposed Climate Change and Natural Hazards SEPP (CC&NH SEPP) The proposed CC&NH SEPP will consider climate and natural hazard risks early in planning decisions to reduce risk, deliver economic benefits, including minimising future costs associated with insurance and recovery after a disaster, and ensure homes are delivered in the right locations. Exhibition of the Explanation of Intended Effect ended on16 March 2026. The provisions of the CC&NH SEPP are not publicly available at this point.
Development Control Plans (4.15(1)(a)(iii))	Not applicable to this project as the Project is SSD.
Any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4 (4.15(1)(a)(iiia))	Refer to Section 4.8.4 of this EIS.
Any matters prescribed by the Regulations (4.15(1)(a)(iv))	This EIS has been prepared in accordance with the Environmental Planning and Assessment Regulation 2021.
Likely Impacts of the Development (4.15(1)(b))	Impact of development are assessed in Part 6 of this EIS.
Suitability of the Site (4.15(1)(c))	Refer to Section 7.7 of this EIS
Any Submissions made in accordance with this Act or Regulations (4.15(1)(d))	Not applicable at this stage.
The Public Interest (4.15(1)(e))	Refer to Section 7.8 of this EIS

4.8.3 Matters for Considerations under the EP&A Regulations

State Environmental Planning Policy (Resilience and Hazard) 2021

Under Section 4.6 of the SEPP, potential contamination of the subject land must be assessed prior to issuing development consent.

A preliminary hazard analysis of the Project has been carried out, refer to Section 6.15 of this EIS. The Project is unlikely to be potentially hazardous or offensive, as it will only involve the use of diesel and small amounts of hydrocarbons. No separate approval is required.

State Environmental Planning Policy (Resources and Energy) 2021

Chapter 2 of the Resources and Energy SEPP requires the consent authority to consider the following matters:

- Compatibility of the development proposal with other land uses.
- Voluntary land acquisition.
- Natural resource management and environmental management.
- Resource recovery.
- Transport.
- Rehabilitation.

Section 2.2 provides an overview of the key features of the site and the surrounding land. Section 6 of the EIS provides an environmental, social and economic assessment of the impacts of the Project. Section 7 provides justification for the Project subject to conditions aimed at ensuring that the development is undertaken in ana environmentally responsible manner.

State Environmental Planning Policy (Biodiversity and Conservation) 2021

An assessment of the potential impact of the Project upon koalas / koala habitat was undertaken as part of the fieldwork associated with the BDAR, refer to Section 6.1 and Appendix F. Koalas were not present during ecological fieldwork, and the Project site was considered unsuitable habitat for the koala. The BDAR concluded that no further assessment for the presence of koalas and no further assessment of potential habitat was required. No separate approval is required.

Singleton Local Environmental Plan 2013

The site is zoned RU1 – Primary Production pursuant to SLEP 2013. Extractive industries are a permissible use with development consent in the RU1 zone. The table below provides an assessment of the Project against the provisions of SLEP 2013.

Table 13 Consideration of the SLEP 2013

Clause	Comment
Clause 2.3 Zone objectives and Land Use Table	Extractive industries are a permissible use with development consent
Clause 2.6 Subdivision—consent requirements	No subdivision is proposed
Clause 2.7 Demolition requires development consent	No demolition is proposed
Clause 4.3 Height of buildings	There is no Height of Buildings development standard applicable for the site.

Clause	Comment
Clause 4.4 Floor space ratio	There is no Floor Space Ratio development standard applicable for the site.
Clause 5.10 Heritage	The site does not contain a heritage item nor is it within a heritage conservation area. An Aboriginal object has been discovered on site and is discussed further in Section 6.5 and Appendix K.
Clause 5.21 Flood planning	The site is not affected by flood planning controls.
Clause 7.1 Earthworks	The project involves earthworks to various levels. Geotechnical investigations have been undertaken to assess the site conditions and the likely impacts of the earthworks – refer to Section 6 of this EIS.
Clause 7.6 Riparian land and watercourses	The proposed pit has been located to avoid significant adverse impacts on water quality, bed and bank stability, aquatic and riparian habitats, and ecological processes. Refer to Section 6.4 and Appendix J.
Clause 7.10 Essential Services	The quarry will: ▪ maintain a system of basins and dams for capture and supply of water ▪ connect to the electrical grid and operates on site generators ▪ connect to a septic system ▪ direct stormwater drainage for capture and re-use ▪ provide suitable vehicle access for trucks via the site access road These aspects are described in Section 3.

4.8.4 Planning Agreements

The applicant has not entered into any agreements with other parties to mitigate or offset the impacts of the project.

4.8.5 Contributions Plans

The Singleton Local Infrastructure Contributions Plan 2025 contains a Haulage Maintenance Contribution prepared in accordance with Section 7.11 of the EP&A Act. The proponent will contribute monies on an annual basis to Singleton Council on this basis should the Project gain approval.

5 Engagement

This section provides an overview of the engagement activities undertaken to date by the Applicant as part of the preparation of the EIS.

5.1 Engagement Process

Stakeholder engagement for the proposed quarry was undertaken with reference to Appendix A – 'Community engagement' of the DPHI Social Impact Assessment guideline, as it applies to the context of the project. Furthermore, the DPHI Undertaking Engagement Guidelines for State Significant Projects (March 2024) have also been used in designing and conducting, initial and subsequent engagement.

The SEARs specified that in preparing the EIS consultation was to be undertaken with the following groups and stakeholders.

- affected landowners.
- community groups.
- Singleton Council.
- proponents of the Queensland-Hunter Gas Pipeline (MP06_0286).
- operators of the Elderslie Airport.
- Conservation Programs, Heritage and Regulation Group within the Department of Climate Change, Energy, the Environment and Water.
- Heritage NSW.
- Environment Protection Authority.
- NSW Resources.
- Department of Primary Industries (including Agriculture and Fisheries).
- Crown Lands.
- the Water Group within the Department of Climate Change, Energy, the Environment and Water.
- NSW Rural Fire Service.
- Transport for NSW.

5.2 Aboriginal Community Engagement

Engagement with First Nations stakeholders were carried out respectfully and in adherence to the 'Aboriginal Cultural Heritage Consultation Requirements for Proponents' (DPE, 2010). A public invitation issued in the local newspaper encouraged consultation and sought to involve Aboriginal individuals with cultural knowledge relevant to the project site, as well as those able to assess the significance of Aboriginal objects and notable places. Conversations with members of the local Aboriginal community contributed to the preparation of an Aboriginal Cultural Heritage Assessment (ACHAR) described in Section 6.5 and Appendix K.

The following table provides an outline of the Aboriginal consultation process utilised for the ACHAR with further details provided within the ACHAR contained in Appendix K.

Table 14 Aboriginal Consultation Response.

Community Consultation	Response

Stage 1 - Notification of Project Proposal and Registration of Interest	Aboriginal people holding cultural information were identified, notified, and invited to register their interest in the project.
	▪ Proponents must notify:
	  ○ Relevant Local Aboriginal Land Councils (LALCs)
	  ○ NSW Aboriginal Land Council
	  ○ Registered Native Title holders/claimants
	  ○ Other identified Aboriginal groups and individuals
	▪ Notification includes:
	  ○ Description of the project
	  ○ Map of the area
	  ○ Proposed methodology and timeline
	▪ The aim is to identify stakeholders with an interest in the Aboriginal cultural heritage of the area.

Stage 2 - Presentation of Information About the Proposed Project	Registered Aboriginal parties were provided with detailed information regarding the project's scope and the proposed heritage assessment process.
	▪ Proponents provide:
	  ○ A detailed project description
	  ○ Likely areas of impact
	  ○ Methodology for archaeological and cultural assessment
	▪ Must ensure information is:
	  ○ Culturally appropriate
	  ○ Provided in accessible formats
	▪ Stakeholders are invited to comment on the assessment methodology and cultural issues of concern.

Stage 3 - Gathering Information About Cultural Significance	Aboriginal stakeholders were invited to recommend appropriate research methodologies for the cultural heritage assessment. Their input was used to determine the cultural significance of the project area, and any relevant Aboriginal objects or places.
	▪ Aboriginal stakeholders:
	  ○ Contribute cultural information, site locations, and oral histories
	  ○ Help identify the cultural values of places and landscapes
	▪ Fieldwork and assessment are undertaken in consultation with stakeholders.
	▪ Cultural information is recorded and treated with confidentiality and cultural sensitivity.
	▪ Proponents must consider how to avoid, minimise, or mitigate impacts

Community Consultation	Response

Stage 4 - Review of Draft Cultural Heritage Assessment Report	All registered Aboriginal stakeholders were provided with a draft of the Aboriginal Cultural Heritage Assessment Report (ACHAR) for review. They had 28 days to provide feedback and additional cultural information. The final report was prepared, incorporating all comments before submission with the Aboriginal Heritage Impact Permit (AHIP) application.
	▪ A draft of the Aboriginal Cultural Heritage Assessment Report (ACHAR) is circulated to all consulted parties.
	▪ Stakeholders review the:
	  ○ Accuracy of cultural information
	  ○ Recommendations and mitigation strategies
	▪ Feedback is incorporated into the final report.

In addition to the formal consultation process described above discussions were held with the Wanaruah Local Aboriginal Land Council representatives as part of the preparation of the SIA.

5.3 Community Stakeholder Engagement

Engagement with Community Stakeholders occurred in a variety of ways as detailed in the SIA contained in Appendix Q. Engagement with community stakeholders was carried out by personnel from Social Aspect, author of the SIA, with additional input from Bluestone Hardrock and Barr Planning. An outline of the tools and techniques used for community stakeholder engagement for the Project is provided below.

- Establishment of a Project specific website by the applicant.
- Project introduction letter - distributed in hardcopy to approximately 2,354 properties surrounding the Project site. The distribution was intended to reach those people predicted to be most influenced by the Project including those people living or working nearby, in Branxton or along the proposed haulage route.
- Online survey - The online survey form was prepared and distributed to the Project stakeholders on 23 November 2025 and remained open for a two-week period (i.e. 23/11/25 – 06/12/25 inclusive). The online survey was voluntary and open to all community and Project stakeholders.
- Interviews – Conducted by The Social Aspect Interviews were conducted in a semi-structured format using a list of predetermined questions to be used selectively and as a guide only. This format provided a flexible structure which allowed the interviewer to create and ask questions about situations as they emerged and the interviewee to digress and express views freely.
- Stakeholder meetings – Social Aspect personnel met with representatives from Wanaruah Local Aboriginal Land Council, Singleton Council, Business Singleton as well as two property owners with strong opinions about the Project.
- Community ‘drop-in’ information sessions - The Project team hosted two community ‘drop-in’ information sessions to provide Project details and collect community feedback about the Project.

5.3.1 Community 'drop-in' information sessions

The community 'drop-in' sessions were held on consecutive mid-week days at alternate times (i.e. an afternoon/early evening session allowing for people to attend after work, and a morning session for those able to attend during working hours). The sessions:

- Adopted a drop-in format, whereby people could attend the venues at any time during a four-hour time period to obtain Project information and speak with some members of the Project team.
- Provided 'information stations' related to individual draft EIS technical studies (i.e. traffic, acoustics, air-quality) and the status of the Hunter Gas Pipeline Project in relation to the proposed Bluestone Hardrock Quarry.
- Provided opportunities for attendees to ask questions to some of the EIS technical specialists at the information stations and provide feedback.

Community 'drop-in' sessions were advertised by a combination of:

- An invitation mailout to the Project stakeholder email database, including Singleton Council Councillors, two weeks prior to the last session
- A hard copy advertisement in the Singleton Argus ten days prior to last session
- A digital advertisement on the Hunter River Times website two weeks prior to the last session
- A notice on the Project website.

Various social media channels (e.g. Facebook community groups, media Facebook pages, news radio, newspaper publications) also promoted the sessions to their audiences.

A bulk email was sent on 28 January 2026 to a list of online survey participants who registered for future Project correspondence. The email included an invitation to the community 'drop-in' information sessions and correspondence from the proponent about the proposed quarry site selection. A bulk email was also sent to prominent organisations (e.g. community, business, schools, medical practice) on 27 January 2026 in the social locality. The combined mailing list included approximately 135 contacts.

Community 'drop-in' session # 1 was held at Elderslie Hall (758 Elderslie Rd, Elderslie) on Wednesday 11 February 2026 between 3pm and 7pm. Community 'drop-in' session # 2 was held at Branxton Community Hall (35 Bowen St, Branxton) on Thursday 12 February 2026 between 10am and 2pm.

A total of approximately 80 people attended the sessions over the two-days. The opinions shared by attendees informed the assessment of the Project's potential social impacts as discussed in Section 6.12 and the SIA contained in Appendix Q.

5.4 Statutory Authorities, Council and Elected Representatives

As listed in Section 5.1, the SEARs specified that in preparing the EIS consultation was to be undertaken with statutory agencies, Singleton Council and Cessnock City Council. The agencies and Singleton Council were notified by letter via the Major Projects Portal on 1 December 2025. Cessnock City Council was notified by letter via the Major Projects Portal on 19 December 2025. A table documenting the date of initial engagement, the date of response and advice provided is contained in Appendix C. Substantive responses that were received were assessed for their relevance to the SIA being prepared and also forwarded to the applicant for provision to the relevant technical consultants. All responses indicated that further engagement was not necessary until after the completion of the EIS.

5.5 Engagement with the proponent of the Queensland – Hunter Gas Pipeline

As indicated in Section 2.4 of this EIS the Applicant has engaged with Santos on numerous occasions since August 2022 (and earlier with the previous proponent of the proposed pipeline) with a view of demonstrating that the Bluestone Hardrock Quarry Project and the Queensland-Hunter Gas Pipeline Project can co-exist. A Pipeline and Quarry Co-Existence Assessment prepared by Bluestone Hardrock, documenting the form and content of the engagement with Santos, issues raised and a response to each, is contained in Appendix V.

Information provided to Santos by Bluestone Hardrock included a proposed route re-alignment or route change request (RCR) along the northern and eastern boundaries of the Project site as illustrated in Figure 9. The objective of the RCR is to reduce overlap between the pipeline corridor and the quarry extraction area, maintain appropriate separation between blasting activities and pipeline infrastructure, and enable both developments to proceed without sterilising the quarry resource.

Other alternatives that would ensure the co-existence of the two projects include a route-re-alignment of the pipeline to along the western boundary of Lot 904 DP 1061259 and through lower elevated terrain within Lot 903 DP 1061259 through to the eastern boundary of the Project site. The use of deep under boring methods for construction of the gas pipeline, thus maintaining the current alignment whilst not sterilizing the extractive resources of the site, could also be a possible alternative arrangement. As demonstrated in Appendix V, Bluestone Hardrock has made reasonable attempts to engage and where appropriate negotiate with Santos to enable both projects to co-exist without conflict. A feasible alternative alignment has been identified that would avoid sterilisation of the resource, and enable both projects to proceed.

Despite the extended period of engagement with Santos, the Queensland-Hunter Gas Pipeline Project remains subject to ongoing extensions of Authority to Survey (ATS), with Santos recently seeking a further extension. This continued lack of certainty reinforces that the pipeline alignment and associated land use outcomes are not yet finalised.

In this context, the proposed pipeline represents a conflicting and unconfirmed land use over the Bluestone Hardrock Quarry site. Until such time as a registered easement is secured in favour of the pipeline, the legal rights and interests of the land remain unchanged. Accordingly, the pipeline should not be afforded determinative weight in constraining the development of the quarry resource.

Given the absence of a finalised alignment, unresolved Route Change Request, and lack of secured tenure, it is both reasonable and appropriate that the proposed quarry be assessed on its merits, with due consideration given to achieving a practical and evidence-based coexistence outcome in accordance with the relevant planning framework.

5.6 Engagement with the Operators of Elderslie Airport

The applicant sent an email to the operators of Elderslie Airport on 23 June 2025 and subsequent phone call follow ups were made. To date no response from the organisation has been received.

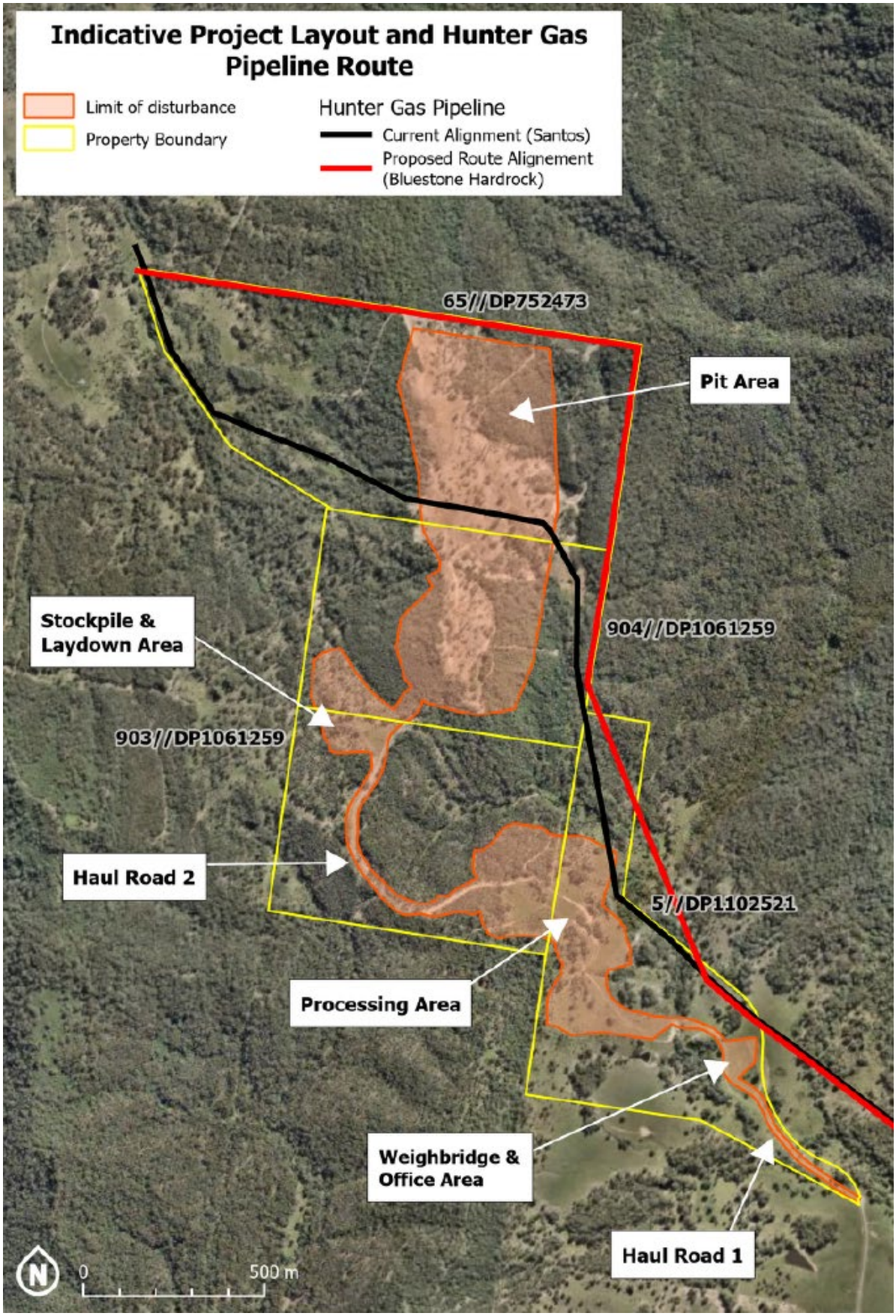


Figure 9 Proposed QHGP route re-alignment

Source: Bluestone Hardrock and Spatial Lab

5.7 Issues raised during Stakeholder Engagement

As identified within the SIA for the Project, the key matters raised by the community during engagement included:

- Frustration because of traffic queuing (at Elderslie Bridge) and delays.
- Road pavement deterioration from Project related heavy vehicles.
- Potential property access and egress difficulties along the haul route.
- Airborne diesel particles and silica dust, and respiratory illness.
- Effects of vegetation clearing for the quarry area and potential loss of trees and effect on native animal habitats.
- Project's potential to reduce road user safety – pedestrians and cyclists including school children.
- Increases in heavy-vehicle traffic could affect perceived and actual safety for non-motorised users, potentially discouraging active transport, outdoor recreation and independent mobility for young people.
- Blasting (short-duration high-intensity sound and vibration) will startle residents and animals, disrupt activities and generate anxiety about structural damage or safety.
- Concern about engine noise, braking, gear changes and physical impacts between trucks and road surfaces, particularly during early morning periods, along the haul route.
- Water pollution (surface water runoff and groundwater pollution).
- Potential visual exposure to the quarry site.
- Increased heavy-vehicle traffic may deter customers from travelling to or through the area, especially where routes become congested, perceived as unsafe, or less pleasant to drive.
- Reduced amenity associated with Project related noise, dust, traffic and visual intrusion may diminish the desirability of living in the area and therefore affect property values.
- The project may create local employment and commercial opportunities (e.g. suppliers and contractors).
- Population growth across the Hunter Region will drive demand for housing, infrastructure and services. Development and mining operations require aggregate.

5.8 Refinements to the Project resulting from Engagement Feedback

Consideration of the issues identified in Section 5.7 above and the SIA contained within Appendix Q has enabled refinement to the Project. Perceived impacts relating to reduction in visitation to businesses within the area from customers travelling to the area or from customers from the area is noted. Consequently, haulage from the development site on a Saturday will not be carried out and hours of operation for haulage of product on Mondays through to Fridays will be reduced. The EIS and SSD therefore is seeking the following with respect to haulage from the development site.

- 6.30am to 4pm (Monday to Friday).
- No haulage on Saturday, Sunday or a Public Holiday.

5.9 Future Engagement

Stakeholders have been engaged as part of the EIS preparation process and feedback has informed the designs and technical studies undertaken for the Project.

Once the EIS is submitted to DPIE, it will be placed upon exhibition for 28 days. During the exhibition phase, feedback on the project is encouraged from stakeholders. DPIE is responsible for notifying surrounding neighbours and will advertise the exhibition period. Community members will have the ability to make a formal submission on the proposal to DPIE and will be considered as part of the EIS determination. Responses to submissions will then be compiled in a submission report following closure of the exhibition period, and provision of the feedback received by DPIE to Bluestone Hardrock. The submissions report will help the community, councils and government agencies understand how the issues they raised have been addressed by Bluestone Hard and allow the determining authority to further evaluate the merits of the project prior to deciding whether to grant approval for the project.

Beyond the response to submissions, Bluestone Hardrock will continue to provide information to the community and stakeholders about ongoing activities including project updates at key stages. Should the project be successful in gaining approval, consultation will be ongoing throughout the construction and operation of the quarry as required by the conditions of consent and DPIEs Undertaking Engagement Guidelines for State Significant Projects.

6 Environmental Impact Assessment

The SEARs identify the need to undertake an assessment of potential environmental risks as part of the EIS. This section describes how the matters identified in the SEARs have been assessed. Key impacts, outcomes and mitigation measures are summarised in the following sections. Mitigation measures have been identified to minimise, avoid and manage predicted impacts. A consolidated list of all mitigation measures contained in this EIS is provided in Appendix D.

6.1 Biodiversity

A Biodiversity Development Assessment Report (BDAR) has been prepared by Wedgetail Consulting and is provided as Appendix F.

6.1.1 Methodology

The BDAR assesses the potential impact of the project on terrestrial and aquatic biodiversity under the BC Act, the *Fisheries Management Act 1994 (*FM Act) and the Commonwealth *Environmental Protection and Biodiversity Act 1999* (EPBC Act), describes biodiversity offset requirements under the Biodiversity Assessment Method (BAM) (DPIE 2020), and recommends measures to minimise impacts.

6.1.2 Existing Environment

The Project site is situated on an undulating ridgeline within the western foothills of Tangory Mountain, with an elevation ranging from 80m in the southern extent to 220m in the north. The ephemeral Blind Creek and Stewarts Creek are adjacent to the Project site and several unnamed, drainage lines intersect the Project site. Large portions of the Project site have been historically cleared, with vegetation mostly consisting of regrowth. The nearest waterway offering a permanent, year-round water supply is the Hunter River, located 2.5km south.

The native vegetation mapped across the site has been assigned to seven distinct Vegetation Zones (VZs) associated with three Plant Community Types (PCTs) as follows:

- 1.65 ha of PCT 3244: Lower North Spotted Gum - Mahogony - Ironbark Sheltered Forest (Forest) VZ1.
- 22.21 ha of PCT 3315: Central Hunter ironbark - Spotted Gum Forest (Forest) VZ2.
- 9.39 ha of PCT 3315: Central Hunter ironbark - Spotted Gum Forest (Managed) VZ3.
- 6.94 ha of PCT 3315: Central Hunter ironbark - Spotted Gum Forest (High Weed) VZ4.
- 10.92 ha of PCT 3315: Central Hunter ironbark - Spotted Gum Forest (Derived Native Grassland) VZ5.
- 8.16 ha of PCT 3315: Central Hunter ironbark - Spotted Gum Forest (Exotic Pastures) VZ6.
- 0.01 ha PCT 4073 Lower North Hinterland River Oak Forest (Forest) VZ7.

The seven distinct Vegetation Zones are mapped in Figure 10.

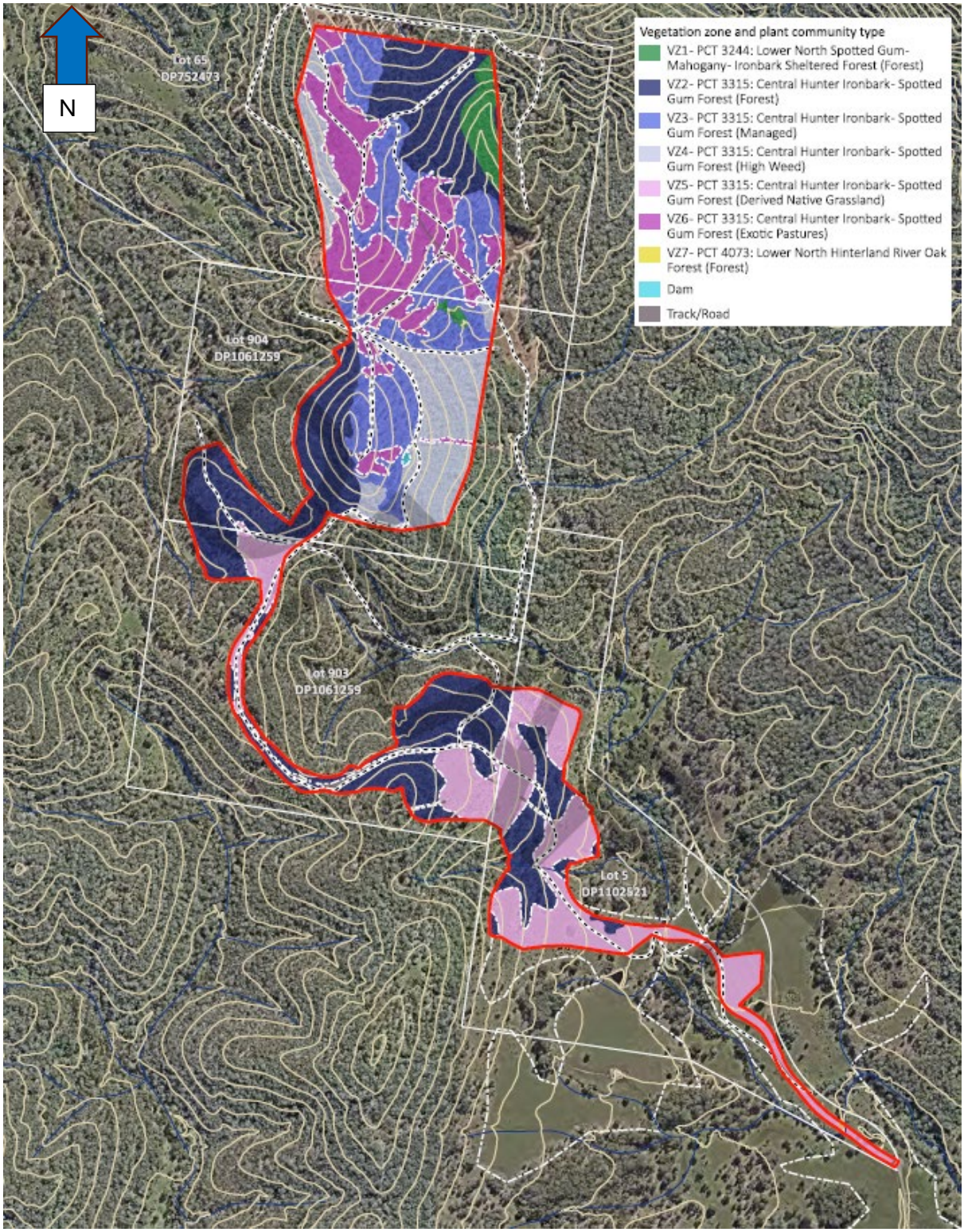


Figure 10 Mapped Vegetation Zones within the Project Site

Source: Wedgetail Consulting

6.1.3 Assessment of Impacts

The Project will impact vegetation commensurate with two Threatened Ecological Communities (TEC) listed under the BC Act and the EPBC Act, being:

- 38.55ha of PCT 3315: Central Hunter ironbark - Spotted Gum Forest associated with the NSW Central Hunter Ironbark-Spotted Gum-Grey Box Forest in New South Wales North Coast and Sydney Basin Bioregions (Equivalent) listed as endangered under the BC Act 2016.
- 31.60ha of PCT 3315: Central Hunter ironbark - Spotted Gum Forest associated with the Central Hunter Valley Eucalypt Forest and Woodland (Part) listed as critically endangered under the EPBC Act.

Targeted threatened species surveys identified 11 threatened species within the Project site. Of these, all are listed under the BC Act and include:

- Large-eared Pied Bat (*Chalinolobus dwyeri*) – This species was recorded at four Anabat™ locations (A1, A2, A3, A4), within the Project site. The species is a Species Credit Species and there is foraging habitat for the species within 2 km of associated cliffs or escarpments. As such, a species polygon and credit obligation is required.
- Little Bent-winged Bat (*Miniopterus australis*) – This species was recorded at two Anabat™ locations within the Project site (A1, A2). This species is a dual credit species: an ecosystem credit species for foraging habitat and a Species Credit species for breeding habitat. No breeding habitat is present within the Project site, as such there is no species credit obligation.
- Southern Myotis (*Myotis macropus*) – This species was recorded at three Anabat™ locations (A1, A2, A3), within the Project site. The species is a Species Credit Species and there is foraging habitat for the species within the Residential Area (200 m buffer from waterbodies with >3m of open water). As such, a species polygon and credit obligation is required.
- Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris*) – An Ecosystem Credit species that was recorded via Anabat™ (A1, A2, A3, A4).
- Eastern False Pipistrelle (*Falsistrellus tasmaniensis*) – An Ecosystem Credit species that was recorded via Anabat™ (A2).
- Greater Broad-nosed Bat (*Scoteanax rueppellii*) – An Ecosystem Credit species that was recorded via Anabat™ (A1, A4).
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*) – This species was recorded at two Anabat™ locations within the Project site (A2, A3, A4). This species is a dual credit species: an ecosystem credit species for foraging habitat and a Species Credit species for breeding habitat. No breeding habitat is present within the Project site, as such there is no species credit obligation.
- Brush-tailed Phascogale (*Phascogale tapoatafa*) – This species was recorded by remote camera within the Project site (Cameras 31, 65). The species is a Species Credit Species and the Project site provides suitable habitat. As such, a species polygon and credit obligation is required.
- Squirrel Glider (*Petaurus norfolcensis*) – This species was recorded by remote camera within the Project site (Cameras 32, 40, 42, 64, 73, 74, 82, 87, 89, 90). The species is a Species Credit Species and the Project site provides suitable habitat. As such, a species polygon and credit obligation is required.

- Grey-headed Flying Fox (*Pteropus poliocephalus*) – This species was recorded during spotlighting surveys flying over the Project site. No breeding camps were found to occur within the Project site so no species polygons were created.
- Powerful Owl (*Ninox strenua*) – This species was recorded during call playback surveys within the Project site. This species is a dual credit species: an ecosystem credit species for foraging habitat and a Species Credit species for breeding habitat. Potential breeding habitat is present within the Project site, as such there is a species credit obligation.

Of the above listed species, two are also listed under the EPBC Act, being the Large eared Pied Bat and the Grey-headed Flying Fox.

The current proposed layout of the quarry and associated infrastructure has undergone an iterative design process, taking into consideration engineering, surface water, traffic and transport and biodiversity values. Avoidance of impacts on native vegetation, fauna habitats watercourses and other biodiversity values have been taken into consideration in the design. Avoidance and impact minimisation measures, include:

- Minimising impacts to better-quality vegetation.
- Avoidance of Biodiversity Values land.
- Haul roads have been located to utilise existing tracks and fire trails within the property, minimising the level of impact for road construction.
- Avoidance of nine waterbodies (dams and creek lines) that provide suitable foraging habitat for *Southern Myotis*.
- Avoidance of 20 hollow-bearing trees providing potential habitat for the hollow dependent threatened species.

Koala and Koala Habitat

An assessment of the potential impact of the Project upon koalas / koala habitat was undertaken as part of the fieldwork associated with the BDAR. Koalas were not present during fieldwork and the Project site was considered unsuitable koala habitat. The BDAR concluded that no further assessment for the presence of koalas and potential habitat was required.

Serious and Irreversible Impacts

An impact is to be regarded as serious and irreversible if it is likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct.

No TECs recorded on site are listed as SAII entities. One threatened species detected within the Project site is listed as an SAII entities, being the Large-eared Pied Bat. Impacts to breeding habitat could be considered a potential SAII. Presence of this species alone, with the absence of breeding habitat, does not constitute a potential SAII. Potential breeding habitat for this species is situated well outside (>500 m) of the Project site to the north-east, within the adjacent Tangory Nature Reserve. No other suitable breeding habitat is present within the Project site or within 100 m. As such, there is no potential for an SAII on this species and further assessment of SAII provision is not required.

Biodiversity Offsets

The Project will require the removal of 59.30ha of native vegetation and associated fauna habitat, including 11 hollow-bearing trees. Direct residual impacts on native vegetation (by PCT) within the Project site, after steps are taken to avoid and minimise impacts, are detailed in Table 15 (Ecosystem Credits) and Table 16 (Species Credits).

Table 15 Impacts that require an offset – Ecosystem Credits

VZ	VZ Code	PCT Name	TEC	No of Credits required	HBT Credits
1	3244_Forest	3244 Lower North Spotted Gum – Mahogany -Ironbark Sheltered Forest	No	30	No
2	3315_Forest	3315 Central Hunter Ironbark Spotted Gum Forest	Yes BC EPBC	660	Yes
3	3315_Managed	3315 Central Hunter Ironbark Spotted Gum Forest	Yes BC EPBC	128	Yes
4	3315_HighWeed	3315 Central Hunter Ironbark Spotted Gum Forest	Yes BC	168	Yes
5	3315_DNG	3315 Central Hunter Ironbark Spotted Gum Forest	No	169	No
7	4073_Forest	4073 Lower North Hinterland River Oak Forest	No	1	No

Table 16 Impacts that require an offset – Species Credits

Common name	Scientific name	Loss of habitat(ha) or individuals	No of Credits Required
Large-eared Pied Bat	*Chalinolobus dwyeri*	59.3	1782
Southern Myotis	*Myotis macropus*	30	644
Powerful Owl	*Ninox strenua*	6.9	168
Squirrel Glider	*Petaurus norfolcensis*	40.2	996
Brush-tailed Phascogale	*Phascogale tapoatafa*	34.4	823

As the Project will be staged, refer to Section 3.3.17, the proportionate credit obligation has been calculated for each stage according to the relative area of impact on each VZ and species polygon. Table 17 on the following page provides the credit requirements associated with the impacts of each Project stage.

Table 17 Staged Offset Requirements for the Project

Credit	Stage 1	Stage 2	Stage 3	Stage 4	Total
PCT 3244 Lower North Spotted Gum – Mahogany -Ironbark Sheltered Forest	0	30	0	0	30
PCT 3315 Central Hunter Ironbark Spotted Gum Forest (TEC)	149	448	304	55	956
PCT 3315 Central Hunter Ironbark Spotted Gum Forest (non-TEC)	79	76	8	6	169
PCT 4073 Lower North Hinterland River Oak Forest	1	0	0	0	1
Chalinolobus dwyeri / Large-eared Pied Bat	451	850	395	86	1782
Myotis Macropus / Southern Myotis	122	284	221	17	644
Ninox strenua / Powerful Owl	0	50	118	0	168
Petaurus norfolcensis / Squirrel Glider	149	488	304	55	996
Phascogale tapoatafa / Brush-tailed Phascogale	149	488	304	55	996

EPBC Act Consideration

On 26 March 2026, the Project was determined to be a controlled action, requiring approval under the EPBC Act (EPBC 2026/10452) for likely impacts to listed threatened species. The controlling provision for the controlled action is "listed threatened species and communities (Sections 18 and 18A)". The proposed action has been assessed in accordance with the Supplementary SEARs contained in Appendix A. Impacts to the following Matters of National Environmental Significance (MNES) were considered in the MNES Assessment, refer to Appendix G:

a) Central Hunter Valley eucalypt forest and woodland threatened ecological community (CHV TEC) – critically endangered ecological community

b) Large-eared Pied Bat (Chalinolobus dwyeri) – Endangered

c) Grey-headed Flying-fox (Pteropus poliocephalus) – Vulnerable

d) Koala (Phascolarctos cinereus) (combined populations of Qld, NSW and the ACT) – Endangered

e) Regent Honeyeater (Anthochaera phrygia) – Critically endangered

f) Swift Parrot (Lathamus discolor) – Critically endangered

g) Brown Treecreeper (south-eastern) (Climacteris picumnus victoriae) – Vulnerable; and

h) Spotted-tailed Quoll (Dasyurus maculatus) – Endangered.

The MNES assessment states that a total of three (3) threatened species listed under the EPBC Act were recorded within the Disturbance Footprint, including:

- Central Hunter Valley Eucalypt Forest and Woodland - listed as Critically Endangered Ecological Community (CEEC).
- Large-eared Pied Bat (*Chalinolobus dwyeri*) – species recorded by Anabat and foraging habitat present within the Disturbance Footprint.
- Grey-headed Flying Fox (*Pteropus poliocephalus*) – species recorded flying overhead and foraging habitat present within the Disturbance Footprint.

Impact to the Central Hunter Valley Eucalypt Forest and Woodland are likely to constitute a controlled action. Referral under the EPBC act is recommended by the MNES Assessment.

No other threatened species listed under the EPBC Act were recorded during surveys undertaken. However, the native vegetation to be removed does represent potential foraging habitat for some EPBC Act fauna species that were not required to be specifically surveyed as part of the BDAR process. Examples include Regent Honeyeater, Brown Treecreeper, Spotted-tailed Quoll and Swift Parrot. However, existing survey efforts provide a high likelihood of detection for species. As these species are also listed as threatened in NSW under the BC Act, impacts on these species, namely removal of potential foraging habitat for mobile threatened fauna, have been addressed through application of the BAM Credit Calculator and calculation of ecosystem credit offset requirement, which is detailed in the BDAR.

Other indirect or prescribed impacts

Prescribed impacts have been avoided and minimised through locating and designing the proposal in the following ways:

- The proposal avoids impacts to nine waterbodies (dams and creek lines) that provide suitable foraging habitat for Southern Myotis.
- Design of the watercourse / drainage line crossings will be consistent with the NSW Department of Planning Environment Fact Sheet, Controlled activities – Guidelines for watercourse crossings on waterfront land, to minimise changes to hydrology and maintain natural functioning of the watercourses.
- Sediment and erosion control measures consistent with Managing Urban Stormwater: Soils and Construction (the Blue Book) will be adopted to minimise erosion, sedimentation and nutrient loads in runoff.
- 30 km/h speed limit imposed throughout the project site will minimise vehicle strike on threatened and common species.

6.1.4 Avoidance, Minimisation and Mitigation Measures

As mentioned in Section 6.1.3 the current proposed layout of the quarry and associated infrastructure has undergone an iterative design process in order avoid and minimise direct and indirect impacts. However, the Project's ability to avoid impacts to biodiversity is restricted by the location of the resource, with complete avoidance being impractical if the opportunity to provide a reliable and affordable supply of hardrock quarry product to the local market is to be met.

The following mitigation measures will be implemented.

- Design of the watercourse / drainage line crossings will be consistent with the NSW Department of Planning Environment Fact Sheet, *Controlled activities – Guidelines for watercourse crossings*

on waterfront land, to minimise changes to hydrology and maintain natural functioning of the watercourses.

- Sediment and erosion control measures consistent with *Managing Urban Stormwater: Soils and Construction* (the Blue Book) will be adopted to minimise erosion, sedimentation and nutrient loads in runoff.
- Speed limits should be set to 30km per hour on internal roads and tracks.

6.2 Noise and Blasting

A Noise Impact Assessment (NIA) has been prepared by Muller Acoustic Consulting and is contained in Appendix H.

6.2.1 Methodology

The NIA was undertaken in accordance with the Project SEARs and in accordance with the following documents.

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI) 2017;
- NSW Department of Environment and Climate Change (DECCW) – NSW Interim Construction Noise Guideline (ICNG), July 2009;
- NSW Department of Environment, Climate Change and Water (DECCW) – NSW Road Noise Policy (RNP), March 2011;
- Australian Standard AS 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures;
- International Organisation for Standardisation (ISO) 9613-1:1993 (ISO9613:1) – Acoustics - Attenuation of Sound During Propagation Outdoors - Part 1: Calculation of the Absorption of Sound by the Atmosphere;
- International Organisation for Standardisation (ISO) 9613-2:1996 (ISO9613:2) – Acoustics - Attenuation of Sound during Propagation Outdoors - Part 2: General Method of Calculation;
- ISO/TR 17534-3 - Acoustics — Software for the calculation of sound outdoors — Part 3: Recommendations for quality assured implementation of ISO 9613-2 in software according to ISO 17534-1.
- Australia and New Zealand Environment Council (ANZEC) Guideline – Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration (ANZEC Guideline), September 1990; and
- Standards Australia AS2187.2-2006 (AS2187.2) – Explosives—Storage and Use Part 2: Use of Explosives.

6.2.2 Existing environment

A review of residential receivers in proximity to the Project has been completed and a locality plan showing the position of the receivers is provided in Figure 3 contained in Section 2 of this EIS. The Description and Receiver Type of the identifier receivers is summarised in the following table.

Table 18 Receiver locations, description and type.

Receiver	Description	Receiver Type
R01	169 Springvale Road	Rural Residential
R02	178 Springvale Road	Rural Residential
R03	159B Crank Corner Road	Rural Residential
R04	199 Springvale Road	Rural Residential
R05	209 Springvale Road	Rural Residential
R06	122 Springvale Road	Rural Residential
R07	Lot 49 Blind Creek Road	Rural Residential
R08	118 Blind Creek Road	Rural Residential
R09	Lot 52 Blind Creek Road	Rural Residential
R010	109 Blind Creek Road	Rural Residential
C01	Hunter Pet Motel	Commercial

6.2.3 Assessment

The NIA has quantified project related noise emissions from construction activities and operations including extraction, haulage, processing and road traffic.

Construction Noise and Vibration

Construction activities will predominantly consist of clearing and earthworks, which would be the most intense works undertaken using equipment of significant noise emission. Hence, the construction noise assessment has considered a worst-case assessment of bulk earthworks occurring at various locations across the project site – weighbridge area, stockpile area, processing plant area and pit. Predicted noise levels indicate that construction activities satisfy the project specific construction noise levels. The key vibration generating source proposed to be used is a vibratory roller used for road construction. For a large vibratory roller, a safe working distance of 100m to achieve the residential human response criteria for continuous vibration was adopted. The nearest receivers to the project are greater than 100m, human exposure to vibration is anticipated to be minimal. Furthermore, where the human response criteria are satisfied, the structural or cosmetic criteria for sensitive receivers will be achieved. Vibration impacts during construction are not considered to be significant.

Operational Noise and Vibration

In assessing maximum noise events, typical LAmax noise levels from transient events were assessed at the nearest residential receivers. For the maximum noise level assessment, a sound power level of 112dBA representative of material falling into an empty truck bed was adopted for maximum noise level (LAmax) events during the night (morning shoulder) period. Results identify that the maximum noise trigger levels will be satisfied for all assessed receivers.

A review of noise contours demonstrates that predicted project noise levels do not exceed the Voluntary Land Acquisition and Mitigation Policy (VLAMP) criteria (40dB LAeq(15min) daytime or 35dB LAeq(15min) evening and night time) at any receiver location. Additionally, predicted project noise levels do not exceed the VLAMP criteria (55dB LAeq(period) 50dB LAeq(period) evening and 45dB LAeq(period) night time) on any privately owned vacant lands. Mitigation measures and/or acquisition rights are not applicable in this instance.

Furthermore, sleep disturbance is not anticipated during the morning shoulder period between 5am and 7am, as emissions from maximum noise events are predicted to satisfy the maximum noise trigger levels.

Road noise emissions associated with the project are anticipated to satisfy the relevant Road Noise Policy (RNP) criteria at all receivers along the proposed transportation route.

Blasting emissions are predicted to meet the required blasting emission criteria at the closest receivers for blasts up to 250kg MIC.

6.2.4 Mitigation measures

The Noise Impact Assessment identifies that project-related noise emissions during construction and during operation (including blasting and road related noise) would satisfy all relevant and applicable criteria resulting in negligible noise impacts at surrounding receivers. Accordingly, no design-based mitigation measures are recommended.

6.3 Air Quality and Greenhouse Gas

An Air Quality Impact and Greenhouse Gas Assessment (AQIGHGA) has been prepared by Todoroski Air Sciences and is contained in Appendix I.

6.3.1 Methodology

The AQIGHGA was prepared in general accordance with the NSW EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (Approved Methods*) (NSW EPA, 2022). The greenhouse gas (GHG) assessment has been prepared in general accordance with the *NSW Guide for Large Emitters* (NSW EPA, 2025).

6.3.2 Existing environment

The Cessnock Airport Automatic Weather Station (AWS) weather station is the nearest Bureau of Meteorology (BoM) weather station with suitable available long-term data used to select the meteorological year for the dispersion modelling.

Data indicates that on average, January is the hottest month with a mean maximum temperature of 30.4 degrees Celsius (ºC) and July is the coldest month with a mean minimum temperature of 4.1ºC.

Rainfall levels are elevated in the summer months compared to the other seasons. The data shows February is the wettest month with an average rainfall of 100.7 millimetres (mm) over 8.1 days and August is the driest month with an average rainfall of 34.1mm over 4.4 days. The annual average rainfall is 738.7mm over 74.8 days.

Mean 9am relative humidity ranges from 60% in October to 80% in March and June. Mean 3pm relative humidity levels range from 42% in August and September to 55% in June.

Wind speeds exhibit seasonal variations with lower wind speed records for 9am and higher observations for 3pm conditions. Mean 9am wind speeds range from 8.7 kilometres per hour (km/h)

in March to 14.0km/h in September. Mean 3pm wind speeds range from 14.2km/h in May to 19.1km/h in September.

The Cessnock Airport AWS windroses indicate that, on an annual basis, winds typically occur from the northwest and north-northwest, with opposing winds ranging from the east-southeast to southwest. During summer, winds are generally distributed from the east-southeast to south. In autumn, winds from the south-southwest are most predominant. Winter distributions show winds predominately from the northwest. In spring, stronger winds tend to align along a northwest to east-southeast axis.

The Maitland Airport AWS annual windrose indicates that winds predominantly flow along a north-northwest to east axis. During summer, easterly and east-southeastly winds are most prominent. The autumn and spring windroses resemble the annual distribution, with frequent winds from the north-northwest and east. In winter, the winds from the north-northwest dominate.

The main sources of particulate matter in the area surrounding the Project include agricultural activities and emissions from local anthropogenic activities such as motor vehicle exhaust, vehicles on unsealed roads and domestic wood heaters. Events such as bushfires and dust storms are also a potential source of air pollution in the surrounding area.

Available ambient monitoring data collected from the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) Singleton South and Beresfield air quality monitoring stations for the 2015 to 2024 period have been reviewed to quantify the background levels for the Project site.

6.3.3 Assessment

The dispersion model predictions from the AQIGHGA include those for the operation of the Project in isolation (incremental impact) and with consideration of background air quality levels (total impact). The results show the predicted:

- Maximum 24-hour average PM2.5 and PM10 concentrations;
- Annual average PM2.5, PM10 and TSP concentrations; and,
- Annual average dust (insoluble solids) deposition rates.

The potential impacts due to the Project, extending over more than 25% of any privately-owned adjacent land, have been evaluated using predicted pollutant dispersion contours. Figure 11 and Figure 12 presents contours for the criteria level concentrations of the relevant dust metrics. Based on the isopleths in these figures, the predicted dust levels do not extend over more than 25% of the privately-owned landholdings. The results indicate that the Project and approved operations would not result in any exceedances of the criteria for PM2.5, PM10, TSP or dust deposition at any privately-owned receptor due to emissions from the Project, or with consideration of other sources and background air quality levels. Nevertheless, the Project would apply appropriate air quality management measures to minimise air emissions from the site.

To ensure that activities associated with the Project have a minimal effect on the surrounding environment and at residential receptor locations, it is recommended that all reasonable and practicable dust mitigation measures be utilised.

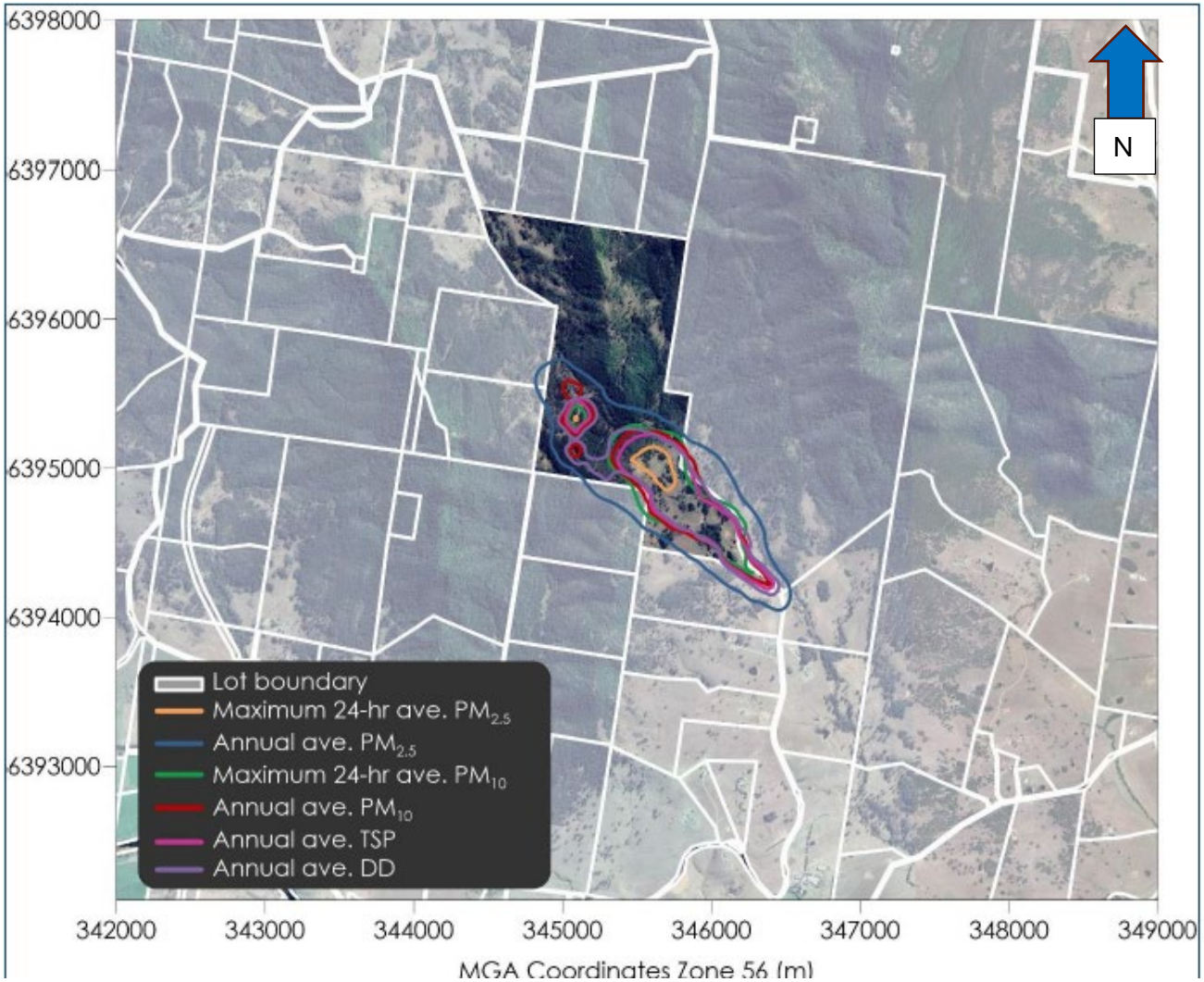


Figure 11 Predicted dust concentrations due to emissions from the Project in Scenario 1

Source: Todoroski

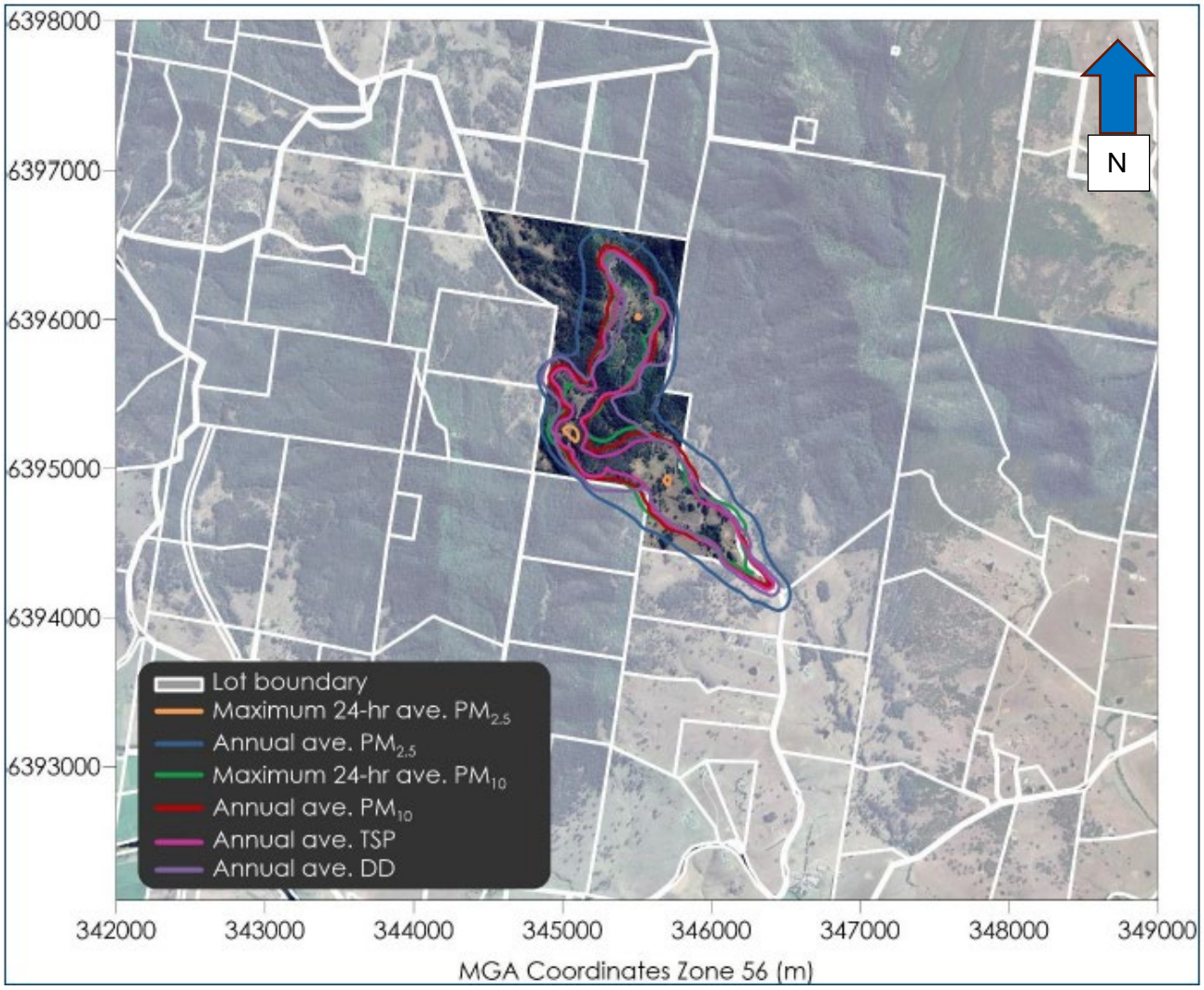


Figure 12 Predicted dust concentrations due to emissions from the Project in Scenario 2

Source: Todoroski

Greenhouse Gases

The estimated annual average greenhouse gas emission for the Project is 0.005 Mt CO2-e (Scope 1), which is calculated to be approximately 0.001% of the Australian GHG emissions for the period to June 2024 and approximately 0.005% of the NSW GHG emissions for the 2022 period.

6.3.4 Mitigation Measures

The proposed operations at the Project have the potential to generate dust emissions. To ensure that activities associated with the Project have a minimal effect on the surrounding environment and at residential receptor locations, it is recommended that all reasonable and practicable dust mitigation measures be utilised. The following mitigation measures are recommended.

- Activities to be assessed during adverse weather conditions and modified as required (e.g. cease activity where reasonable levels of dust cannot be maintained using the available means).
- Weather forecast to be checked prior to undertaking material handling or processing.
- Engines of on-site vehicles and plant to be switched off when not in use.
- Vehicles and plant are to be fitted with pollution reduction devices where practicable.
- Vehicles are to be maintained and serviced according to manufacturer's specifications.
- Visual monitoring of activities is to be undertaken to identify dust generation.
- The extent of exposed surfaces and stockpiles is to be kept to a minimum.
- Exposed areas and stockpiles are either to be dampened with water as far as is practicable if dust emissions are visible, or there is potential for dust emissions outside operating hours.
- Reduce drop heights from loading and handling equipment where practical.
- Dampen material when excessively dusty during handling.
- Haul roads should be watered using water carts such that the road surface has sufficient moisture to minimise on-road dust generation but not so much as to cause mud/dirt track out to occur.
- Regularly inspect haul roads and maintain surfaces to remove potholes or depressions
- Driveways and hardstand areas to be swept/cleaned regularly as required etc.
- Vehicle traffic is to be restricted to designated routes.
- Speed limits are to be enforced.
- Vehicle loads are to be covered when travelling off-site.
- An Air Quality Management Plan be prepared for the site. The Air Quality Management Plan would include a specific chapter which outlines the measures to manage dust emissions at the site and include aspects such as monitoring, key performance indicators, response mechanisms, and complaints management.

The following greenhouse gas mitigation measures are recommended.

- Ongoing monitoring of the fuel efficiency and maintenance of diesel equipment is to occur.
- Explore optimising conditions for fleet operations.
- Conduct energy awareness programs for staff.
- Minimise the production of waste generated on-site.

- Regular review of alternative renewable energy sources is to occur.

6.4 Water Resources

A Water Resources Assessment (WRA) has been undertaken by Martens and Associates and is provided in Appendix J. The WRA has been prepared with consideration of the following documents also prepared by Martens and Associates.

- Hydrogeological Impact Assessment – contained in Appendix M.
- Geotechnical and Pit Staging Assessment – contained in Appendix N.
- Resource Feasibility Assessment - contained in Appendix Y.

6.4.1 Methodology

The scope of works adopted for the WRA include:

- Describe existing site features including surface water catchments, flow pathways and drainage features on and around the site.
- Provide an assessment of watercourses potentially impacted by the proposal.
- Describe the proposed surface water management system including surface water flow mitigation measures, sediment control infrastructure, drainage
- systems, and water treatment measures, sediment basin, culvert crossing, etc.
- Assess effectiveness of proposed stormwater quality measures and anticipated treatment train.
- Assess site water demands, water supply strategies and site water balance.
- Document preliminary flood impact assessment findings and outcomes.
- Preparation of an operations monitoring plan.

6.4.2 Existing environment

The site and surrounding area is underlain by the following geological units:

- Grey andesitic and red rhyodacitic ignimbrite / tuff (pyroclastic rock) of the Breckin Ignimbrite Member (Cgimb) associated with the Mowbray Formation / Gilmore Volcanic Group.
- Blue grey, red mottled welded andesitic ignimbrite with minor interbeds of beige to grey dacitic ignimbrite / tuff (pyroclastic rock) of the Martins Creek Ignimbrite Member (Curim) associated with the Isismurra Formation.
- Red to purple lithic sandstone, red, purple or green siltstone, pebble conglomerate (agglomerate) with interbedded rhyolitic and rhyodacitic ignimbrite and / or tuff (siliciclastic sedimentary rock) of the Newton Formation (Cgin) associated with the Gilmore Volcanics Group.

The site is located within the Huter River catchment. Onsite drainage occurs via a combination of direct soil infiltration (where permeability allows) and overland flow to existing dams and drainage lines.

The site flows to several mapped watercourses including northwards towards Gamblers Gully, northwest towards Blind Creek, southeast to Stanhope Creek and southwest to Stewarts Creek. All creeks eventually tributaries of Hunter River. Data indicate that water quality within the local creek system is within the ranges expected for rural NSW which have been partly cleared and subject to historical grazing and other rural or farming activities.

The Project site has an existing groundwater entitlement currently accessible by the proponent (WC, 2024). The existing water access licence (WAL) has a nominal volume of 60 ML (WAL 13856).

6.4.3 Assessment

Watercourse Assessment

Whilst there are a number of 1st, 2nd and 3rd order watercourses within the Project site, except where the internal access road requires the watercourse to be crossed, the development footprint will not interfere with natural watercourses.

The development footprint will not encroach into the proposed riparian corridor buffers which are in accordance with the NSW DCCEEW (2025) recommended ranges, thereby ensuring the long-term integrity of these corridors.

The proposed pit has been located to avoid significant adverse impacts on water quality, bed and bank stability, aquatic and riparian habitats, and ecological processes in accordance with Clause 7.6 (Riparian Land and Watercourses) of the SLEP 2013.

Surface Water

Sediment and erosion control principles in accordance with Landcom (2004) *Managing Urban Stormwater: Soils and Construction* (the Blue Book) will be adopted by the Quarry surface water management strategy to ensure the management of water during construction and operation has minimal impact on the receiving environment.

Clean water runoff upstream of the Quarry is to be managed through upstream diversion channels/bunds.

Dirty water is to be managed through the following sediment and erosion control principles:

- Roadside channels included along the haul roads to management road runoff.
- Catch drains/channels included at the perimeter of the management areas to direct stormwater runoff to sediment basins.
- Sediment basins to collect and treat runoff from the Pit, the stockpile area, the processing Area (separated into areas ‘A’ and ‘B’), and the office area. Sediment basins will be used for water supply.

Sizing for the sediment basin for the Pit has been considered at three stages (year 16, year 30 and year 50) based on the increase in surface area the basin is to service as the Quary is in operation. The sediment basins will be constructed prior to the commencement of works in each area. This approach ensures that all contaminated water generated onsite is effectively collected and treated. Water collected in the sediment basins will be reused for process water and dust suppression during construction and operation. Sediment basins have been designed based on the 95th percentile design storm event therefore overflows to nearby watercourses, which would be highly diluted, would be of a very low frequency during heavy or prolonged rainfall events.

The four existing watercourse crossings will be retained and upgraded as part of the internal haul road design. Design of watercourse crossings will achieve the following outcomes in line with 2022 NSW Department of Planning and Environment Fact Sheet for *Controlled activities – Guidelines for Watercourse Crossings on Waterfront Lands:*

- Maintain natural geomorphic processes
- Maintain natural hydrological regimes.

- Protect against scour.

All watercourse crossings are to include energy dissipation measures to avoid any consequent erosion in the watercourses.

Water Quality

The impact of the proposal on surface water quality has been assessed using water quality modelling to represent land use activities at varying times during the operations and evaluating the performance of the stormwater treatment train against key water quality criteria. The adopted water quality control criteria are derived from the Singleton DCP, which notably does not provide water quality management criteria for rural lands, but does however provide water sensitive urban design (WSUD) pollutant reduction targets for urban developments, which are considered appropriate to the proposal.

The MUSIC modelling results in demonstrate that the proposed stormwater treatment train achieves pollutant load reductions well above the WSUD targets at all three stages of the quarry (Years 16, 30, and a potential future 50). This confirms that stormwater treatment measures incorporated into the design are effective in managing runoff quality throughout the life of the development.

Water Balance

The water balance assessment has been prepared to assess the Quarry water supply needs and sources. The assessment was completed considering the following components:

- Water Demand: Consideration of quarry construction and operational water demands.
- Water Supply: Assessment of site water supply (surface water runoff).
- Water Balance: The balance of supply and demand is assessed based on a range of climatic conditions to determine the need for additional supply or to detail the excess water released to the environment.
- Climate change: An additional assessment has been prepared to consider the impact of climate change on the site's water balance.

The water balance assessment was completed using MUSIC modelling.

The site water balance results show that at all three stages (year 16, year 30, and a potential year 50), the site will be provided with sufficient non-potable and potable water supply from the sediment basins and rainwater tank (supplied by roof water) under all modelled scenarios including average, dry, and wet years, as well as under climate change scenarios which have been included for long-term sensitivity purposes. On this basis, it is expected that surface water collection and re-use within the site will be sufficient to meet site demands without reliance on external water tanker supply.

Flooding

The site is located in the Hunter River catchment and includes a number of tributaries of Stanhope Creek, which flows southeast towards the Hunter River.

The Project site flood study shows that the entire site and access roads are flood free in regional flood events up to and including the PMF. The regional PMF level downstream of the site is approximately 40 mAHD, approximately 20 m below the lowest areas within the Project site and access roads.

Whilst the site is not affected by flooding from the Hunter River, it is affected by overland flows from the local upstream catchment. The local catchments upstream of the site are approximately 7 ha to 250 ha, steep, and consist entirely of undeveloped grassed and forested areas. As a result, local

overland flows will be short duration, which will be largely confined to the highly channelised existing watercourses.

The proposed quarry pit, laydown, processing, and stockpile areas are located at the ridgeline of the local topography with minimal upstream catchments (<6 ha). The proposed office and weighbridge are located downstream of the local catchment, approximately 50 m from and at least 3.5m above, the adjacent watercourse, and are therefore likely to be outside the local overland flow PMF extents.

The proposed internal roads are located primarily along ridge lines with four crossings over unnamed watercourses. As the site lies entirely outside the regional flood extents, no flood behaviour impacts are anticipated on the Hunter River or its tributaries as a result of the proposed quarry and associated access roads in regional flood events.

The proposed quarry pit, laydown, processing, stockpile areas and most of the roads are situated along ridge lines, minimising exposure to any overland flows. Overland flows can be readily managed via stormwater infrastructure as described above. All watercourse crossings will be designed to convey the 1% AEP flood event and as such no offsite flood impacts are expected as a result of the proposed watercourse crossings which are all contained within the site boundary.

The proposed development will not cause detrimental offsite flood impacts.

Groundwater Impacts

A Hydrogeological Impact Assessment prepared by Martens and Associates is contained in Appendix M. The Assessment included detailed groundwater modelling with use of five (5) deep groundwater monitoring wells and revealed that groundwater within the site is generally located at considerable depth within a very low permeability aquifer. The assessment found that there would be no significant detrimental hydrogeological impacts arising from the Project, notably:

Groundwater inflows into the excavation pit are expected to low due to the low permeability of the underlying geology, reaching a peak rate of 22 kL/day after 30 years. It is expected that all groundwater inflow will be lost via evaporation or alternatively reused for site activities such as dust suppression.

Peak groundwater drawdown at the maximum pit extents (at 30 years) will be largely confined to the quarry extents and will not detrimentally impact on any other groundwater users or groundwater dependent ecosystems.

Surface water systems are unlikely to be impacted given that there is minimal interaction between surface water and groundwater, and discharge to nearby surface water bodies is unlikely.

Water quality risks from the hydrocarbons or other potential contaminant sources will be readily managed by a range of measures to ensure no contamination occurs such as: appropriate storage of materials outside of areas impacted by stormwater or groundwater inflows, storage within buildings; use of products in accordance with suppliers / manufacturer's directions; a workshop management plan; and a spill response plan.

Ongoing groundwater and surface water monitoring will be undertaken during operation of the quarry in accordance with an approved water monitoring plan that is to be prepared as part of the detailed design process during the construction certificate documentation phase. The monitoring plan will include monitoring locations, trigger levels, response actions and plans, together with reporting requirements.

Operations Monitoring Plan

A Draft Operations Monitoring Plan has been developed to ensure appropriate operation and functioning of the site sediment basins. The Quarry operation will require an EPL from NSW EPA. Any

additional water quality monitoring requirements in excess of those identified will be incorporated into to the Operations Monitoring Plan prior to construction.

6.4.4 Mitigation measure

The following mitigation measure shall be implemented.

- The Operations Monitoring Plan (OMP) is to be finalised and implemented to ensure appropriate operation and functioning of the site sediment basins during quarrying activities. The OMP is to include ongoing groundwater monitoring and will include monitoring locations, trigger levels, response actions and plans, together with reporting requirements.

6.5 Aboriginal Heritage

6.5.1 Methodology

An Aboriginal Cultural Heritage Assessment Report (ACHAR) was completed in order to identify the potential for aboriginal heritage on site. The survey of the site was completed by OzArk and representatives of Registered Aboriginal Parties (RAPs) with the assessment area situated on the western foothills of the Tangory Mountain. The assessments followed the Code of Practice for the Investigation of Aboriginal Objects in New South Wales (Code of Practice; DECCW 2010b) in regard to the archaeological assessment and Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (the Guide; OEH 2011) and the Aboriginal cultural heritage consultation requirements for proponents (ACHACRs) for the Aboriginal cultural heritage assessment.

A copy of the ACHAR is contained in Appendix K.

6.5.2 Existing environment

The moderate slopes which dominate the study area would have been hospitable to Aboriginal people, however, apart from ephemeral drainage lines and crest landforms, there are few areas within the study area which would have encouraged substantial Aboriginal occupation in the form of camping. Furthermore, slopes are a degrading landform and are unlikely to contain intact archaeological deposits.

While landforms which typically comprise outcropping rock, i.e., hills, are present within the study area, they predominantly consist of bluestone deposits which are not suitable for stone tool manufacture. Soils present on the moderate gradient slopes within the study area are likely to have been affected by water erosion and are poor draining. The erosional qualities of the soils present will have influenced the likelihood for in situ archaeological deposits being present. The landforms in the south of the study area consist of alluvial soils in association with an unnamed, ephemeral waterway.

The study area would have once supported an open woodland which would have provided some resources for Aboriginal subsistence in the past. However, resources likely to have supported a large population of people would have been present closer to the banks of more permanent water sources including the Hunter River. The broad-scale vegetation clearance which has taken place across the study area for agricultural purposes reduces the likelihood that any culturally modified trees remain present. Most of the vegetation present is likely consist of regrowth. However, should mature native vegetation remain, particularly along ridgelines, culturally modified trees may be present.

Ground surface disturbances such as vegetation clearance and grazing exist throughout the study area. These activities may have displaced Aboriginal objects and are likely to have reduced the potential for subsurface archaeological material.

6.5.3 Assessment

The Project disturbance area was inspected on foot on 14th August 2025 by OzArk with the assistance of two RAP representatives.

According to the Aboriginal Heritage Information System (AHIMS) register, one previously recorded isolated find, being # 37-6-3827 (Elderslie 2), is in the southern extent of the Project site, on the bank of an ephemeral waterway. On review of the # 37-6-3827 (Elderslie 2) site card, the site centroid is plotting incorrectly in the AHIMS register and the site is, in fact, located over 217 m away to the northeast and will not be harmed by the proposed development.

One newly recorded site, # 37-6-4640 (Lochnagar IF-1), was identified in the Project site as illustrated in Figure 13. This site is an isolated mudstone flake, located adjacent to an existing unsealed farm track. It was identified in a disturbed, secondary context from the construction of the adjacent farm track. This conforms to predictive modelling that isolated finds can be recorded anywhere, including in highly disturbed landforms.

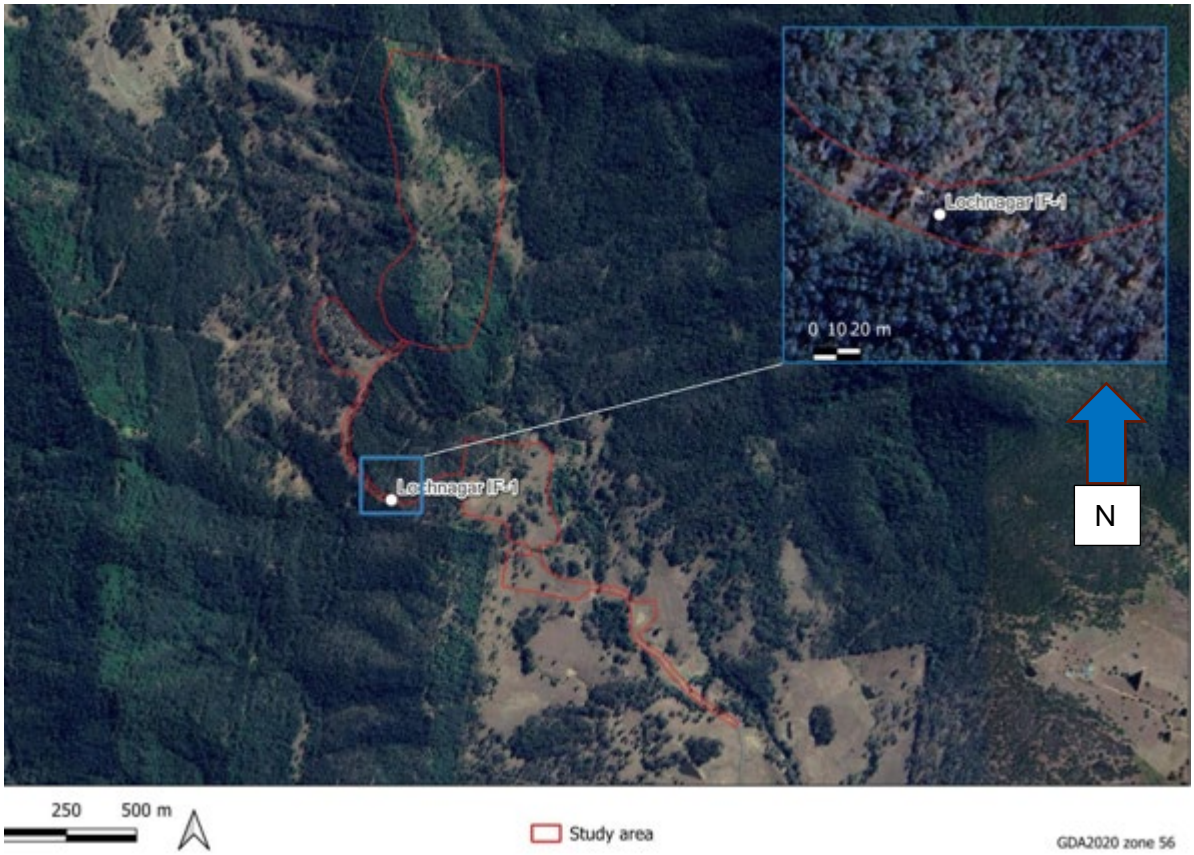


Figure 13 Location of site # 37-6-4640 (Lochnagar IF-1) in the Project site

Source: OzArk

Results of the archaeological survey align with the predictive modelling. As reflected by the low-density of artefacts present, the Project site was likely a transit zone, rather than a place of sustained and focused Aboriginal occupation. No landforms within the Project site were considered to have potential for subsurface archaeological deposits of conservation value.

6.5.4 Mitigation measures

The following mitigation measures shall be implemented.

- Prior to construction, the proponent will develop an Aboriginal Cultural Heritage Management Plan (ACHMP) which is to be prepared in consultation with the RAPs and Heritage NSW and approved by DPHI. The ACHMP will include an unanticipated finds protocol, unanticipated skeletal remains protocol, and long-term management of any Aboriginal objects.
- Surface artefact/s from # 37-6-4640 (Lochnagar IF-1) will be collected prior to construction of the project and moved to a safe location in consultation with the RAPs. The ACHMP will detail the procedures for the surface artefact collection and provide a strategy for the long-term curation of the artefacts. No further archaeological investigation is warranted at # 37-6-4640 (Lochnagar IF-1) due to the disturbed, secondary context of the site.
- A site card update must be submitted to AHIMS to record the correct location of # 37-6 3827 (Elderslie 2) at GDA2020 Zone 56, 346426E, 6394443N.
- All land-disturbing activities must be confined to within the disturbance area. Should the parameters of the proposed work extend beyond this, then further archaeological assessment may be required.
- Inductions for work crews should include a cultural heritage awareness procedure to ensure they recognise Aboriginal artefacts. Consultation with RAPs regarding the Aboriginal cultural heritage induction materials should be considered.

6.6 Historic Heritage

A Historic Heritage Impact Assessment (HHIA) has been prepared by OzArk Environment and Heritage (OzArk) and is contained in Appendix W. The HHIA has been undertaken in accordance with the SEAR's and the guidelines within *Investigating Heritage Significance - A guide to identifying and examining heritage items in NSW (*Heritage Council 2021). Reporting has considered the *Guidelines for preparing a statement of heritage impact* (DPE 2023).

6.6.1 Existing Environment

A survey of the study area was completed on 14 August 2025 by OzArk. No items of potential historic heritage significance were recorded during the field inspection.

Historical research and the results of the survey indicate that no significant structures are present in Project site. Therefore, no locations within the Project site were assessed as having potential to contain significant historic subsurface archaeological deposits.

A search of the national, state and local heritage databases including the SLEP 2013 returned no historic heritage items within the Project site. The search returned one item of state heritage significance (SHR #01457 Beckers Bridge over Webbers Creek) and two items of local heritage significance (LEP #I14 Elderslie Bridge; and LEP#140 Johnsons Cottage) within a 5 km radius of the Project site.

6.6.2 Impact Assessment

The heritage values of Johnson's Cottage relate to rarity and representativeness. The item is located approximately 3 km from the Project site, on Stanhope Road, Stanhope, and it is considered that the Project will have a negligible effect on the item's local heritage significance.

The timber-decked, single-lane bridge, Beckers Bridge over Webbers Creek on Main Road, Gresford (approximately 5 km north of the Project site) has the potential to be impacted should trucks laden with quarry products use this bridge. It is noted that the Project haul route, as described in Section 3 of this EIS, does not identify this bridge as being used as part of the project's transport network.

Elderslie Bridge, on Elderslie Road, Elderslie (approximately 4 km southwest of the Project site) has been subject to assessment by the asset owner TfNSW. Consultation to date with TfNSW and a review of traffic modelling confirm that the proposed development and road haulage, when operational, will operate within the structural capacity and constraints of the bridge. TfNSW advised that the current general access load limit and the vehicle configurations proposed for the quarry are acceptable and that planned maintenance works on the bridge align with expected project operations.

6.6.3 Mitigation Measures

The following mitigation measures are proposed.

- Prior to construction, the project must prepare a Historic Heritage Unanticipated Finds Protocol.
- It is assessed that SHR item #01457 Beckers Bridge over Webbers Creek, located approximately 5 km north of the Project site on Glendonbrook Road, Glendon Brook, may be impacted by the increase of heavy vehicle movements associated with the dispatch of processed materials. Given the heritage significance of this bridge, no heavy vehicles associated with the project should use this bridge. If heavy vehicles associated with the project plan to use this bridge, an assessment by a suitably qualified structural engineer should be undertaken to determine the likelihood of damage to the state significant heritage item associated with long term use by heavy vehicles.
- LEP item #I14 Elderslie Bridge, located approximately 4 km southwest of the Project site on Elderslie Road, Elderslie, is a locally listed heritage item owned and maintained by TfNSW. As TfNSW has not requested alternative haul route or additional structural assessment, continued liaison with TfNSW and Singleton Council is recommended to ensure haulage operations remain consistent with road authority requirements and any future network planning.
- All the proposed works must remain within the disturbance footprint of the Project site.

6.7 Traffic and Transport

An Integrated Transport Assessment (ITA) has been prepared by Pavey Consulting Services and is contained in Appendix L. The ITA investigated the traffic impacts of the development by reviewing the proposal and determining the likely additional traffic generated by the proposal along with its impact on the local road network in the vicinity of the site. The ITA reviewed the existing road network and investigated any capacity, safety and amenity issues associated with traffic generated by the proposed quarry. The following provides a summary of the ITA.

6.7.1 Existing Environment

The proposed quarry access is off Springvale Road and the proposed haulage route is south via Stanhope Road, Elderslie Road, New England Highway and Wine Country Road as illustrated in Figure 6 in Section 3 of this EIS.

Springvale Road and Stanhope Road are under the care and control of Singleton Council and under a functional road hierarchy both are classified as a rural local road. Elderslie Road is under the care and control of Singleton and Cessnock City Council and under a functional road hierarchy is classified as a local collector road. New England Highway along the proposed Haul Route is under the care and control of Cessnock City Council and would under a functional road hierarchy be classified as a sub

arterial road. Wine Country Drive is under the care and control of Transport for New South Wales and under a functional road hierarchy be classified as a sub-arterial road.

6.7.2 Impact Assessment

During operation the proposed development is expected to generate 220 truck movements (110 laden trucks) per day to meet peak production. Loaded trucks (semi-trailer / truck and dog trailer with maximum weight fully laden of 50 tonnes) will leave the site and travel approximately 2.1km south along Springvale Road to the intersection with Stanhope Road. Vehicles will turn right at the intersection and travel approximately 2.5km, generally in a southwest direction to the intersection with Elderslie Road. Vehicles will then travel along Elderslie Road, generally in a south direction, for approximately 6.3km to the intersection with the New England Highway / Maitland Street, East Branxton. Vehicles will then turn left and travel in an easterly direction to the New England Highway / Wine Country Drive intersection. Loaded trucks would then continue to travel in an easterly direction along the New England Highway or in most cases turn right into Wine Country Drive and enter the Hunter Expressway via the interchange located 800m to the southwest.

The estimated vehicle movements generated from the site during the construction stage will be restricted to employees arriving prior to and at the completion of the single day shift. This is estimated at 3 vehicles inwards in the morning and 3 vehicles outwards in the afternoon. As this is less than operational phases of the development no analysis has been carried out on the impact of these movements as they will have minimal impact on the entrance or the surrounding roads and intersection.

As requested by TfNSW, modelling of the impact of increased truck movements on the operation of the one lane bridge over the Hunter River (Asset Owner - TfNSW) occurred as part of the ITA. Results indicated that the PM generally has higher delays than the AM on the bridge. Modelling estimated a maximum queue of 6 vehicles in the year 2035 (with the quarry in operation) scenario in the PM peak. As also requested by TfNSW a targeted Road Safety Audit of the bridge and its approaches has been carried out. The findings of this audit shows that the bridge (and its approaches) have not been maintained well over the past years and significant maintenance activities need to have been carried out by the relevant road authorities to ensure it meets current standards. The increase in traffic from the proposed development does not require any additional work (above the essential maintenance) to be carried out on the bridge and its approaches.

The performances of the intersections relevant to the haul route were assessed using the intersection modelling SIDRA software. In all scenarios all the intersections along the haul route operate at Level of Service of A or B on all legs and turn movements in the morning peak hour, except the right turn out of the New England Highway into Wine County Drive which at present is operating at a Level of Service F but shows no significant deterioration when additional traffic from the proposed development is included.

Neither TfNSW and /or Cessnock Council have plans to upgrade the New England Highway / Wine County Drive intersection but are waiting on the areawide traffic study for the Branxton to Anambah strategic growth area, which is currently underway, prior to determining if and what improvements may be required.

The ITA notes the draft Singleton Traffic Study nominates upgrading of the intersection of Elderslie Road and Stanhope Road as the highest priority.

From a traffic safety perspective, all roads along the proposed haul route are currently operating in a manner consistent with other rural, urban and classified roads in the area. The proposed movements

associated with the proposed development would not make any significant change to vehicle numbers compared to those currently associated with the roads.

The impact on public transport and or school buses as a result of an increase in development traffic movements are low (15 loaded trucks per hour). A Traffic Management Plan and Drivers Code of Conduct for the site will be prepared and will reflect the need for drivers to be aware of school buses and the presence of children along the length of the proposed haul roads to ensure that drivers adhere strictly to all speed zones especially those where school bus activity occurs.

The issue of pedestrian movements along Elderslie Road adjacent to the residential areas was raised in the community consultation. At present the only pedestrian path that is available is a shared pathway along the frontage of Radford Park Estate between Alma Road and just north of Radford Parkway. Singleton Council have allocated funds to extend this pathway from Alma Road south to the LGA boundary. Within the Cessnock LGA, Cessnock City Council has received a grant to prepare detailed design for a shared pathway network in East Branxton. This work would provide a shared pathway along Elderslie Road from the LGA boundary to Maitland Street /New England Highway and various connections on the surrounding road network. This project is in the detailed design phase. It is understood that Council has applied for a grant for the construction of all or part of this pedestrian network from TfNSW.

The ITA concludes that the truck haulage from the proposed quarry will not adversely impact the efficiency of the local road network which has sufficient spare capacity to cater for the expansion without any upgrading works. It is noted that approximately 300m of Springvale Road from the cul-de-sac at the northern end of Springvale Road to the Pet Motel will require widening to accommodate the heavy vehicles.

In summary the ITA concludes the following.

- Modelling of all intersections has shown intersections currently operate with excellent levels of service and would continue to do so through to at least 2035 with normal background traffic growth. The exception is the right turn out of New England Highway onto Wine Country Drive which is currently performing at a low level of service, however the additional development traffic from the quarry has no impact on the current level of delays being experienced.
- The proposed quarry has the potential to increase traffic on the local road network by on average up to 110 vpd or 15 vph (in both directions) during peak operating periods.
- One other planning proposal in the area has the potential to also impact on the local road network around the site being the Branxton to Anambah regionally significant growth area residential proposal.
- The road network has sufficient spare capacity to cater for truck movements from the proposed quarry and the proposal will therefore not adversely impact the efficiency of the network.
- The road network servicing the site is in good condition and is considered suitable in terms of road geometry, speed zoning and pavement construction for use by traffic generated by the quarry.
- The proponent will work with Councils to contribute S7.11 contributions based on the proposed quarry's annual extraction tonnage. It is understood that such a contribution will provide sufficient funds to Councils to maintain and upgrade sections of the haul route if and when these works are required.

- Approximately 300m from the entrance to the Project site to the Pet Motel will need to be widened and upgraded to ensure it is suitable for heavy vehicles accessing the proposed quarry. This upgrade will be part of a Voluntary Planning Agreement between Council and the proponent.
- A review of traffic accident data for the Haul Route has determined that there is no significant accident history at the intersection and no obvious trends within the data that indicates existence of a safety problem.
- A Road Safety Audit of the existing one lane bridge over the Hunter River shows no significant road safety issues that cannot be addressed by routine maintenance by the respective Road Authority. It is therefore considered that the proposed haul route provides a suitable level of road safety for existing traffic volumes and should continue to do so for at least a further ten years.
- Construction traffic generated by the development is minor and unlikely to exceed three vehicles per hour.

6.7.3 Mitigation Measures

The following mitigation measures are proposed.

- A Traffic Management Plan and Drivers Code of Conduct for the site will be prepared and will reflect the need for drivers to be aware of school busses along the length of the proposed haul roads to ensure that drivers adhere strictly to all speed zones especially those where school bus activity occurs.
- The proponent will contribute monies on an annual basis to Singleton Council, in accordance with the Singleton Local Infrastructure Contributions Plan 2025, an annual Haulage Maintenance Contribution in accordance with Section 7.11 of the EP&A Act.
- The proponent will enter into a Voluntary Planning Agreement with Cessnock City Council to contribute monies on an annual basis to Cessnock City Council, at a contribution rate of $0.090/t/km for all roads within Cessnock LGA.
- The proponent will enter into a Voluntary Planning Agreement with Singleton Council to widen and upgrade the northern 300m section of Springvale Road to the Project site to accommodate heavy vehicles.

6.8 Land Resources

The following information / reports have been considered in preparing the land resources assessment of the EIS.

- Biodiversity Development Assessment Report (BDAR) – contained in Appendix F.
- Water Resources Assessment – contained in Appendix J.
- Hydrogeological Impact Assessment – contained in Appendix M.
- Geotechnical and Pit Staging Assessment – contained in Appendix N.
- Resource Feasibility Assessment - contained in Appendix Y.
- Preliminary Rehabilitation and Closure Plan – Appendix S.
- Preliminary Contamination Assessment – Appendix T.
- Relevant searches of the NSW Planning Portal Spatial Viewer.
- NSW SEED Data Portal.

6.8.1 Existing environment

The Project site is situated on an undulating ridgeline within the western foothills of Tangory Mountain, with an elevation ranging from 80m in the southern extent to 220m in the north. The ephemeral Blind Creek and Stewarts Creek are adjacent to the Project site and several unnamed, drainage lines intersect the Project site. Large portions of the Project site have been historically cleared, with vegetation mostly consisting of regrowth.

As discussed in Section 2.2.5 of this EIS the southernmost section of the Project site, which will support the site office, weighbridge, car parking, and part of the access road, is mapped as BSAL. No other land mapped as strategic agricultural land or Critical Industry Cluster Land (Equine or Viticulture) has been identified within the Project site. Desktop investigations have found that the historical land use of the site and surrounding land has been low-intensity agriculture, primarily grazing.

Soil profiles within the proposed quarry footprint are relatively shallow, typically extending from 0.2m – 1.0m below ground level (BGL), with rock outcrops occurring throughout.

Most of the project site, including the majority of the extraction areas, extends across the Stanhope Soil Landscape. The main soils of this landscape unit are brown podzolic soils on mid-lower slopes and yellow podzolic soils on the upper slopes. These soils are hard setting, moderately permeable and imperfectly drained with low fertility. They are subject to erosion.

The majority of the Project site has a Land and Soil Capability Class of either Class 6 (Most intensive Use – Grazing only) or Class 7 (Most intensive use – Unsuitable for rural production or at best suited only to light grazing).

6.8.2 Impact Assessment

Impact on soils and land capability

Potential impacts on soils and land capability including quarry slope stability were assessed based on the findings of field investigations, laboratory test results and site walkover observations. Soil erosion risk at the site can be managed through appropriate soil erosion control measures including provision of engineer designed stormwater drainage system in accordance with Landcom (2004) *Managing Urban Stormwater: Soils and Construction* (the Blue Book).

The geotechnical risks associated with the proposed development are to be mitigated through implementation of highest possible measure of control. The recommendations for risk mitigation are provided in the Geotechnical and Pit Staging Assessment contained in Appendix N. All works are to be undertaken in accordance with Guidelines for Health and Safety at Quarries by NSW Resource Regulator.

Potential impact on landform

The Project will provide a quarry that has stable slopes both in the short-term during quarry operation and as the final landform. The pit batters and benching technique that will be used in the quarry operations have been modelled and the assessment findings indicate that the final landform of the quarry can be constructed according to the following geometry:

- Bench height = 15m.
- Minimum bench width of final landform = 5 m with toe bund.
- Maximum bench face angle = 82 degrees (with the horizontal).

The proposed geometry slopes will provide long term stability (i.e., a minimum design life of 50 years) whilst allowing the operator to effectively access the slopes and benches within the proposed quarry.

Overburden material excavated during operation such as topsoil, colluvial and residual soils will be stockpiled on site for reuse in road construction or the rehabilitation phase of the quarry based on material characteristics and project requirements. Excavated soils will be cut back to a slope no steeper than 1V:2H during the Site stripping of working areas prior to blasting.

Geotechnical stability analysis of the proposed new landform was undertaken in the Geotechnical and Pit Staging Assessment contained in Appendix N. Analysis results indicated that the proposed geometric configuration of the quarry is to be geotechnically stable in the short and long term, subject to the recommendations in the Geotechnical and Pit Staging Assessment.

Compatibility with other land uses

Queensland – Hunter Gas Pipeline

Section 2.4 and Section 5.5 of the EIS and the Pipeline and the Quarry Co-Existence Assessment contained in Appendix V demonstrate that the Project and the Queensland-Hunter Gas Pipeline Project can co-exist.

Elderslie Airport

Elderslie Airport is located approximately 4km south of the Project site. It has a single 700m long runway and is primarily used by parachuting clubs and skydiving centres. The technical assessments provided as part of the SSD application demonstrate that the quarry can proceed without significant impacts to adjoining lands and in the instance of Elderslie Airport, land occupiers further away from the Project site. Bluestone will notify the users of Elderslie Airport of the timing of upcoming blast events in the days prior to blasting events.

Agricultural Land Uses in the Region

Desktop investigations have found that the historical land use of the Project site and surrounding land has been low-intensity agriculture, primarily grazing. Review of recent aerial imagery confirms the continuation of low-intensity agriculture. The Project location will provide sufficient buffer distances to minimise potential impacts on other low-intensity agriculture uses.

6.8.3 Mitigation measures

The following mitigation measures relating to impact on landform will be implemented.

- Annual slope inspections should be undertaken by a suitably qualified and experienced geotechnical engineer.
- Adequate design for haul roads with provision for safety features as necessary, i.e. suitable road widths, outer edge protection (i.e. windrow), other specific design features (i.e. lines of site cross cambering) and face edge stand-off be implemented.
- Installation of rock catcher (boulder restraint) bund near toe of bench (may comprise reshaping debris mound) to maintain a buffer between the toe of bench and haul road for vehicles and pedestrian traffic.
- Footings for the weighbridge, office and fixed plant should be designed by a suitably qualified and experienced structural or geotechnical engineer. All exposed foundation material conditions should be inspected by an experienced geotechnical engineer to confirm bearing capacity values and encountered conditions satisfy design assumptions.

- All surface runoff water should be diverted away from the steep slopes as far as possible, to limit soil erosion.
- Removal of soil overburden should be performed in a manner that reduces the risk of sedimentation occurring on neighbouring lands. All spoil on site should be appropriately managed, and stormwater properly controlled using suitable erosion control measures (refer to the Blue Book) to prevent transportation of sediments off-site.
- Final ground surface should be revegetated with deep rooted grasses to limit soil erosion.
- A Rehabilitation Management Plan (RMP) will be developed prior to the commencement of operations, consistent with relevant guidelines and in compliance with the required rehabilitation outcomes outlined within conditions of the development consent.
- Guidance must be sought from an experienced geotechnical engineer (CPeng accreditation, or similar) on unexpected ground or groundwater conditions encountered:
    - To maintain low geotechnical risk and identify potential hazards / risks early.
    - Manage geotechnical risk as a result of changes in quarry operations.
    - Routine monitoring of all roads and future site-specific inspection shall be undertaken. If risk of any road instability is identified, access shall be closed until inspection by geotechnical engineer.
    - Annual slope inspections and review of risks should be undertaken by a suitably qualified and experienced geotechnical engineer.

6.9 Hazards - Bush Fire

A Bushfire Assessment has been prepared by Newcastle Bushfire Consulting and is contained in Appendix O. The Bushfire Assessment has assessed the proposed quarry accordance with the EP&A Act, AS3959 (2018) *Construction of buildings in bushfire-prone areas* and *Planning for Bush Fire Protection* (2019).

6.9.1 Existing Environment

Potential bushfire hazards were identified from Singleton Council's Bushfire Prone Mapping as occurring within the Project site, as illustrated in Figure 14. Aerial mapping and inspection of the site reveals that the bushfire prone land map is reasonably accurate in respect to the current bushfire hazard.

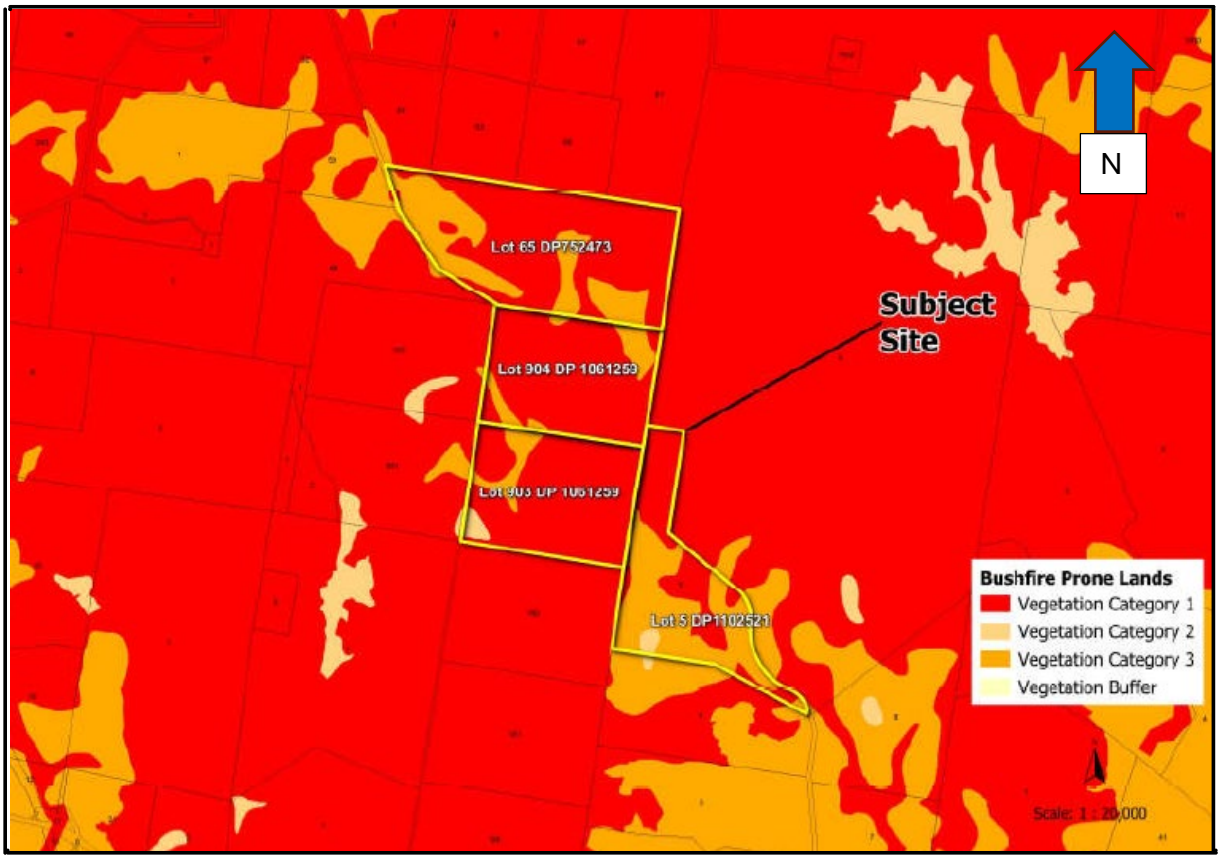


Figure 14 Extract from Council Bushfire Prone Land Map

Source: Newcastle Bushfire Consulting

6.9.2 Impact Assessment

The Bushfire Assessment establishes that the quarry does not comply with the acceptable solutions of *Planning for Bush Fire Protection* (2019) and offers a Performance Based Solution to achieve the performance criteria.

The Project provides asset protection zones determined in accordance with Planning for Bush Fire Protection (2019). The asset protection zone will be maintained for the life of development and defendable space is provided onsite.

Bushfire Attack Levels (BAL) have been determined in accordance with Planning for Bush Fire Protection (2019) and AS3959 (2018). The highest BAL, being BAL-29 applies to the office. Non-residential Class 5 to 8 buildings (such as the office) require no specific level of construction in accordance with AS3959 (2018), and National Construction Code structural fire protection measures deemed adequate if located outside the flame zone.

Property access to the buildings complies with Planning for Bush Fire Protection (2019) excepting the provision of alternate egress. Recommendations have been made on the safe access and egress of workers and firefighters along the haul road with adequate road widths and turning bays provided.

Asset protection zones are based on Planning for Bushfire Protection (2019) and have the buildings located outside BAL-Flame Zones. Fire response procedures from staff have been included in the Bushfire Assessment and shall be implemented via an emergency management plan.

Overall, the aims and objectives of Planning for Bush Fire Protection (2019) have been addressed.

6.9.3 Mitigation measure

The following mitigation measure will be implemented.

- As part of the overall CEMP for the Project, an emergency management plan for bushfire shall be prepared and implemented.

6.10 Landscape and Visual Impact

A Landscape and Visual Impact Assessment (LVIA) has been prepared by De Witt Consulting and is contained in Appendix P.

6.10.1 Methodology

The methodology used in this LVIA is primarily based on the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) (Landscape Institute & IEMA, 2013), as supplemented by the Technical Guidance Note LITGN-2024-01 (August 2024). This is generally considered industry standard and recognised internationally as best practice, where there is currently no national guideline or specific certification for LVIA in Australia. In addition to the above, other key resources used in developing this methodology included the following.

- Australian Institute of Landscape Architects (AILA). (2018). Guidance Note for Landscape and Visual Assessment. June 2018.
- Department for Planning and Infrastructure (DPI). (2007). Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design. West Australian Planning Commission.
- Department of Planning, Housing and Infrastructure. (2024). Transmission Guideline: Technical Supplement – Landscape and Visual Impact Assessment. November 2024
- Transport for NSW (TfNSW). (2020a). Guideline for Landscape Character and Visual Impact Assessment. EIA No. 4. New South Wales Government.
- TfNSW. (2020b). Beyond the Pavement. New South Wales Government.

The LVIA included detailed field-based assessment.

6.10.2 Existing environment

The site is generally natural land characterised by undulating topography, remnant vegetation, unsealed tracks, rural fencing, and gates to contain grazing cattle. The elevation of the site ranges from ~RL 215 at the quarry pit location and ~RL 60 at the cul-de-sac of Springvale Road. Tangory Nature Reserve adjoins the eastern boundary of the site and is a prominent landscape feature visible from within the Project site and throughout the surrounding land, with its highest peak ~RL 470. A smaller ridgeline is also present to the west of the site that extends beyond the length of the site in a north to south direction. The highest area of this ridgeline is ~RL 270, also greater than the subject site.

Throughout the 3km visual catchment, the landscape is characterised by undulating topography with striking ridgelines and peaks, grazing land, natural rock features, remnant vegetation and modified pastoral lands. Rural residential properties and homesteads are scattered throughout the visual catchments and appear generally well-maintained, with no presence of undesirable settlement patterns or uncharacteristic development. Additionally, the transition between the natural landscape features, agricultural land, and rural residential properties appears well-balanced.

The Hunter River and other creeks such as Glendon Brook are also prominent landscape features throughout the surrounding area. During the field-based assessment (June 2025), it was noted that the creek/riverbanks had recently been damaged by high rainfall events and localised flooding, with some local roads and causeways still closed. This damaged was contained to the street-level in these locations and not of a scale that was notable throughout the visual catchments as a whole.

The visual catchments present a singular landscape character type overall, being rural—agricultural.

6.10.3 Assessment

A Zone of Theoretical Visibility (ZTV) analysis was performed to assist with identifying locations in the surrounding landscape to assess during the field-based assessment. This desktop assessment involved identification of private landowners in the vicinity of the Project and key vantage points in the public domain, to be verified during the field-based assessment.

Within the 3km visual catchment, a total of 55 buildings were identified to be potentially residential dwellings / private landholdings. Only 15 of these were located within the ZTV analysis and were considered for further assessment. These are located along Springvale Road, Stanhope Road, and Cranky Corner Road South. The proponent of the Project is the landowner of six (6) of these properties. Additionally, two (2) other buildings were identified to be potentially commercial in nature and only one (1) within the ZTV analysis, along Springvale Road (Hunter Pet Motel). The field-based assessment confirmed that the Project will not be visible from the majority of the visual catchment study area. This is mainly due to the screening effect from the undulating topography of the surrounding area, particularly Tangory Nature Reserve immediately east of the site and the previously described ridgeline west of the site. Figure 15 provides the results of the ZTV analysis.

Applying the assessment factors the overall significance profile of the visual effects from the Project to private and public viewpoints is considered to be low.

From a construction phase perspective, the site benefits from the natural screening effects of the surrounding topography, as well as the low number of public and private viewpoints. Airborne dust can be appropriately managed through environmental control measures and should be included in a management plan prepared by a suitably qualified consultant. Appropriately scaled consultation with any potentially affected landowners will be conducted as part of the associated planning approval, in particular the private landowners along Springvale Road.

As there are no significant activities proposed to occur during the night hours, there are no lighting impacts considered to apply to the Project.

6.10.4 Mitigation measures

The overall significance of the visual effects from the Project to private and public viewpoints is considered to be low. The existing landscape setting has a high absorption capacity to accommodate the Project, particularly in its location within the site. The Project does not introduce uncharacteristic or incompatible elements into the existing landscape setting.

Accordingly, no design-based mitigation measures are recommended.

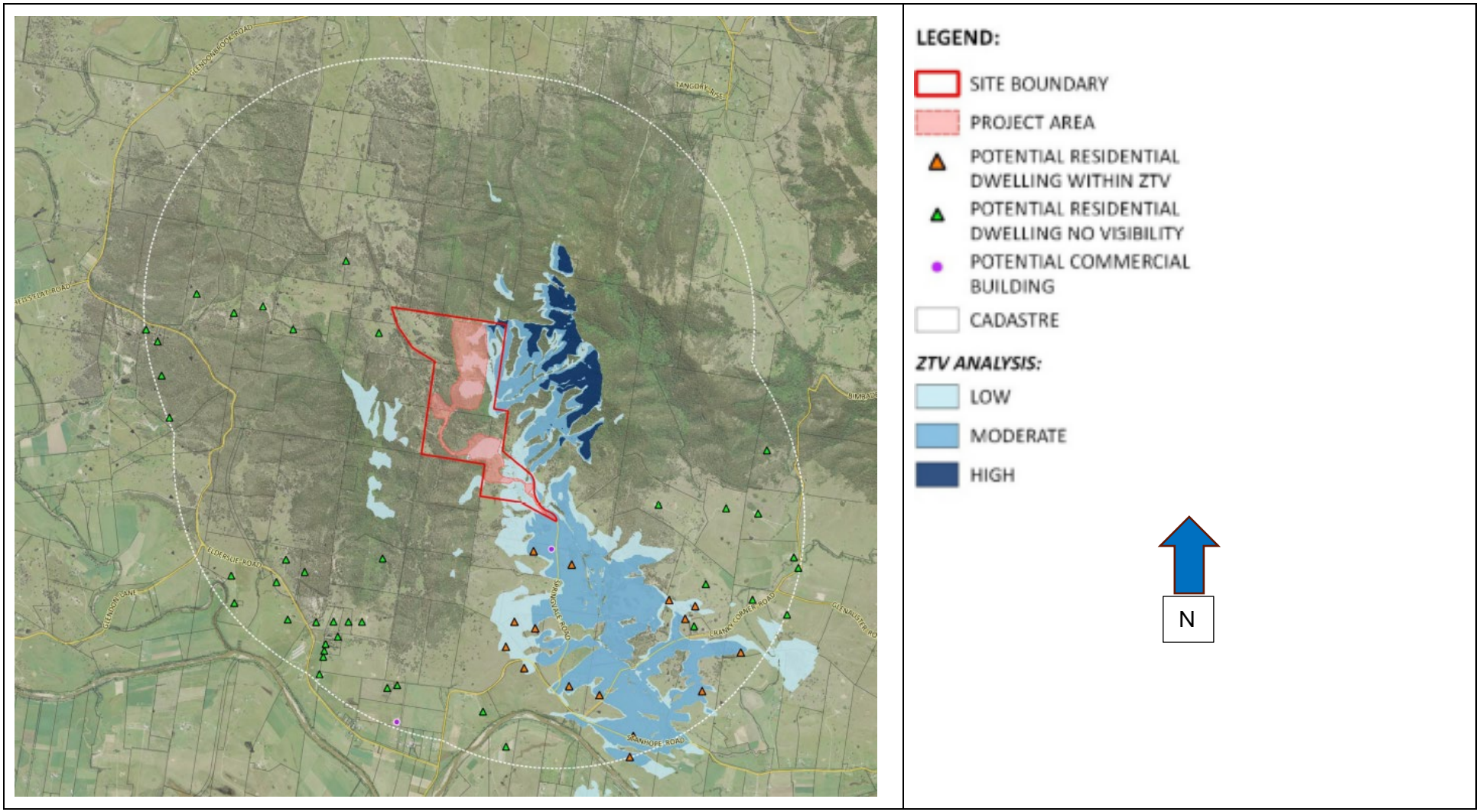


Figure 15 Viewpoints assessed and ZTV Analysis

Source: De Witt Consulting

6.11 Social Impact

A SIA has been prepared by Social Aspect and is contained in Appendix Q. The SIA has been prepared in accordance with the NSW DPHI Social Impact Assessment Guideline for State Significant Projects (NSW DPHI, 2025) and Technical Supplement (NSW DPHI, 2025a), hereafter referred to as the 'Guideline', and the Engagement Guidelines (NSW DPHI, 2024).

6.11.1 Methodology

Stages in the preparation of the SIA included:

- Baseline analysis of the existing socio-economic environment, including the establishment of the social locality likely to be impacted.
- Demographic analysis, including socio-economic characteristics of current communities and population forecast.
- Review of relevant background information, along with relevant local and state policy frameworks.
- Stakeholder and community engagement. Engagement with community stakeholders occurred in a variety of ways and was carried out by personnel from Social Aspect, with additional input from Bluestone Hardrock and Barr Planning.

6.11.2 Existing environment

It is anticipated that people living and/or working in the following locations would be most influenced by the Project.

- Nearby to the Project site (e.g. in Elderslie and Glendon Brook).
- Along the proposed haulage route.
- In Branxton and other more densely populated areas such as Radford Park and East Branxton.

Accordingly, the Project's nominated social locality is a composite of the Branxton Suburbs and Localities (SAL), East Branxton SAL and Elderslie (Singleton – NSW) SAL as defined by the ABS (2021) and is illustrated in Figure 16.

Indigenous populations

The 2021 Census (ABS, 2021) indicates that the combined Branxton, East Branxton and Elderslie SAL area has a modest Aboriginal and Torres Strait Islander population compared with many Upper Hunter communities, but still slightly higher than the NSW average. Approximately 4–5% of residents identify as Aboriginal and/or Torres Strait Islander, compared with 3.4% across NSW.

Accommodation

Census data (ABS, 2021) indicates that the Branxton–East Branxton–Elderslie area is predominantly characterised by low-density suburban housing, with most residents living in separate houses. There were approximately 4,450 private dwellings with an average household size of about 2.8 persons, higher than the NSW average of 2.6. Median weekly household income is also higher than the State average, reflecting the presence of working households, many commuting to mining, construction or regional service employment.

Housing costs are broadly aligned with State patterns but reflect pressures typical of growth corridors near major employment centres. Median weekly rent (approximately $430) is slightly above the NSW median, while median mortgage repayments are comparable to State figures. These indicators

suggest that while the area is relatively affluent, housing affordability pressures are present, particularly for renters and new mortgage holders.

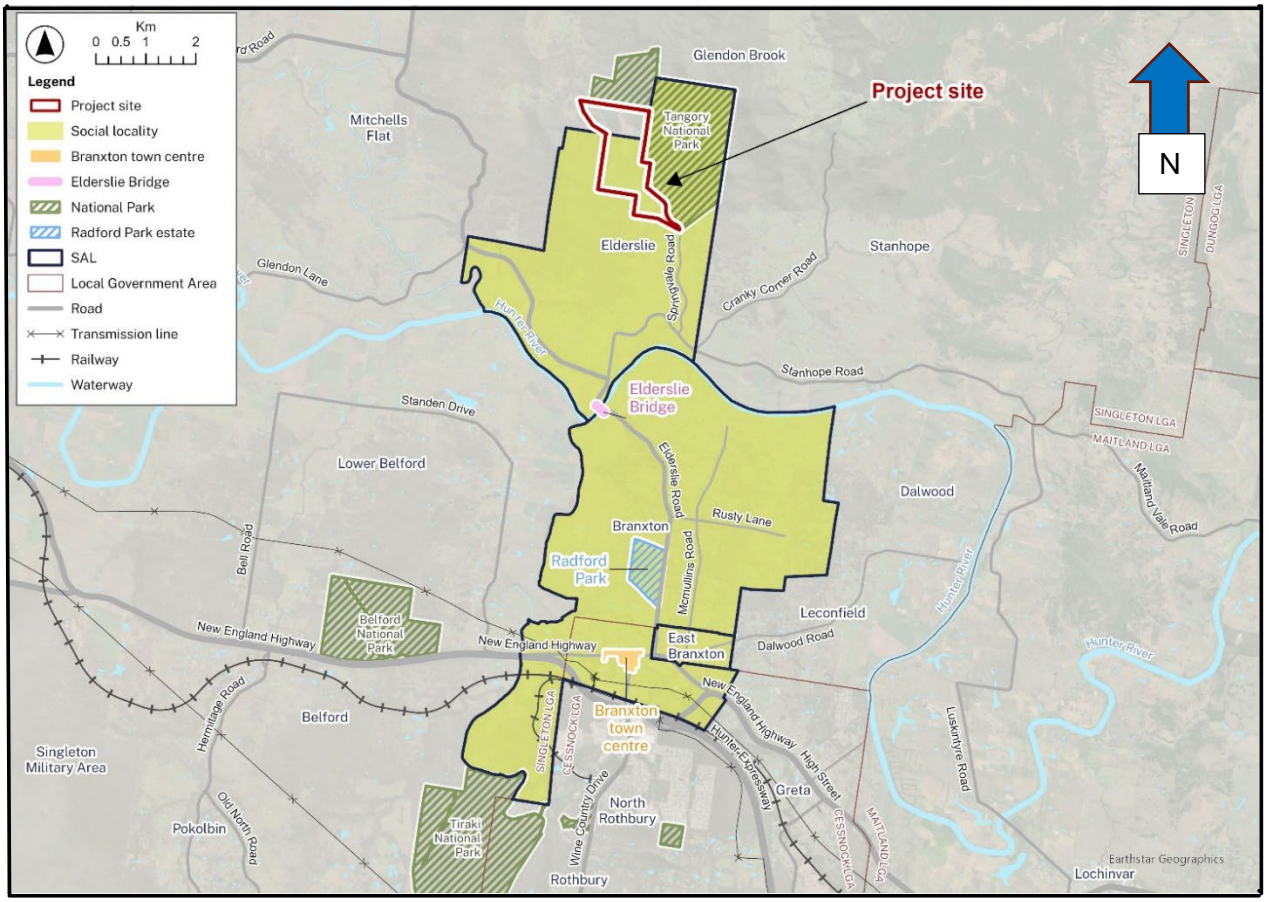


Figure 16 The social locality for the Project

Source: Social Aspect

Transport

Residents of Branxton, East Branxton and Elderslie are highly car-dependent, consistent with suburban and peri-urban communities in the Hunter region. On Census day, approximately 69% of employed residents travelled to work as a car driver, with a further 5% travelling as a car passenger, meaning that around three-quarters (≈74%) of workers relied on private vehicles for commuting. This is substantially higher than the NSW average of approximately 52% travelling as a driver and reflects dispersed employment patterns and limited public transport connectivity to major job locations.

Public transport usage is comparatively low despite the presence of rail infrastructure in Branxton. Only about 2–3% of workers used train or bus services as their main method of travel to work, compared with around 17% across NSW. Walking and cycling together accounted for less than 3% of journeys, indicating that most employment is located beyond convenient active-transport distances.

Working from home was reported by approximately 12–13% of employed residents, lower than the NSW figure of around 21%, reflecting the area's occupational profile, which includes trades, construction, mining-related work and service roles that require on-site attendance. Overall, the strong reliance on road-based commuting means that increases in traffic volumes, heavy vehicle movements or road disruptions could have noticeable impacts on travel times, safety perceptions and daily quality of life for residents.

Industry

Employment patterns in the Branxton–East Branxton–Elderslie area are diverse but strongly influenced by regional industries such as construction, mining, manufacturing, transport and retail services. Census data indicates that the largest industry of employment is construction (approximately 15–16% of employed residents), followed by mining (around 10–11%), health care and social assistance (≈9%), and retail trade (≈8%). These proportions are notably higher for construction and mining than the NSW averages of approximately 9% and 2% respectively, highlighting the importance of resource and infrastructure sectors to household incomes in the area.

Many residents commute to employment centres including Singleton, Muswellbrook, Maitland and Newcastle, indicating the area functions primarily as a residential hub within the broader Hunter labour market rather than a self-contained employment centre. The relatively high proportion of tradespersons and machinery operators reflects ongoing residential growth and infrastructure development across the region.

While coal mining is not the dominant local industry in the same way as in smaller mining towns, its influence remains substantial through commuting workers, contractors and supply chain roles. The presence of strong construction and infrastructure employment suggests that the local workforce is well suited to participating in major development projects, although demand surges could also place pressure on local labour availability for other industries.

Health

Census data (ABS, 2021) suggests that long-term health conditions among residents in the Branxton–East Branxton–Elderslie area are broadly comparable to NSW averages, with some conditions occurring at slightly elevated rates. Approximately 10–11% of residents reported asthma, 8–9% arthritis, and 5–6% diabetes, while around 11–12% reported a mental health condition such as depression or anxiety. These figures are generally similar to State patterns, indicating a typical suburban health profile.

Around 58–60% of residents reported no selected long-term health condition, slightly lower than the NSW figure of approximately 61%, suggesting a modestly higher burden of chronic illness within the community. Conversely, about 40% reported at least one long-term condition, and roughly 13–15% reported two or more conditions, highlighting ongoing demand for primary health care and allied health services.

The presence of chronic respiratory and mental health conditions is relevant in the context of environmental quality, employment stability and access to services. Potential air-quality impacts of the Project are relevant to those people living with respiratory conditions. Population growth in the area may increase demand for local health infrastructure, particularly general practice, mental health support and hospital services in nearby regional centres such as Maitland and Singleton. Maintaining adequate service capacity will therefore remain an important consideration when assessing potential social impacts associated with future developments.

Existing social infrastructure

Social infrastructure refers to facilities and services that enhance the social capacity of communities and may include infrastructure related to health, housing, youth, aged care, leisure, community safety facilities and road safety.

The social infrastructure in the social locality will provide a reference point against which social impacts may be measured if the Project proceeds. Such impacts can take the form of a decrease in

the quantity, diversity, or capacity of the existing social infrastructure, courtesy of demand from an expanded workforce and their relatives relocating to an area.

6.11.3 Impact Assessment

Many of the social impacts from the Project are related to noise / blasting, air quality, traffic and other environmental impacts.

Key perceived negative social impacts identified included loss of amenity due to increased noise and vibration, traffic noise and traffic movements, changes to the visual landscape, changes to the natural environment, a reduced sense of safety on roads and air emissions.

Perceived benefits included an increased supply and reliability of natural resource for local and regional businesses, increased employment opportunities and an improved income security for local and regional businesses.

Under the SIA Guidelines, social impacts and opportunities are categorised into the following themes:

- Way of life – how people live, work, get around, play, and interact each day.
- Community – composition, cohesion, character, how a community functions, resilience, and sense of place.
- Accessibility – infrastructure, services and facilities are accessed and used.
- Culture – both Aboriginal and non-Aboriginal, including shared beliefs, customs, practices, obligations, values and stories, and connections to Country, land, waterways, places, and buildings.
- Health and wellbeing – physical and mental health including those vulnerable to social exclusion or change, psychological stress resulting from financial or other pressures and effects on public health.
- Surroundings - including ecosystem services such as shade, air quality, noise, public safety and security, access to and use of the natural and built environment, and aesthetic value and amenity.
- Livelihoods – including people's capacity to sustain themselves through employment.
- Decision-making systems – the extent to which people can have a say in decisions that affect their lives, and have access to complaint, remedy, and grievance mechanisms.

6.11.4 Mitigation Measures

The social impacts (positive and negative), enhancement / mitigation measures and proposed timing of enhancement / mitigations for the Project are described in Table 19.

Table 20 provides a more detailed summary of the predicted social impacts and their characteristics. The residual impacts in the table are the outcome of the SIA. Residual impacts have been determined on the basis that positive impact enhancement measures and negative impact mitigation measures described in the SIA would be applied by the Project if it proceeds.

Table 19 Impact Enhancement and Mitigation Measures.

Social Impact Category	Enhancement / Mitigation Measure	Proposed timing
Mitigation measures for predicted positive Project impacts		
Community Community donations and initiatives	Develop and implement a transparent community donations / sponsorships program aligned to local needs. In addition to past and ongoing proponent-led donations and initiatives the Project would establish a structured community donations and sponsorship program. This program would be aligned with identified local needs and priorities, ensuring that contributions deliver tangible social benefits and support community wellbeing.	Initiative to be developed immediately upon receipt of planning consent (if it is issued).
Accessibility Access to resource required for construction and infrastructure	The Project has made a commitment to support local community initiatives by providing a limited amount of quarry materials free of charge each year, where there is a clear community benefit aligning with Bluestone's company values. Requests will be assessed on a case-by-case basis to ensure fairness and alignment with local needs.	Annually during operations.
Livelihoods Increased employment opportunity	The Project would establish and maintain an annual Apprenticeship and Skills Development Program to support local employment pathways in quarry-related and associated industries. This program would: ▪ Provide annual financial support (scholarships or traineeships) for individuals from the local area. ▪ Support training across relevant fields including (but not limited to) quarry operations, diesel mechanics, surveying, civil engineering, environmental management, and air quality sciences	Initiative to be developed immediately upon receipt of planning consent (if it is issued) and implemented upon commencement of operations.

Social Impact Category	Enhancement / Mitigation Measure	Proposed timing
	▪ Be implemented upon commencement of operations and continue for the life of the Project.	
Increased local business scale and revenue	Development and implementation of a local procurement strategy designed to prioritise the purchase of supplies and consumables from businesses in the LGA.	Strategy to be developed immediately upon receipt of planning consent (if it is issued).
Support for existing coal mines and other industries	Undertake commercial discussions with operating mines in the LGA, with a view to securing a supply agreement.	Currently underway.
Mitigation measures for predicted negative Project impacts		
Accessibility Access to the local road network	A traffic management plan (TMP) governing traffic movements and driver behaviours would provide some traffic mitigation measures (e.g. mandated time-periods between heavy-vehicle dispatch) to alleviate traffic queuing. In addition, the Project will implement additional mitigation measures outlined in the traffic assessment report (refer Pavey Consulting Services Pty Ltd, 2026) which include: ▪ Working with Councils to contribute S7.11 contributions based on the proposed quarry's annual extraction tonnage. It is understood that such a contribution will provide sufficient funds to Councils to maintain and upgrade sections of the haul route when these works are required. ▪ Upgrading the site entrance to ensure it is suitable for heavy-vehicles, approx 300m from the entrance to the Hunter Pet Motel.	The TMP would be realised at the commencement of operations. Other measures would occur at the time that agreements are reached with the Council's.
Health and wellbeing	In recognition of the Project's Air Quality Impact and Greenhouse Gas Assessment findings (refer Todoroski Air Sciences, 2025) and the subsequent SIA findings that air-quality concerns in the social locality are *perceived,* it is	The technical study summary should be developed and distributed as soon as possible after EIS lodgement.

Social Impact Category	Enhancement / Mitigation Measure	Proposed timing
Airborne diesel particles and silica dust, and respiratory illness	incumbent upon the proponent to address the prevailing perceptions. This would provide some impact mitigation. It is recommended that a succinct, plain-English summary of the Air Quality Impact and Greenhouse Gas Assessment report is made available on the Project website and emailed to all people that participated in SIA engagement activities and raised an air-quality concern. In addition, there is a range of practical, on-site controls for airborne dust and diesel particle suppression that are conventionally applied on extractive industry operations. These would be prescribed in the operational environment management plan developed for the Project. The report by Todoroski Air Sciences (2025) identifies controls to be implemented by the Project including those for the general quarry site, exposed stockpiles, material handling, hauling activities, and fuel efficiency/diesel maintenance. The SIA supports these controls as social negative social impact mitigation measures.	On-site controls would occur at the commencement of construction, should it commence.
Surroundings Road user safety	It is recommended that the Project's TMP prescribes measures to regulate and monitor speeding, overloading, and dangerous trucks referred to by SIA engagement activity participants. Geometry, road verge width, sight lines and 'hidden' driveways associated with the proposed haulage route are the responsibility of the asset owners, and mitigation measures which address these matters are outside the control of the Project.	The TMP would be implemented at the commencement of construction, should it commence.
Acoustic impacts	It is recommended that a succinct, plain-English summary of the Muller Acoustic Consulting (2025) noise assessment report is made available on the Project website and emailed to the Project mailing list. In addition, the Project's operational environment management plan would require conventional noise mitigation measures to be implemented on-site.	The technical study summary should be developed and distributed as soon as possible after EIS lodgement. The operational noise requirements would be implemented at the

Social Impact Category	Enhancement / Mitigation Measure	Proposed timing
	These would apply to quarrying plant and equipment such as acoustic enclosures around crushers, screens, generators, and pumps wherever feasible, using silencers / mufflers on engine exhausts (mobile and fixed plant), engine bay insulation and acoustic linings, and low-noise reversing alarms ("quacker" alarms instead of tonal beepers).	commencement of construction, should it commence.
Ecological impact anxiety	The SIA supports the biodiversity impact mitigation measures recommended by the Project's biodiversity development assessment consultant, Wedgetail Project Consulting Pty Ltd (2026). The measures include: ▪ Minimising impacts to better-quality vegetation ▪ Avoidance of Biodiversity Values land ▪ Utilising existing tracks and fire trails on the Project site as internal haulage roads, thereby minimising the level of impact for road construction ▪ Avoiding the nine waterbodies (dams and creek lines) that provide suitable foraging habitat for Southern Myotis ▪ Avoidance of 20 hollow-bearing trees providing potential habitat for the hollow dependent threatened species. Whilst these measures may not eliminate anxiety held by all people in the locality, they may address the anxiety felt by some people.	Prior to construction activities.
Water pollution (surface water runoff and groundwater pollution)	The Project would implement on-site water pollution controls during project construction and operations, if it proceeds. Martens & Associates Pty Ltd (2026a) identify the following measures: ▪ Clean' water runoff from undisturbed areas of the site will be diverted via channels / bunding to areas downstream of disturbed areas so as to reduce	Prior to construction activities.

Social Impact Category	Enhancement / Mitigation Measure	Proposed timing
	water flows within the development footprint and ensure flow continuity to downstream environments. ▪ 'Dirty' water runoff from all disturbed areas of the site will be directed via channels and drains to a series of sediment detention basins designed to the relevant quarrying standards. ▪ An Operations Monitoring Plan (OMP) has been developed to ensure appropriate operation and functioning of the site sediment basins during quarrying activities. '	
Livelihoods Reduced local business scale and revenue	The Project's predicted negative impact on livelihoods is based on the premise that Project related vehicles would reduce local business scale and revenue. The impact mitigation measures described (Health and Wellbeing) of this table are relevant to this livelihoods consideration and would arguably make a minor impact significance improvement.	Reduced traffic volumes and implementation of the TMP would be realised at the commencement of operations, should they commence.

Table 20 Social Impact Summary

Impact to people	Social impact category	Affected parties	Likelihood and magnitude of impact	Impact significance rating (non-enhanced/ unmitigated)	Project aspect	Project-specific enhancement / mitigation measures	Likelihood and magnitude of impact	Residual impact significance
Predicted positive impacts								
Community donations and initiatives	Community	Community organisations, volunteer groups and residents in the social locality	Almost certain / Moderate magnitude	High	Quarry operations and ongoing corporate social investment activities	Develop and implement a transparent community donations / sponsorships program aligned to local needs	Almost certain / Major magnitude	Very high
Access to resource required for construction and infrastructure	Accessibility	Construction industry, contractors, local businesses and infrastructure providers in the region	Likely / Moderate magnitude	High	Extraction and supply of hard rock and aggregate to the local and regional market	Donate a quantity of materials per annum to community projects free of charge.	Almost certain / Major magnitude	Very High
Increased employment opportunity	Livelihoods	Local job seekers, contractors and workers in quarrying, transport and	Possible / Moderate magnitude	Medium	Construction and operations workforce requirements	Establish apprenticeship or scholarship for a quarry related position.	Likely / Moderate magnitude	High

Impact to people	Social impact category	Affected parties	Likelihood and magnitude of impact	Impact significance rating (non-enhanced/ unmitigated)	Project aspect	Project-specific enhancement / mitigation measures	Likelihood and magnitude of impact	Residual impact significance
		construction supply chains			(direct and indirect employment)			
Increased local business scale and revenue	Livelihoods	Local businesses providing goods/services (e.g., fuel, maintenance, accommodation, food, contractors)	Likely / Moderate magnitude	High	Operational expenditure and supply-chain demand generated by the project	Implement a local procurement strategy designed to prioritise the purchase of supplies and consumables from businesses in the LGA.	Almost certain / Moderate magnitude	High
Support for existing coal mines and other industries	Livelihoods	Existing regional industries reliant on quarry materials (including mining and related infrastructure)	Possible / Moderate magnitude	Medium	Supply of quarry products supporting maintenance and construction across regional industries	Undertake and complete commercial discussions with operating mines in the LGA.	Likely / Moderate magnitude	High

Impact to people	Social impact category	Affected parties	Likelihood and magnitude of impact	Impact significance rating (non-enhanced/ unmitigated)	Project aspect	Project-specific enhancement / mitigation measures	Likelihood and magnitude of impact	Residual impact significance
Predicted negative impacts								
Frustration because of traffic queuing (Elderslie Bridge) and delays	Accessibility	Road users on Elderslie Road / Stanhope Road corridor	Likely / Major magnitude	High	Increase in heavy vehicle movements interacting with existing constraints at Elderslie Bridge and other existing pinch points	Establish TMP and mitigation measures by Pavey Consulting Services Pty (2025) Implement haulage volume reduction per Project refinement	Likely / Moderate magnitude	High
Pavement deterioration from Project related heavy-vehicles	Accessibility	Road users and residents along haulage routes	Possible / Major magnitude	High	Heavy vehicle haulage volumes along Springvale, Stanhope and Elderslie Roads	VPAs with Council's to offset pavement impacts	Possible / Minor magnitude	Low

Impact to people	Social impact category	Affected parties	Likelihood and magnitude of impact	Impact significance rating (non-enhanced/ unmitigated)	Project aspect	Project-specific enhancement / mitigation measures	Likelihood and magnitude of impact	Residual impact significance
Property access and egress difficulties	Accessibility	Residents and landholders with driveways/access points along the proposed haulage route	Possible / Moderate magnitude	Medium	Heavy vehicles passing property entrances and intersections on local roads	Nil suggested	Possible / Moderate magnitude	Medium
Airborne diesel particles and silica dust and respiratory illness	Health and wellbeing	Residents near the site/haul route, including vulnerable people with health conditions	Possible / Moderate magnitude	Medium	Diesel emissions and dust generation from quarrying, processing and haulage	Plain-English summary of the Air Quality Impact and Greenhouse Gas Assessment report Controls identified by Todoroski Air Sciences (2025)	Possible / minor magnitude	Low
Road user safety	Surroundings	Road users including school buses, cyclists, pedestrians and local traffic	Possible / Moderate magnitude	Medium	Increased heavy vehicle traffic, turning movements	Establish TMP Implement haulage volume reduction per Project refinement	Possible / Moderate magnitude (unchanged)	Medium (unchanged)

Impact to people	Social impact category	Affected parties	Likelihood and magnitude of impact	Impact significance rating (non-enhanced/ unmitigated)	Project aspect	Project-specific enhancement / mitigation measures	Likelihood and magnitude of impact	Residual impact significance
					and interactions at intersections			
Acoustic impacts	Surroundings	Residents near the Project site and along proposed haulage routes	Possible / Moderate magnitude	Medium	Operational noise from plant and equipment, blasting, and haulage	Plain-English summary of the Muller Acoustic Consulting (2026) report. Implement Project operational environment management plan with conventional controls	Possible / minor magnitude	Low
Anxiety about flora and fauna disturbance	Surroundings	People who value local natural environment; landholders; recreational users	Almost certain / Moderate magnitude	High	Vegetation clearing and habitat disturbance within the Project disturbance footprint	Measures stated in Wedgetail Project Consulting Pty Ltd (2026).	Almost certain / Minor magnitude	Medium

6.12 Economic Impact

An Economic Impact Assessment has been prepared by EPS and is contained in Appendix R. The Economic Impact Assessment:

- Assesses the significance of the resource
- Assesses the costs and benefits of the project, identifying whether the development would result in a net benefit to NSW, including consideration of fluctuations in commodity markets and exchange rates
- Assesses the demand for the provision of local infrastructure and services
- Identifies Benefits that the project will bring to the local and wider community, as well as the opportunity costs of such a development, including the loss of high biodiversity land.

Significance of the Resource

The Resource Feasibility Assessment contained in Appendix Y has confirmed high quality hardrock resources are present on the property and would be suitable for the production of medium aggregates appropriate for concrete manufacture, road base and a range of other uses. The total resource of material suitable for hardrock quarry markets is estimated to be at least 50M tonnes.

The Project is well located - proximate to major residential growth areas in Maitland LGA as well as the Anambah to Branxton Regionally Significant Growth Corridor (RSGA).

Cessnock City Council describes the RSGA as having an existing 15-year supply of residential zoned land, in areas such as Lochinvar, Anambah and Greta, and with further potential for an additional 40+ years of residential land supply resulting from strategic investigations. Construction of new infrastructure and housing at this scale will require very substantial volumes of construction aggregate.

Project quarried materials are anticipated to be sold predominantly to local markets for the purposes of supplying concrete batching plants. Existing proximate batching plants are located in Maitland, Singleton and Cameron Park.

Sydney will serve as a secondary market, however given the strong forecast regional population growth, it is anticipated that the majority of customers will be located within the Lower Hunter Region.

Cost Benefit Analysis

The Cost Benefit Analysis within the Economic Impact Assessment assesses whether the Project delivers a net economic benefit to NSW, relative to a 'without Project' scenario.

The Project is estimated to generate a net economic benefit to NSW. This reflects the value of quarry production over the Project life, offset by operating costs, capital costs, environmental impacts, and other economic costs.

The analysis incorporates a range of quantified costs, including biodiversity offsets, road infrastructure impacts, and project-related expenditures, as well as broader economic considerations such as taxation and labour market effects.

Sensitivity testing indicates that the Project remains economically positive under a range of alternative scenarios, including variations in key inputs and more conservative assumptions.

Local Effects Analysis

The Project is expected to generate positive economic activity within the Lower Hunter Region, particularly during the operational phase. This includes support for local employment, wages, and expenditure across supply chains.

Construction-phase impacts are relatively modest and short-term. In contrast, the ongoing operation of the quarry is expected to provide a sustained contribution to regional economic output, reflecting the scale and duration of extraction activities.

The Project will also interact with the local economy through demand for goods and services, as well as through workforce participation, with the majority of employment expected to be sourced from the surrounding region.

The supply of construction aggregates to the local market will also support the delivery of housing and other projects across the region.

These economic benefits occur alongside local environmental and community impacts, including biodiversity loss, traffic movements, and amenity considerations, which are addressed separately within the EIS.

The Project is not expected to create substantial additional demand for local infrastructure or services. The operational workforce will be drawn largely from existing residents within the catchment, meaning there will not be a material increase in demand for community facilities or services.

Potential maintenance impacts on local roads from heavy vehicle haulage will be managed through the local road levy payable to Singleton Council and Cessnock City Council which is specifically intended to offset the cost of any additional maintenance required as a result of quarry-related vehicle movements.

The BDAR contained in Appendix F details required biodiversity offsets “as a result of residual impacts to vegetation and threatened species habitat.” The BDAR estimated market value for each of the credits within the NSW Biodiversity Offsets Credit Market.

The Economic Impact Assessment notes biodiversity impacts will occur on the project site (i.e. within the local area), while the offsetting environmental benefit (through the mechanism of the Offsets Scheme) may occur either within or outside the local area. As such, there is a reasonable probability that the project will have a net negative impact to local biodiversity - though this impact would be entirely offset by environmental benefit which may be located elsewhere in the Region or State.

Conclusion

Overall, the Project is expected to provide a sustained economic contribution to the region and the State, primarily through its long-term operational phase. On the assumptions adopted in the Economic Impact Assessment, the Project is estimated to generate a net economic benefit to NSW, supporting the conclusion that the development is justified on economic grounds. A key economic benefit of the project would be improving the security of supply of hardrock products to the domestic market to meet the needs of planned infrastructure and housing construction projects.

6.13 Contamination

A Preliminary Site (Contamination) Investigation (PSI) has been prepared by Martens and Associates and is contained in Appendix T. The PSI included a review of relevant environmental records and databases to assess the potential for land contamination at the Project site. This included a search of the NSW EPA Contaminated Land Register and the list of notified contaminated sites, as well as relevant local council records.

6.13.1 Existing Environment

The Project site has been owned by R & J Pittman since 2005 and been used primarily for grazing and cattle breeding. The property was historically cleared for agricultural activities and no extractive activities had taken place on the site during the historical period. The Project site is bordered by similar partially cleared rural land to the northwest and south. Areas of retained vegetation exist on steeper terrain and ridges, while gentler sloping ground in valley areas have been cleared for agricultural purposes and grazing. Residential dwellings on rural land are primarily located south of the Project site along Stanhope and Springvale Roads. A nature conservation area (Tangory Nature Reserve) occurs east of the Project site.

6.13.2 Impact Assessment

Desktop searches carried out did not identify the site as being listed on the Contaminated Land Register, nor is it recorded as a site that has been notified to the NSW Environment Protection Authority (EPA) as being contaminated. No previous land uses associated with contaminating activities have been identified within the project boundary or surrounding land that would reasonably be expected to contribute to contamination at the site. The desktop study from the PSI found the historical land use of the Site has been low-intensity agriculture, primarily pastoral grazing which presents a low risk of land contamination.

An inspection of the Project site was conducted by an experienced environmental consultant on 8 July 2025. The inspection noted the following.

- Evidence of filling of concern was not observed.
- Several stockpiles of cleared trees were present.
- Evidence of chemical storage on the site was not observed.
- Evidence of Underground Petroleum Storage System (UPSS), Underground Storage Tank (USTs), and Above Ground Storage Tanks (ASTs) was not observed.
- Two metal containers and minor metal, plastic, and wood materials/stockpiles were present.
- Evidence of significant odours or staining was not reported or observed.
- Evidence of hazardous buildings materials was not observed.
- Electrical substation kiosks were not observed on the Site or adjacent land.

Analytical results of soil samples taken support the conclusion that soils within the investigation area are unlikely to present contamination risks to human health or ecological receptors under the proposed commercial/industrial quarry use. While the site is not currently identified as contaminated, quarrying activities have the potential to cause localised contamination if not appropriately managed. Potential sources include hydrocarbon spills from machinery, improper storage of fuels or chemicals, and sediment-laden runoff entering nearby land or watercourses. However, the risk of contamination will be minimised through the implementation of environmental

management measures, including appropriate storage and handling of fuels and hazardous substances, regular maintenance of plant and equipment to prevent leaks, spill response procedures, and erosion and sediment control measures. These mitigation strategies will be outlined in the site's Environmental Management Plan (EMP) and will ensure that the risk of contamination is effectively managed throughout the life of the quarry.

6.13.3 Mitigation measure

- The Unexpected Finds Protocol (UFP) contained in the Preliminary Site (Contamination) Investigation is to be implemented during development construction works in the event any unexpected find displaying potential evidence of contamination (e.g., observed PACM, petroleum and / or oil spills, chemical odours, staining, etc.) is identified.
- A Construction Environmental Management Plan (CEMP) must be prepared for the construction phase of the project. The CEMP should also include protocols to address any unexpected finds which may be encountered during construction works and refer to the Project UFP.

6.14 Site Rehabilitation

A Preliminary Rehabilitation and Closure Plan has been prepared by Bluestone Hardrock and is provided at Appendix S. The Preliminary Rehabilitation and Closure Plan outlines the strategy for rehabilitating areas disturbed by the Project and achieving a safe, stable and sustainable post-quarry landform. Rehabilitation of the Bluestone Hardrock Quarry will be undertaken progressively throughout the operational life of the project. Progressive rehabilitation allows disturbed areas to be stabilised and revegetated as soon as quarrying activities in those areas are completed, reducing the extent of disturbed land at any one time.

The rehabilitation and closure strategy has been developed having regard to the key principles outlined in the Strategic Framework for Mine Closure (ANZMEC and MCA, 2000). These principles emphasise the importance of integrating closure planning into the life-of-mine planning process, undertaking progressive rehabilitation wherever practicable, and ensuring that final landforms are safe, stable and capable of supporting the agreed post-mining land use. The rehabilitation strategy outlined in this plan addresses these principles through the establishment of clear rehabilitation objectives, implementation methodologies, monitoring programs, and performance standards designed to guide rehabilitation activities throughout the operational life of the quarry and into the closure phase.

Rehabilitation Objectives

The objective of the rehabilitation program for the Bluestone Hardrock Quarry is to ensure that disturbed areas are rehabilitated to achieve a safe, stable and sustainable landform capable of supporting the agreed post-quarry land use.

The rehabilitation strategy has been developed with reference to Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth of Australia, 2016), which states that:

> "Mine rehabilitation aims to establish a safe, stable and non-polluting landform capable of supporting the agreed post-mining land use."

To achieve these outcomes, the rehabilitation program will address key aspects of quarry closure including final landform design, revegetation, water management and long-term site sustainability. Rehabilitation will be undertaken progressively throughout the operational life of the quarry wherever

practicable, in order to minimise the extent of disturbed land and allow rehabilitation methods to be monitored and refined over time.

A number of objectives have been identified to guide the rehabilitation strategy and ensure successful rehabilitation outcomes. These include:

- Establishing a stable final landform that is geotechnically secure.
- Ensuring the site is safe for future land use.
- Restoring vegetation communities appropriate to the surrounding landscape.
- Minimising long-term environmental impacts including erosion and sedimentation.
- Ensuring surface drainage patterns are stable and controlled.
- Establishing a landform capable of supporting the approved post-quarry land use.

Rehabilitation planning considers safety, regulatory requirements, climate, topography, soil availability, water management and community expectations.

The final landform design will be informed by the geotechnical assessment of quarry slopes and benches to ensure long-term stability. Rehabilitation outcomes will aim to produce a landform that is stable and self-sustaining, or one where ongoing maintenance requirements are consistent with the agreed post-quarry land use.

Post-Extraction Land Use

The intended post-quarry land use for the Bluestone Hardrock Quarry is rural land suitable for low-intensity agricultural activities such as cattle grazing, combined with areas of native vegetation that assist with landscape integration, environmental stability and habitat connectivity.

The rehabilitation strategy seeks to return the site to a land capability that is consistent with surrounding rural land uses and compatible with the broader landscape character of the locality. Establishing a stable landform capable of supporting grazing activities while maintaining areas of native vegetation will assist in integrating the rehabilitated quarry with adjacent rural land uses and maintaining the environmental values of the surrounding area.

This approach is consistent with the objectives of the Hunter Regional Plan 2041, which seeks to support sustainable agricultural land use, protect environmental assets and promote balanced land use outcomes across the region. The rehabilitation strategy also aligns with regional planning priorities to maintain the productivity of rural land while enhancing biodiversity and landscape connectivity where possible.

The proposed post-quarry land use is also consistent with the planning framework established under the SLEP 2013, which provides for rural land uses and seeks to protect the productive capacity of agricultural land while supporting environmental management and conservation outcomes. Returning the site to a rural land capability following quarrying will ensure that the land remains compatible with the surrounding land use pattern and can continue to contribute to the rural character and productivity of the area.

The final rehabilitated landform will therefore be designed to support the agreed post-quarry land use while ensuring long-term landform stability, appropriate drainage and sustainable vegetation cover. Areas of native vegetation will assist in stabilising rehabilitated slopes, reducing erosion potential and providing ecological value within the rehabilitated landscape.

The rehabilitation strategy has also been developed with consideration of broader regional environmental and land use objectives. The establishment of pasture areas and native vegetation will assist in integrating the rehabilitated quarry with the surrounding rural landscape and contribute to the maintenance of ecological values within the locality.

Areas of native vegetation established as part of the rehabilitation program will contribute to landscape connectivity and environmental stability within the broader region. This approach supports regional land management objectives that seek to balance agricultural productivity with the conservation of environmental values.

Through the establishment of stable landforms and vegetation communities consistent with surrounding land uses, the rehabilitation strategy will complement broader regional land management outcomes while ensuring that the site can continue to support rural land uses following quarry closure.

Final Landform Design

The final landform for the Bluestone Hardrock Quarry will reflect the physical constraints created by the quarry excavation as well as the surrounding natural topography. The design of the final landform will seek to integrate the rehabilitated quarry with the existing landscape while ensuring long-term geotechnical stability, effective surface water management and environmental sustainability.

The final landform will be designed in accordance with accepted quarry rehabilitation and mine closure practices and will aim to achieve a safe, stable and non-polluting landform capable of supporting the agreed post-quarry land use. Where practicable, the rehabilitated landform will blend with the surrounding terrain to minimise visual impacts and ensure compatibility with adjacent rural land uses.

A Plan view of the Quarry with sectional lines is provided in Figure 17. Figure 18 provides longitudinal and cross-sectional views of the Conceptual Final Land form based upon the lines in Figure 17.

Key design elements of the final landform will include:

- Stable quarry benches - designed to maintain long-term geotechnical stability and minimise the potential for slope failure or rockfall. Bench heights and widths will be retained or modified where necessary to ensure stability of the final quarry faces.
- Benches shaped to facilitate controlled surface drainage - ensuring runoff is directed in a predictable manner and minimising the potential for erosion or sediment transport.
- Catch drains and bunding where required - to intercept surface water flows and prevent uncontrolled runoff down quarry faces or slopes. These features will assist in directing runoff to stable drainage pathways.
- Topsoil placement and revegetation of benches - where practicable, to support vegetation establishment, improve landscape integration and assist in stabilising soil surfaces.
- Stabilisation of exposed rock faces - including the removal or scaling of loose material where necessary to ensure long-term safety and stability.

Quarry benches will generally be shaped to drain toward the rear of the bench in order to minimise erosion and control surface runoff. Drainage will be directed toward designated drainage paths or sediment control measures where necessary to prevent sediment migration from rehabilitated areas.

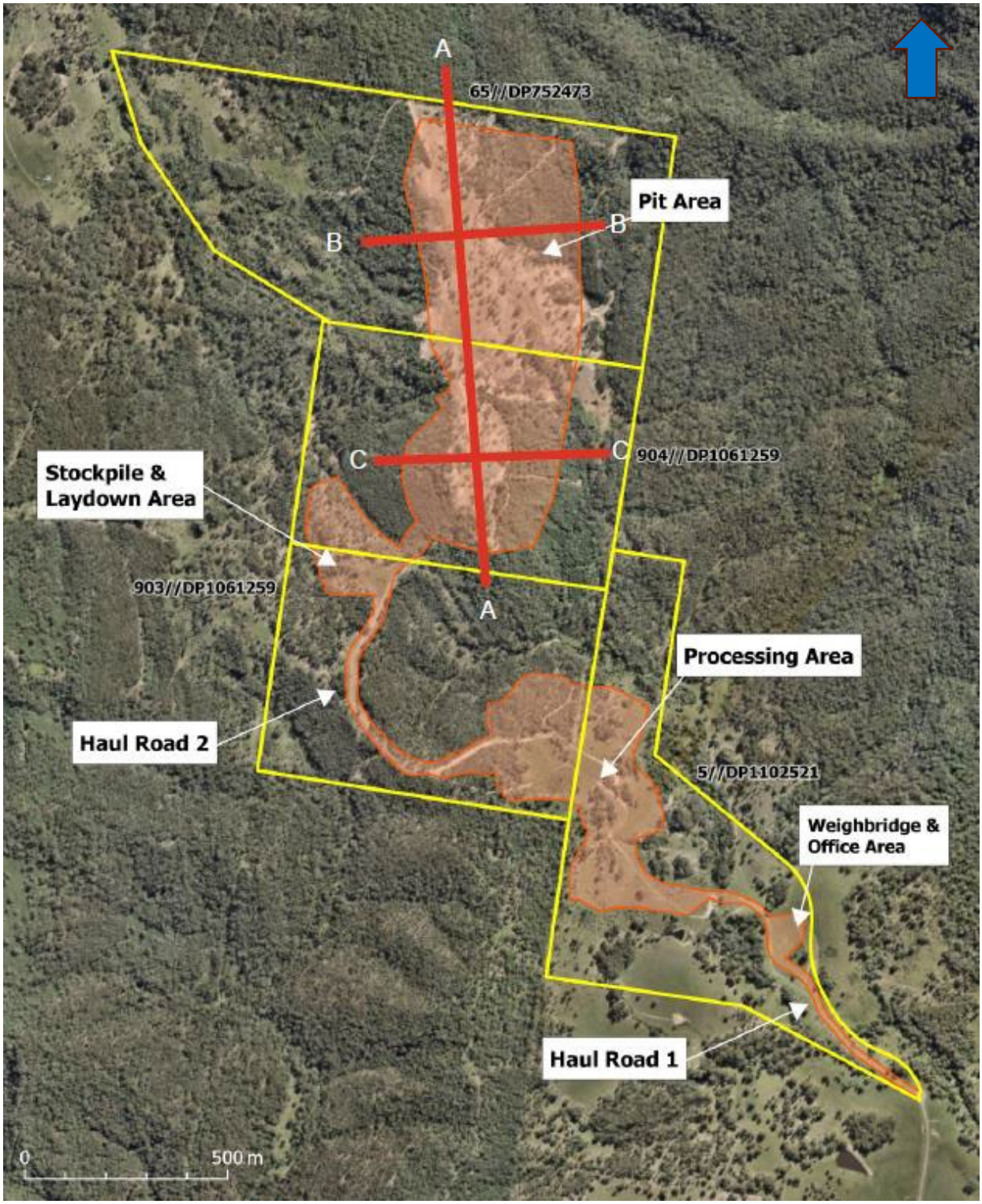
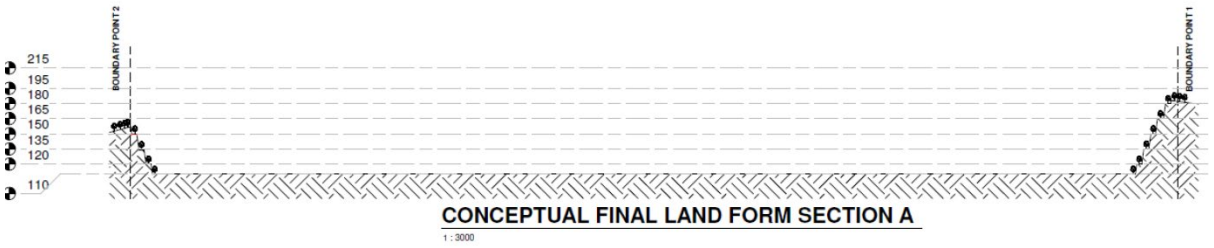
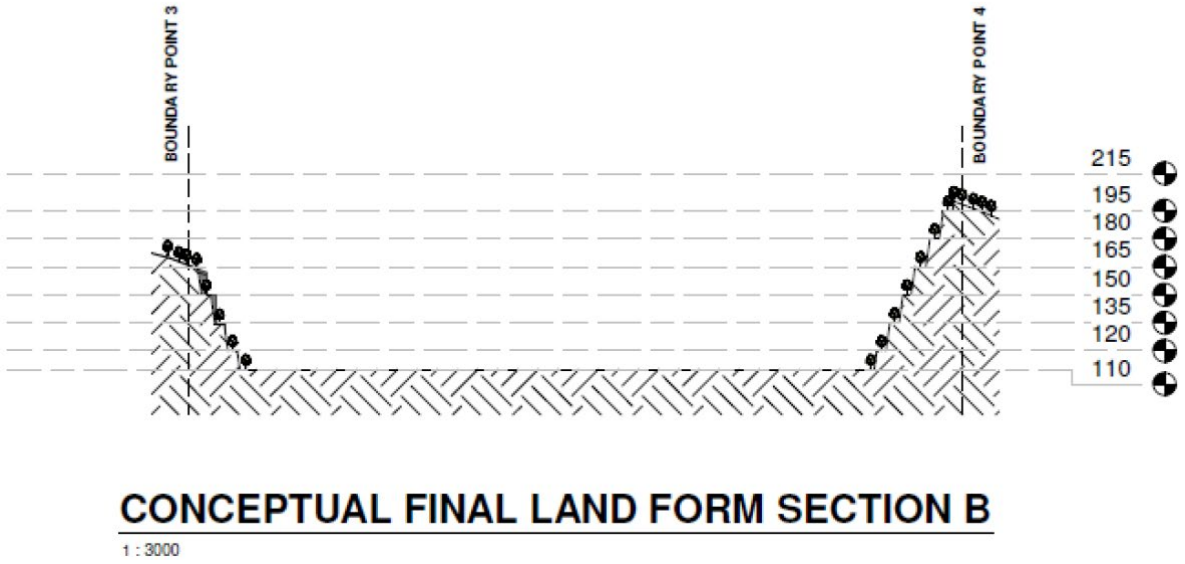


Figure 17 Plan view and sectional lines

Source: Bluestone Hardrock





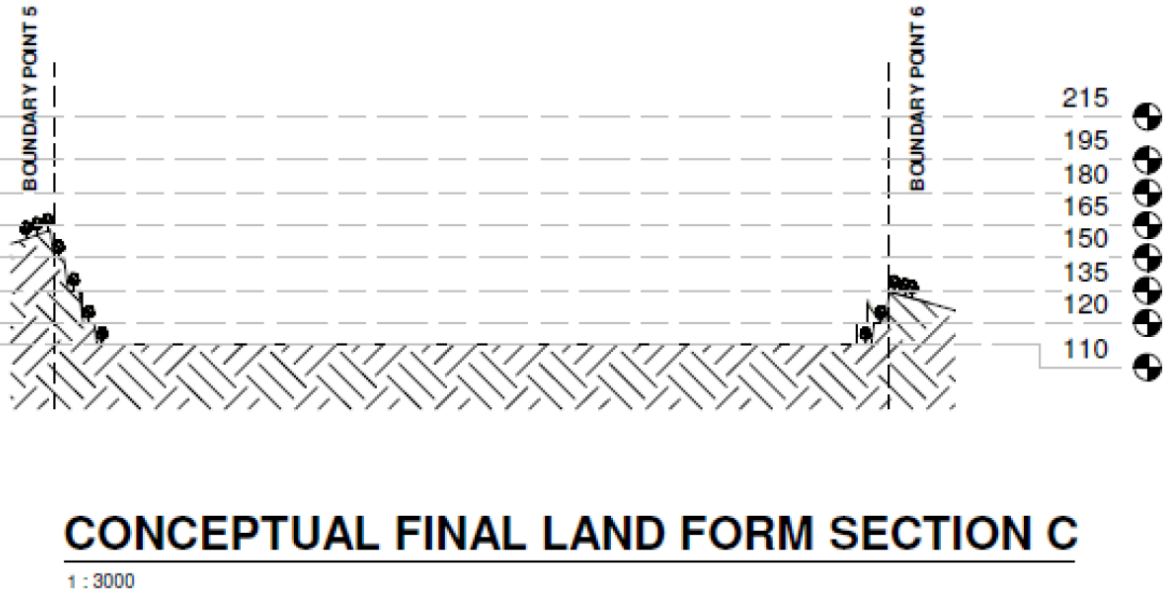


Figure 18 Long and Cross Sections of the Conceptual Final Landform

Source: Bluestone Hardrock

Surface drainage will be designed so that runoff occurs in a controlled manner and erosion potential is minimised. Where required, drainage structures such as contour drains, catch drains and sediment control measures will be incorporated to manage stormwater flows and maintain landform stability.

Where benches are suitable for rehabilitation, growth media and topsoil will be applied to support vegetation establishment. Vegetation will assist in stabilising soil surfaces, reducing erosion potential and enhancing the visual integration of the quarry with the surrounding landscape.

Overall, the final landform will be designed to achieve long-term stability with minimal maintenance requirements and to ensure that the rehabilitated quarry landform is compatible with the surrounding landscape and capable of supporting the agreed post-quarry land use.

The Preliminary Rehabilitation and Closure Plan also includes detail on the intent of the Project with respect to the following.

- Infrastructure Decommissioning
- Roads and Access Tracks
- Site Safety
- Revegetation
- Weed and Pest Management
- Bushfire Considerations
- Rehabilitation Management Framework
- Methods of Rehabilitation
- Monitoring and Maintenance
- Closure Planning and Post-closure land capability

6.14.1 Mitigation Measures

The following mitigation measure will be implemented.

- A Rehabilitation Management Plan (RMP) will be developed prior to the commencement of operations, consistent with relevant guidelines and in compliance with the required rehabilitation outcomes outlined within conditions of the development consent.
- Opportunities to implement progressive rehabilitation will be identified as part of annual rehabilitation planning processes.
- The rehabilitation and disturbance schedule for implementation will be incorporated into the RMP and reviewed annually. Detailed rehabilitation methodologies will be documented within the RMP and site procedures prior to the commencement of operations.
- A Ground Disturbance Permit (GDP) process will be established and implemented for all ground disturbance works within the Project Approval boundary in accordance with the GDP Procedure. All clearing activities will be undertaken in accordance with the site approval conditions, site management plans/standards and the conditions contained in the GDP. All works are to be undertaken in an environmentally responsible manner to ensure the conservation of the natural environment as far as practicable.
- Prior to clearance activities commencing as part of the GDP process, suitably qualified personnel would conduct a fauna survey to minimise the risk of any resident fauna becoming displaced or

injured. Additionally, the presence of a trained ecological or licensed wildlife handler would be maintained during native vegetation clearance and clearance of rock areas.

- A rehabilitation monitoring program will be undertaken in accordance with best practice standards. Early intervention and adaptive management to minimise the potential for rehabilitation failure will be implemented. The rehabilitation monitoring program developed for the project will include a rehabilitation Trigger Action Response Plan (TARP).
- A rehabilitation quality assurance process (RQAP) will be developed and incorporated into the rehabilitation monitoring program. The RQAP will be implemented through every phase of rehabilitation. The RQAP will also include an inspection protocol to ensure that each phase of decommissioning and rehabilitation has been completed.

6.15 Hazard and Risk

6.15.1 Methodology

This section considers whether the Project is a potentially hazardous or offensive industry according to the Resilience and Hazards SEPP. It provides an assessment as to the potential for risks to public safety associated with bushfire risk and the handling, transport and use of hazardous or dangerous goods. It also includes an assessment of the potential for contamination at the Project site.

6.15.2 Assessment

A preliminary risk screening was undertaken for the Project in accordance with Chapter 3 of the State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP). The preliminary risk screening considers the type and quantity of hazardous materials to be stored on site, distance of the storage area to the nearest site boundary, as well as the expected number of transport movements. A development is considered 'potentially hazardous' and requires a Preliminary Hazard Analysis (PHA) if the storage or transport of hazardous substances exceeds specific screening thresholds.

An inventory of hazardous substances proposed for on-site storage, including their associated dangerous goods classifications, estimated storage volumes, and relevant screening thresholds are presented in Table 21 below.

Table 21 Hazardous substances proposed for on-site storage

Material	Storage Type and Location	ADG Code Class	Quantity	Screening Threshold	PHA Required
Diesel fuel	Above ground self-bunded tank in dedicated diesel fuel storage area (Operational Area)	C1	30,000 L	No screening thresholds for combustible liquids	No
Unleaded fuel	Operational Area	3 (II)	200 kg	< 5 tonne – screening distance does not apply	No
LPG	Operational Area	2.1	100 kg	10 tonne	No

Material	Storage Type and Location	ADG Code Class	Quantity	Screening Threshold	PHA Required
Oils (engine and hydraulic)	Bunded, enclosed in storage room in workshop	C2	3,000 kg	No screening thresholds for combustible liquids	No
Welding gases	Stored in cage in workshop	2.1	30 kg	10 tonne	No
Aerosols	Stored in cage in workshop	2.1	50 kg	10 tonne	No
Paint and solvents	Stored in cage in workshop	3 (III)	50 kg	< 5 tonne – screening distance does not apply	No
Grease	Store in storage room in workshop	N/A	3,000 kg	No screening thresholds	No
Coolant	Bunded, enclosed in storage room in workshop	6.1	5,000 L		No

The predicted quantities of hazardous substances to be stored on-site, as outlined in Table 21 above, are all below the applicable thresholds that would require a Preliminary Hazard Analysis (PHA). As no explosives or precursor materials are planned for storage within the Project Area, screening requirements for such substances are not required.

The Resilience and Hazards SEPP also sets threshold limits for the transportation of hazardous materials to and from a site. The ADG class, approximate quantities per load, and the number of weekly and annual deliveries are shown in Table 22.

Table 22 Resilience and Hazards SEPP thresholds

ADG code Class	Deliveries Weekly	Deliveries Annual	Quantities per load (average)	Potentially hazardous
2.1	2	30	16 m^3	No
9	1	5	6,000 L	No

The approximate quantities per load, and the number of weekly and annual deliveries are below the Resilience and Hazards SEPP transport screening thresholds. Accordingly, the development is not classified as potentially hazardous on the basis of transport activities.

6.16 Waste Management

A Waste Management Plan (WMP) has been prepared by Bluestone Hardrock Pty Ltd and is contained in Appendix X. The purpose of this WMP is to demonstrate that waste generated during the construction and operational phases of the Project will be managed in accordance with applicable legislation and best practice environmental standards.

This WMP has been prepared in response to the SEARs and demonstrates alignment with the following statutory and policy instruments:

- NSW EPA Waste Classification Guidelines.
- NSW Waste and Sustainable Materials Strategy 2041.

The WMP establishes management measures to ensure waste avoidance, resource recovery, lawful disposal, and prevention of environmental harm.

6.16.1 Existing Environment

The Project site has been historically cleared, with vegetation mostly consisting of regrowth. The site is used for agricultural grazing and is relatively free of visible waste with only windblown litter evident.

6.16.2 Impact Assessment

Construction Waste Management

Construction activities associated with the quarry development will generate a range of waste streams arising from site establishment, vegetation clearing, earthworks, infrastructure installation, plant and equipment mobilisation, and site amenities. Effective waste management during construction is required to prevent environmental harm and ensure compliance with statutory obligations, maximise resource recovery opportunities, and ensure compliance with applicable legislation, including the PoEO Act and associated waste regulations.

Waste management during construction will be undertaken in accordance with the waste hierarchy, prioritising avoidance, reuse and recycling ahead of disposal.

Construction-Phase Waste Generation

The principal waste streams expected during construction include:

- Vegetation cleared during site preparation
- Topsoil and subsoil
- Overburden and excess excavated material
- Construction materials (e.g. timber, packaging, scrap metal, pallets)
- Concrete, masonry and aggregate materials
- Recyclable materials (cardboard, plastics, metals)
- General putrescible waste from site amenities
- Sewage from site amenities

All wastes will be classified in accordance with the NSW EPA Waste Classification Guidelines prior to off-site transport, where required.

Materials suitable for reuse will be retained on-site wherever feasible to minimise disposal volumes. This includes:

- Reuse of topsoil and subsoil for progressive rehabilitation and landscaping.
- Reuse of overburden and suitable excavated material for landform shaping, bund construction and infrastructure development.
- Mulching of cleared vegetation for erosion and sediment control or rehabilitation purposes; and

- Segregation of recyclable materials for off-site recycling.
- Procurement practices will minimise waste generation through efficient material ordering and selection of reusable or recyclable products where feasible.

Collection and Storage

During the construction phase, waste will be segregated at the point of generation where practicable to maximise resource recovery and recycling.

Dedicated bins or designated storage areas will be provided for:

- General construction waste
- Recyclable materials (e.g. cardboard, plastics and packaging)
- Scrap metal
- Timber
- Hazardous and regulated wastes

All waste storage areas will be located within designated construction areas and managed to prevent environmental impacts, including wind-blown litter, dust generation, and stormwater contamination.

Hazardous wastes associated with plant and equipment (e.g. oils, greases, fuels, oily rags, filters and batteries) will be stored in sealed, clearly labelled containers within bunded and covered areas in accordance with applicable environmental legislation and relevant Australian Standards. Spill kits will be maintained onsite, and any spills will be managed immediately in accordance with site procedures.

Putrescible waste generated by construction personnel will be stored in covered bins and removed regularly to prevent litter, vermin access and odour impacts.

All waste will be removed from site by appropriately licensed contractors and transported to approved recycling or disposal facilities.

Transport and Disposal

Waste that cannot be reused or recycled on-site will be transported by appropriately licensed waste contractors to authorised recycling or disposal facilities in accordance with the PoEO Act. Waste tracking documentation and record keeping will be maintained as required under the PoEO Act and PoEO Waste Regulation.

Environmental Protection Measures will be supported by:

- Regular site inspections to ensure appropriate segregation and storage
- Monitoring of stockpile volumes to prevent excessive accumulation
- Implementation of erosion and sediment controls around stockpiles
- Spill response procedures for hazardous materials
- Induction and training of construction personnel in waste management requirements

Through the implementation of these measures, construction waste will be managed in a manner that minimises environmental risk, maximises resource recovery, and ensures compliance with statutory obligations.

Waste Contractors and Facilities

Contractors engaged for the collection and transportation of waste generated during the demolition and construction phases will be selected with consideration given to their environmental performance history, relevant qualifications and licences, and the proposed destination and management pathway of the waste. Preference will be given to contractors who demonstrate a strong commitment to resource recovery, including the reuse and recycling of materials.

The construction contractor will be responsible for maintaining accurate records of waste disposal, including retaining all waste dockets and tracking documentation provided by waste transport contractors.

Where waste facility selection is at the discretion of the developer, facilities will be chosen with regard to recovery rates, environmental performance standards, regulatory compliance, and proximity to the site to minimise transport-related impacts.

Potential waste receiving facilities may include appropriately licensed resource recovery and waste management centres such as Recycle Central / Central Waste (Kurri Kurri) and Singleton Waste Management Facility (Fern Gully), subject to confirmation of capacity and licensing at the time of disposal.

Construction Waste Documentation

To ensure regulatory compliance and traceability of waste materials, the following documentation will be maintained throughout the construction phase.

- Waste transport certificates and tracking documentation, where required under applicable EPA legislation
- Receipts and weighbridge dockets from licensed disposal and recycling facilities
- Records of onsite reuse, stockpiling or reprocessing of materials
- Safety Data Sheets (SDS) for hazardous materials stored or handled onsite
- Waste tracking registers and periodic summary reports
- All documentation will be retained by the construction contractor and made available to regulatory authorities upon request
- Maintaining accurate and up-to-date records will support transparent auditing and enable the project to demonstrate compliance with applicable environmental legislation, EPA requirements and relevant conditions of consent

Operational Waste

During operation of the Bluestone Hardrock Quarry Project, waste will be generated from extraction, processing, plant and equipment maintenance, site administration, and employee amenities.

While operational waste volumes are minor relative to total material extraction and processing activities, all waste streams will be managed in accordance with statutory requirements to minimise environmental risk and maximise resource recovery.

Operational waste management will be undertaken in accordance with:

- The waste hierarchy (avoid, reuse, recycle, dispose).
- The *Protection of the Environment Operations Act 1997* (PoEO Act).
- The Protection of the Environment Operations (Waste) Regulation 2014.

- The Waste Avoidance and Resource Recovery Act 2001.
- The NSW Waste and Sustainable Materials Strategy 2041.

The operational waste framework aims to:

- Minimise waste generation at source.
- Maximise on-site reuse of materials.
- Promote off-site recycling where practicable.
- Prevent pollution and environmental harm.
- Ensure lawful transport and disposal of residual wastes.

All waste streams generated during operations will be identified, classified (where required), and managed through approved storage, handling and disposal pathways.

On-Site Waste Handling

Waste generated during quarry operations will be segregated at source to maximise resource recovery and minimise landfill disposal.

For General and Recyclable Waste:

- Separate bins will be provided for general waste and recyclable materials.
- Recyclables (e.g. paper, cardboard, plastics, scrap metal) will be collected and transported to authorised recycling facilities.
- Putrescible waste from amenities will be stored in covered bins to prevent odour, litter and vermin access.
- Waste collection frequency will be aligned with operational needs to prevent overflow or stockpile accumulation.

For Maintenance and Regulated Waste - Waste generated from plant and equipment maintenance may generate:

- Used oils and greases.
- Oil filters and absorbent materials.
- Waste tyres.
- Batteries.
- Minor quantities of contaminated materials.

These materials will be:

- Stored in sealed and clearly labelled containers.
- Kept within bunded and covered storage areas.
- Managed to prevent spills or contamination of soil and water.
- Collected by appropriately licensed contractors and transported to authorised facilities for recycling or lawful disposal.

For Chemical Storage and Management - Chemicals used during quarry operations will primarily include fuels, lubricants, hydraulic oils, greases and minor maintenance chemicals associated with plant and equipment servicing.

These substances will be stored in clearly labelled containers within designated bunded areas designed to prevent spills and environmental contamination, in accordance with relevant Australian Standards including AS 1940 – Storage and Handling of Flammable and Combustible Liquids. Storage areas will be located away from drainage lines and sensitive environmental areas where practicable.

Safety Data Sheets (SDS) will be maintained for all chemicals stored on site, and spill kits will be available in areas where fuels or chemicals are handled. Any waste chemicals or contaminated materials will be collected by appropriately licensed contractors and transported to authorised recycling or disposal facilities.

For Excavated Materials and Overburden - Excavated materials and overburden generated during operations will, where suitable, be reused on-site for:

- Landform shaping.
- Construction of bunds.
- Road maintenance.
- Progressive rehabilitation.

Material unsuitable for on-site reuse will be classified and disposed of in accordance with EPA requirements.

Predicted Operational Waste Streams

Operational waste generation has been estimated based on the anticipated workforce (up to 15 staff), further development of the quarry site including the remainder of the processing area, haul road 2 and main pit establishment, quarry processing activities, plant and equipment maintenance requirements, and site amenities.

Wastes anticipated to be generated by the Project have been classified according to the Waste Classification Guidelines – Part 1: Classifying Waste (NSW EPA, 2014).

6.16.3 Mitigation Measures

The following mitigation measures will be implemented.

- Waste streams will be classified and managed in accordance with the principles of the waste management hierarchy and EPA guidelines.
- All waste or redundant materials generated by the project would be reused or recycled where feasible and reasonable.
- All wastes will be stored in appropriate containers/receptacles that are lidded where practical, within designated waste storage areas.
- All wastes will be collected for reuse/recycling/disposal by appropriately licensed waste contractors. Transport of wastes to recycling or waste disposal facilities would be undertaken by appropriately licensed waste contractors.
- Overburden would be re-used at the site for fill or bunding or will be stored at the site for reuse during rehabilitation.
- Any waste oils, greases and lubricants would be stored in designated drums prior to their removal for recycling or disposal.
- Any soils contaminated through fuel or chemical spills would be excavated and transported to a licensed waste facility and the resulting excavation would be filled with suitable clean soil.

- General wastes will be segregated into recyclable and on-recyclable streams through the provisions of appropriate split receptacles bins.
- Site inductions for employees and contractors will include waste management information. Appropriate signage will be provided at all waste storage areas to clearly identify waste segregation and recycling procedures.
- The WMP will be retained on-site during the excavation and construction phases of the development, along with other waste management documentation (e.g. contracts with waste service providers). Responsibility for the WMP, waste documentation and processes during the excavation and construction phases will be with the site manager or builder. A logbook that records waste management and collection will be maintained on site, with entries including:
    - Time and date of collections.
    - Description of waste and quantity.
    - Waste/processing facility that will receive the waste.
    - Vehicle registration and company name.

6.17 Health Impacts

The potential health impacts associated with the proposed development have been considered as part of the Air Quality Impact and Greenhouse Gas Assessment, contained in Appendix I and the Noise and Vibration Impact Assessment contained in Appendix H.

Air

Results of the Air Quality Impact and Greenhouse Gas Assessment concluded that the Project and approved operations would not result in any exceedances of the criteria for PM2.5, PM10, TSP or dust deposition at any privately-owned receptor due to emissions from the Project, or with consideration of other sources and background air quality levels.

The SIA contained in Appendix Q considers that the Project's impact on the health and wellbeing of people in the social locality from an air-quality perspective (i.e. airborne diesel particles and silica dust impacts) is one of perception. This perceived impact is of course valid and has been evaluated within the SIA.

Noise

The site related noise exposure levels predicted from the proposed development for both the construction and operational phases, are unlikely to reach the permissible noise exposure limits of potential health impacts as per the relevant guideline, the NSW Workplace Noise Exposure Standard established by the NSW Work Health and Safety Regulation 85 LAeq,8hour and 140 LCpeak. Therefore, it is assumed that by meeting the required site-specific criteria the project avoids noise related health impacts.

Qualitative data collected for the SIA highlights some perceived discomfort associated with existing road traffic noise and future traffic noise that additional Project related heavy vehicles might create. The scale of discomfort among people living in the social locality, and certainly along the proposed haul route varies. As described by doorknock respondents, some people are very uncomfortable with Project noise, whilst others expressed no discomfort.

6.18 Cumulative Impacts

The Cumulative Impact Assessment Guideline for State Significant Projects (DPIE, 2022) require the consideration of a project together with the impacts of other relevant future and existing projects in order to determine the potential cumulative impacts. The potential for cumulative impacts has been assessed by the individual specialist consultants as part of the assessments prepared for this EIS. In this regard, cumulative impacts have been assessed and incorporated into the mitigation measures from the outset with no potential for significant cumulative impact identified.

Biodiversity

The proposal will result in the removal of 31.60ha of the Central Hunter Valley eucalypt forest and woodland, listed as Critically Endangered under the EPBC Act. Removal of 31.60 of this community equates to 0.09% of the total occurrence within Australia. The Project site is also surrounded by large areas of vegetation commensurate with this community.

Other considerations for biodiversity cumulative impacts include:

- Impacts on threatened species – The removal of vegetation and hollow bearing trees associated with quarry developments in the locality will remove habitat for some threatened plant species and some fauna species.
- Although the current proposal does not involve removal of threatened plant species, it will remove foraging habitat for the Grey-headed Fox and other mobile threatened fauna that could potentially utilise the site on occasion.
- Impacts on corridors – The collective loss of vegetation is unlikely to sever or disconnect areas of important habitat for threatened species.
- Fragmentation – The collective loss of vegetation associated with the proposal and other quarry developments in the region will increase the level of fragmentation of forest canopy in the landscape. This impact can be mitigated to some extent by the mitigation measures outlined in the BDAR, including progressive clearing (staged over 30 years), progressive rehabilitation and revegetation of cleared areas.

Noise and Blasting

The assessment of cumulative impacts is taken into account by virtue of the extant noise being considered in the establishment of the proposed developments amenity noise level and adjustments where required, using the result of the ambient sound level resultant from site monitoring. Cumulative road traffic noise is taken into account during the noise assessment by the comparison of the no-build and build options assessment as well as the relative increase criteria. As such, limited noise and blasting impacts have been identified, with mitigation measures proposed.

Air Quality

The 2017 calendar year was adopted to conservatively represent the background level for dust emissions at the project site and its surrounding areas, and for the purpose of assessing cumulative air impacts. There are no other commercial operations in the surrounding vicinity (being within 5km of the site), that may generate significant dust emissions and affect the outcomes of the cumulative assessment.

Water

The potential cumulative impacts of the quarry on the receiving environment is considered to be negligible.

Groundwater impacts are anticipated to be localised largely to the quarry footprint area and not cause any cumulative impacts. No other existing or potential development has been identified which could be potentially impacted by the Project.

Heritage

The cumulative impact to Aboriginal heritage in the area is limited given that: the net development footprint (i.e., the area of direct impact) is 63.4ha and does not affect a high proportion of any particular landform present within the region; a comparable suite of landforms that are expected to/and do contain a similar archaeological resource occur in multiple contexts throughout the wider region; the project site has been subject to long term cattle grazing land uses (impacts) that have resulted in a disturbed landscape and as a consequence of these disturbances the representative value of the archaeological resource is lessened.

Haulage of material will include crossing Elderslie Bridge. Consultation with TfNSW has established that the bridge (TfNSW owned) is in good condition. TfNSW has advised that the use of the bridge as part of the haulage route for the project is acceptable. As the structural integrity of the bridge will not be compromised, the project will not directly harm the heritage values of the bridge. The Project will not traverse across Beckers Bridge over Webbers Creek located to the north of the Project site.

Traffic and Transport

The proposed quarry has the potential to increase traffic on the local road network by on average up to 110 vpd (in both directions), a low increase to the surrounding traffic network volume when assessed in isolation. Traffic modelling of intersections along the haul route has shown that intersections currently operate with excellent levels of service and would continue to do so through to at least 2035 with normal background traffic growth. The exception is the right turn out of New England Highway onto Wine Country Drive which is currently performing at a low level of service, however the additional development traffic has no impact on the current level of delays being experienced. Traffic accident data along the haul road and its intersections has determined that there is no significant accident history at the identified intersections and no obvious trends within the data that indicates existence of a safety problem.

Land Resources

Potential rehabilitation interactions between the proposed quarry and other existing and proposed major developments have been considered, including other nearby mining projects, renewable energy projects and the like.

The site is suited to low-intensity agriculture, primarily grazing. It is not considered highly productive agricultural land as defined in The Land and Soil Capability Assessment Scheme.

The site is well suited to re-establishment of Native Ecosystems and grazing activities post quarrying activities and rehabilitation. No cumulative rehabilitation impacts are predicted to the subject site from these developments.

Waste Management

Cumulative waste impacts with other activities in the area are not anticipated as they will be managed through appropriate waste mitigation and management measures – in particular, the fact that waste will be reused or recycled where possible, or disposed of in a licensed manner, and therefore no long-term cumulative impact is expected.

Hazards

Bushfire

Whilst it could be considered that there is potential for cumulative impacts if all identified hazards were to ignite at once, it is considered that the proposed protection measures, (principally Performance Based Solution) should provide adequate protection to life and property within the proposed quarry in the event of a bushfire occurring in the immediate locality.

Hazardous Materials

The cumulative annual and peak weekly movements of vehicles delivering dangerous goods to the site do not exceed the transport screening thresholds. As such, the development can be classified as not 'potentially hazardous' from a transport screening perspective.

Visual

A cumulative visual impact could result from the proposed quarry being constructed in conjunction with other existing or proposed developments which could be either associated or separate to it. Separate developments could occur or be located within a local context where visibility is dependent on a journey between each site or within the project viewshed. The Singleton region includes well-established and extensive areas of mining as well as heavy industry and large-scale infrastructure. These can be observed from numerous locations throughout the broader landscape, including from prominent viewpoints along the New England Highway and can be observed frequently by a high volume of visual receptors using this highway. This includes the Lidell Power Station, which is also visible from within the 3km visual catchment of this LVIA. While the Project and other extractive industry projects are not visible from one another, the character of the broader landscape (i.e. beyond the visual catchments) is not uncharacteristic and is not considered to introduce an incompatible landscape character. The Project will be largely screened from the broader landscape by the topography of the surrounding area, and along with the gradual excavation over a 30-year period, the overall cumulative visual effect is not considered to be significant.

Social

Stakeholder engagement produced some comment on the potential for cumulative impacts of the proposed quarry. Some stakeholders identified potential operational effects of the quarry against the background of the existing development. These potential cumulative impacts mainly related to blasting activities at existing mines and the additional blasting that would occur at the Project site. The relevant blasting impacts are potentially noise and vibration, overpressure and dust and other blasting emissions.

With respect to mitigation of potential cumulative impacts which have social impact implications; continuous implementation of the initiatives identified within the Mitigation Measures Table at Appendix D, will be necessary over the operational life of the quarry to ensure that effects are minimised to the extent possible.

Economic

The Project is expected to provide a sustained economic contribution to the region and the State, primarily through its long-term operational phase.

Rehabilitation

Potential rehabilitation interactions between the proposed quarry and other existing and proposed major developments have been considered, including other nearby mining projects and renewable energy projects and associated infrastructure. The site is well suited to re-establishment of Native

Ecosystems and grazing activities post quarrying activities and rehabilitation. No cumulative rehabilitation impacts are predicted to the subject site from surrounding developments.

Relevant future and existing projects in the region

There are currently no other quarries proposed close to the Project in the Singleton LGA. The closest existing quarry project is Hebden Quarry located near Singleton at 1246 Hebden Road, Hebden, approximately 15 km northwest of the Project.

The closest proposed state significant mining project to the Project is the Rix's Creek North Continuation Project, approximately 18 km northwest of Elderslie. The Rix's Creek Mine is also the closest mining operation to the Project. The closest state significant non-industrial development is the proposed Huntlee New Town Stage 2 development which is located near Branxton, approximately 9km south of Elderslie.

Relevant existing and proposed developments have been identified through a search of the NSW Planning Portal and Singleton Council website and are shown in Table 23. The majority are not considered likely to create cumulative impacts with the Project primarily due to distance.

Table 23 Relevant Existing and Proposed Projects in the Vicinity of the Project.

Project Name	Status and comment	Distance from Project (km)
Huntlee New Town – Stage 2	Proposed – Large urban release area. Located to the south of the Project site.	10.8
Hebden Quarry	Existing	37
Maison Dieu Solar Farm	EIS being assessed by DPHI - Low risk of cumulative impacts, though perception of cumulative loss of rural character.	24
Rix's Creek North Continuation Project	EIS being prepared – Low risk of cumulative impacts, though perception of cumulative loss of rural character	18.8
Rix's Creek North Mine	Existing	18.8
Integra Underground	Existing	26
Wambo Open Cut Coal Mine	Existing	25.4
Bulga Open Cut Coal Mine	Existing	26.5
Redbank Power Station Refurbishment	Proposed	27.2
Ravensworth Underground Mine	Existing	33

6.19 Environmental Risk Assessment

The SEAR's identify the need to undertake an assessment of potential environmental risks as part of the EIS. This section outlines the environmental risk assessment undertaken for the Project.

The analysis provides a framework for identifying and analysing potential environmental impacts of the Project and enables the Project to be developed to address these potential impacts through design elements or management measures.

The key steps in the risk assessment process are as follows:

- Establishment of the risk framework: the likelihood of a risk event occurring, the consequence of that event, and overall risk matrix.
- Risk Identification: A process of identification of the risks associated with the key issues set out in the SEARs, as well as risks associated with any other issues identified by the Project Team.
- Risk Assessment: The potential risk is assessed (assessment of likelihood as described in Table 24 and consequence as described in Table 25) and a risk rating (Negligible, Low, Medium, High, Extreme) is allocated, as calculated in Table 27 and defined in Table 26.
- Risk Analysis and Treatment: Identify the potential mitigation measures for the risk and estimate any residual risk after implementation of the measure.

Table 24 Likelihood Table

Likelihood	Description
Almost Certain	The event is expected to occur in most circumstances
Likely	The event will probably occur in most circumstances
Possible	The event could occur
Unlikely	The event could occur but is not expected
Rare	The event is expected only in exceptional circumstances

Table 25 Risk Matrix

Likelihood	Consequence Level				
	Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Almost Certain	Low	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	High	Extreme
Possible	Negligible	Low	Medium	High	High
Unlikely	Negligible	Low	Medium	Medium	High
Rare	Negligible	Negligible	Low	Medium	Medium

Table 26 Environmental Risk Analysis Risk Level Definitions

Risk Level	
Extreme	May have significant impacts. Detailed assessment necessary to determine the level of potential impact and to develop appropriate measures to mitigate and manage the impacts.
High	May have moderate to high impacts. Detailed assessment necessary to determine the level of potential impact and to develop appropriate measures to mitigate and manage the impacts.
Medium	May have moderate impacts that can be mitigated by the application of standard environmental management measures.
Low	Will have low impacts, which can be managed by standard environmental management measures.
Negligible	Will have minimal impact, which requires no or minimal implementation of standard environmental management measures

A broad risk identification and prioritisation was undertaken to rank potential risks from the Project. This provided a basis for scoping the key risks for the Project. The results of the environmental risk assessment for the proposed development are presented in Table 27 and are based upon the range of technical and specialist consultant reports appended to this EIS.

The table has directly related mitigation measures responding to each impact (satisfying the SEARs for a consolidated summary of all proposed mitigation measures) also based upon the range of technical and specialist consultant reports appended to this EIS.

Table 27 Environmental Risk Matrix Summary

Matter	Potential Impact	Likelihood	Consequence	Risk Level	Proposed Mitigation Measures
Traffic and Transport	Reduced level of service	Possible	Moderate	Medium	Medium
Air Quality	Exceedance of industry standard criteria	Possible	Moderate	Medium	Low
Noise and blasting	Exceedance of industry standard criteria	Possible	Moderate	Medium	Low
Water Resources	Water pollution	Possible	Moderate	Medium	Low
Aboriginal Heritage	Damage to artefacts and places	Possible	Moderate	Medium	Low

Matter	Potential Impact	Likelihood	Consequence	Risk Level	Proposed Mitigation Measures
Biodiversity	Loss of flora, fauna and overall biodiversity	Possible	Moderate	Medium	Low
Land Resources	Offsite pollution and land use conflicts	Possible	Moderate	Medium	Low
Rehabilitation	Safe, stable and re-usable final landform	Possible	Moderate	Medium	Low
Cumulative Impact	Cumulative impacts with other developments	Possible	Moderate	Medium	Low
Historic Heritage	Damage to artefacts	Unlikely	Minor	Low	Low
Hazard and Risk	Bushfire	Possible	Moderate	Medium	Low
Visual Amenity	View loss	Unlikely	Minor	Low	Low
Social	Perceived loss of rural amenity	Possible	Moderate	Medium	Low
Economic	Reduced local business scale and revenue	Possible	Moderate	Medium	Low
Waste Management	Excessive generation and inappropriate disposal of waste	Possible	Minor	Low	Low

With the mitigation measures proposed, the impacts resulting from the proposal will be acceptable. Specifically, Where the individual risks were deemed unacceptable, or where a knowledge gap was identified, specialist technical studies were undertaken and additional mitigation measures and or management responses were proposed. Section 6.1 to Section 6.18 provide a detailed assessment of the key environmental and social impacts of the project as identified above.

7 Project Justification

This section provides a justification and evaluation for the project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development.

As outlined in this EIS, the Project site is strategically located in the Hunter Region, within proximity to major markets, and will extract a high-quality hardrock resource suitable for concrete, housing and infrastructure (road and rail) applications. The resource is considered significant due to its quality, volume, and ease of extraction with minimal overburden. The chosen pit location has been previously cleared for agriculture and allows for development with reduced environmental and land use impacts.

The quarry will help meet growing demand for construction materials in both regional and metropolitan areas, supporting planned housing urban release areas and infrastructure projects and contributing to competitive market pricing. The staged development approach ensures that disturbance is aligned with production needs, limiting unnecessary environmental impact.

The Project is expected to deliver economic and social benefits, including local employment and support for regional businesses. It will contribute to local and broader economic growth, while managing environmental and social risks through robust planning and mitigation measures identified in comprehensive technical assessments. Overall, the Project is considered to provide a net community benefit and is justified on environmental, social, and economic grounds.

7.1 Project Design

The extraction area has been sited to avoid the more sensitive areas of the site with avoidance measures incorporated into the design and layout. The pit shell has been specifically designed to avoid areas of high biodiversity value and waterways.

The Project will be completed in four stages with construction of Haul Road 1 from Springvale Road to the proposed Processing Area including the sealing of the haul road to the Weighbridge and Office Area and construction of creek crossings, sediment basins and water storage dams. This stage will also include construction of the weighbridge, office, amenities and workshop and installation of weighbridge equipment. Stage 2 will see construction of Haul Road 2 from the Processing Area to the Pit Area and will involve the use of materials created from the construction of the Processing Area. Haul Road 2 will extend approximately 750m into the Pit Area to create access to the northern end of the pit to allow extraction in that area of the pit. Extraction will continue in a southerly direction from this point.

7.2 Supports State, Regional and Local Planning Objectives

The resource to be extracted is high-quality Tuff and Agglomerate which has a variety of uses including road base material, construction aggregate, concrete batching aggregate, drainage works, fill, landscaping and various other uses. The proposed quarry will extract and deliver this valuable resource to the construction and infrastructure sectors in the Upper and Lower Hunter, Central Coast and Sydney metropolitan area. The quarry is essential for the guaranteed supply of construction materials for major/critical infrastructure projects of local, State and National significance. These projects are currently driving strong market demand, and this demand is anticipated to remain strong and well into the future.

The proposed quarry is located west of the Tangory Nature Reserve and positioned on largely cleared areas, whilst also being well situated in relation to existing road infrastructure in order to be able to efficiently service both local and regional demands for the extraction of the resource.

7.3 Compliance with Statutory Requirements

The Project seeks to extract 1 million tonnes of extractive materials per year, and a total resource amount of 30 million tonnes. As such, the proposal is declared State Significant Development in accordance with Section 2.6 of *State Environmental Planning Policy (Planning Systems) 2021*, and Clause 7 of Schedule 1 of the SEPP.

The development is permissible under the sites' RU1 Primary Production land use zoning and achieves the objectives of the zone.

All other approvals required for the proposed development to proceed have been identified and are considered achievable; including – S68 approval to operate a system of sewer management, S138 Roads Act 1993 Approval, Environmental Protection Licenses and Water Access License (if required).

The proposed quarry has addressed all pre-conditions to exercising the power to grant approval, including – EPBC Act 1999 – Matters of National Environmental Significance, PoEO Act 1 – Section 48 and Schedule 1 (19) and *State Environmental Planning Policy (Resources and Energy) 2021* – Section 2.17.

All mandatory matters for consideration of the proposed quarry have been addressed, with compliance either achieved or not applicable to the proposed State Significant Development.

7.4 Community Views

Engagement with Community Stakeholders occurred in a variety of ways during the preparation of the EIS, including:

- Establishment of a Project specific website by the applicant.
- Project introduction letter - distributed in hardcopy to approximately 2,354 properties surrounding the Project site.
- Online survey - The online survey form was prepared and distributed to the Project stakeholders on 23 November 2025
- Interviews – Conducted by Social Aspect, interviews were conducted in a semi-structured format using a list of predetermined questions to be used selectively and as a guide only. This format provided a flexible structure which allowed the interviewer to create and ask questions about situations as they emerged and the interviewee to digress and express views freely.
- Stakeholder meetings – Social Aspect personnel met with representatives from Wanaruah Local Aboriginal Land Council, Singleton Council, Business Singleton as well as two property owners with strong opinions about the Project.
- Community 'drop-in' information sessions - The Project team hosted two community 'drop-in' information sessions to provide Project details and collect community feedback about the Project.

Views and concerns identified during consultation with the community and affected stakeholders have influenced the proposed development. Consequently, haulage from the development site on a Saturday will not be carried out and hours of operation for haulage of product on Mondays through to Fridays will be reduced.

7.5 Economic, Social and Environmental Impacts

The potential impacts of the proposed quarry have been identified through a process involving:

- Assessment of the site characteristics.
- Consultation with government agencies and Councils.
- Consultation with surrounding landowners and other stakeholders; and
- Expert technical assessments.

The key issues identified have been the subject of comprehensive technical assessment to identify and assess the potential impacts of the development on the existing environment and community. The results of these assessments are detailed within Section 6 and the appendices of this EIS.

The impacts of the proposed quarry have been avoided or minimised by utilising the sites topography and existing cleared areas, refining the project design in consideration of environmental constraints and stakeholder input, and implementation of appropriate control measures as part of an interactive project design process. Therefore, through the implementation of appropriate measures to avoid, minimise and/or manage impacts, it considered that the proposed quarry can proceed without significant impacts to the environment and local community.

7.6 Ongoing Monitoring and Compliance

The Project will operate under an Environmental Management Plan (EMP), including details on:

- Responsibilities.
- Environmental monitoring.
- Environmental requirements.
- Complaints management.
- Induction and training.
- Environmental management and contingencies.
- Environmental procedures for key aspects of the operation such as health and safety, security, traffic, water management, dust management, noise management, waste management.
- Conditions of consent
- Any other approval, licence or permit issued.

The following matters will be addressed in the Environmental Management Plan:

- Project Description.
- Environmental management structure and responsibility.
- Approval and licensing requirements.
- Environmental training requirements.
- Emergency contacts and response procedures.
- Risk assessment.
- Environmental monitoring.
- Environmental auditing.

- Corrective actions.
- EMP review schedule.

7.7 Suitability of The Site

The Project site has been assessed as highly suitable for the development due to a combination of geological, environmental, and land use factors. The site contains a high-quality Tuff and Agglomerate hardrock resource that is shallow, allowing for efficient extraction with minimal overburden removal. This reduces both environmental disturbance and operational costs.

The location has historically been used for agricultural purposes and is already partially cleared, further reducing the need for extensive vegetation removal. The surrounding land uses are rural, with sufficient buffer distances to minimise potential impacts such as noise, dust, and vibration on nearby sensitive receptors.

Importantly, the site is well positioned in relation to major transport routes and construction markets, particularly in the Hunter Region and Greater Sydney. This proximity supports efficient material distribution while minimising haulage distances and associated emissions.

The site's layout has been designed to avoid key environmental constraints and support staged rehabilitation over the life of the quarry.

Relationship with the Queensland – Hunter Gas Pipeline

The Applicant has made significant and reasonable efforts to engage and negotiate with the proponent (current and former) of the Queensland-Hunter Gas Pipeline Project with respect to ensuring both projects can co-exist. The Queensland-Hunter Gas Pipeline Project was approved in 2009 and to date only early works have commenced at sites for temporary laydown yards at Quipolly, 8km north of Quirindi. No easements or other interests (such as an Authority to Survey) have been registered on the Certificate of Title of any of the lands within the Project site. The Applicant has provided information, in the form of a route change request, to Santos to ensure that the Project and the Queensland-Hunter Gas Pipeline Project can both proceed concurrently or independently without making either project physically or legally incompatible. A response from the Gas Pipeline proponent to the route change request (or other alternatives), as also suggested by the Applicant, in order to resolve potential conflict with the known extractive resource has not been forthcoming. The Project is a permissible land use with development consent and will provide a much-needed local resource for the housing, infrastructure and construction industries.

Overall, the site presents a strategically located, low-conflict setting for quarry development, capable of supplying essential construction materials while avoiding or minimising environmental and social impacts.

As outlined in Section 6 of this EIS, the potential environmental, cultural and social impacts associated with the Project can be appropriately managed through the implementation of appropriate management, mitigation and monitoring measures.

7.8 Public Interest

Key benefits associated with the Bluestone Hardrock Quarry include:

- Provision of high-quality supply of high-quality Tuff and Agglomerate for construction and infrastructure projects locally and regionally to meet the identified and growing needs for this resource.

- Continued growth and development within the area through the supply of high-quality Tuff and Agglomerate for construction.
- The location of the site away from major population centres and incompatible land uses and topographic shielding for neighbouring residences.
- Employment of 15 staff for operation of the proposed quarry.
- Direct economic benefits in capital expenditure, plus continued ongoing expenditure associated with quarry operations and labour, providing an ongoing contribution to the local and regional economies.
- Contribution to Singleton Council and Cessnock City Council for the maintenance of the surrounding local road network.

7.9 Ecological Sustainable Development

Schedule 2(4) of the EP&A Regulations outlines the four principles of ecologically sustainable development (ESD0 that have been considered in this EIS.

7.9.1 The Precautionary Principle

In accordance with the principles of ESD, the precautionary principle has been considered in the planning and assessment of the Project. This principle states that where 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.

A precautionary approach has been applied throughout the design and impact assessment processes to ensure that potential environmental impacts are identified early, and that appropriate mitigation and management measures are incorporated into the Project. This includes detailed investigations into potential impacts on air quality, noise and vibration, surface water and groundwater and biodiversity. These technical studies were conducted by qualified experts using conservative assumptions to account for uncertainty and variability in environmental conditions.

Where potential risks or uncertainties were identified—such as impacts to water quality or sensitive ecological values—the Project design was modified to avoid or minimise those risks, and mitigation strategies were developed to manage any residual impacts. These include staged site disturbance, progressive rehabilitation, sediment and erosion controls, and the implementation of a site-specific Environmental Management Plan.

Furthermore, ongoing monitoring programs and adaptive management frameworks will be established to detect unexpected environmental changes and respond accordingly. This proactive, risk-averse approach reflects the Project's commitment to applying the precautionary principle in line with State planning policies and the EP&A Act 1979.

7.9.2 Intergenerational Equity

The principle of intergenerational equity recognises the responsibility to manage natural resources and the environment in a way that does not compromise the ability of future generations to meet their own needs. In the context of the proposed quarry project, this principle has been carefully considered during project design, environmental assessment, and the development of long-term management strategies.

The quarry will extract a high-quality hardrock resource that is essential for supporting current infrastructure and development needs in the region and across New South Wales. The responsible use of this resource is justified by its contribution to essential public infrastructure, housing, and

economic growth. However, the project has also been designed to minimise long-term environmental impacts, ensuring that the surrounding landscape and ecosystems are protected for future generations.

Key measures supporting intergenerational equity include:

- Progressive rehabilitation of disturbed areas to restore the land to a stable and productive condition over the life of the project.
- Minimisation of land disturbance by adopting a staged development approach aligned with actual production needs.
- Protection of environmental values, including surface water, biodiversity, and air quality, through mitigation measures and ongoing environmental monitoring.
- Avoidance of long-term land use conflicts through careful site selection, adequate buffer zones, and engagement with the local community.

To support long-term environmental sustainability, a range of mitigation and management strategies have been carefully developed. These measures are integrated into the Project design to ensure potential environmental impacts are minimised wherever practicable.

Through these commitments, the Project seeks to safeguard environmental quality and resilience, helping to maintain ecological function and natural resources for the benefit of future generations.

At the completion of the quarry's operational life, the site will be rehabilitated to support post-extraction land uses that are compatible with the surrounding environment, ensuring that the land remains productive and ecologically functional. In this way, the Project aligns with the principle of intergenerational equity by balancing present-day resource needs with long-term environmental stewardship.

7.9.3 Conservation of Biological Diversity and Ecological Integrity

The principle of conserving biological diversity and maintaining ecological integrity is a core element of ESD and has been considered throughout the planning and assessment of the Project.

A Biodiversity Development Assessment Report (BDAR) has been prepared in accordance with the requirements of the BC Act and associated guidelines. The BDAR provides a detailed evaluation of the potential impacts of the Project on biodiversity values, including native vegetation, threatened species, and habitat connectivity within the region. The assessment identified and quantified the biodiversity values on-site and considered potential direct and indirect impacts resulting from the proposed quarry operations.

The quarry footprint has been designed to minimise disturbance to native vegetation and ecological communities as far as practicable. The majority of the Project area comprises previously cleared or disturbed land used for agriculture, which reduces the potential for significant biodiversity impacts. Where impacts to native vegetation or habitat are unavoidable, biodiversity offsets will be secured in accordance with the NSW Biodiversity Offset Scheme, ensuring that there is no net loss of biodiversity values as a result of the development.

Key commitments to conserving biodiversity and ecological integrity include:

- Minimising clearing of native vegetation and retaining remnant habitat wherever possible.
- Implementing erosion and sediment controls to prevent degradation of nearby watercourses and downstream habitats.

- Progressive rehabilitation of disturbed areas to promote ecological restoration and landscape stability.
- Managing weeds and pests to support the resilience of retained and rehabilitated areas.
- Securing appropriate biodiversity offsets to compensate for residual impacts, as determined through the BDAR process.

Through careful site planning, impact avoidance, targeted mitigation, and offsetting, the Project demonstrates a commitment to protecting and enhancing biodiversity and ecological integrity in line with statutory obligations and ESD principles.

7.9.4 Improved Valuation and Pricing of Environmental Resources

The principle of improved valuation, pricing, and incentive mechanisms involves ensuring that the full economic value of environmental resources, including the costs of environmental degradation, are considered in decision-making. This principle has been integrated into the Project planning and environmental assessment process through a range of measures that acknowledge both the tangible and intangible values of natural assets.

The Environmental Impact Statement (EIS) identifies and assesses potential environmental impacts across various disciplines, including air quality, noise and vibration, surface water and groundwater, biodiversity, and visual impacts. Where potential environmental costs were identified, they have been quantified or described to inform the design of mitigation measures and management strategies.

The cost of avoiding, minimising, or offsetting environmental harm has been considered in the overall project feasibility and planning. This includes:

- The implementation of erosion and sediment control measures to protect downstream water quality.
- The use of progressive rehabilitation to reduce long-term environmental restoration costs.
- Investment in biodiversity offsets to compensate for unavoidable ecological impacts as identified in the BDAR.
- Ongoing monitoring programs to track environmental performance and ensure early intervention if impacts deviate from predictions.

By incorporating the environmental costs into the planning and operational phases, the Project ensures that the pricing of resources such as land, water, biodiversity, and air quality reflects their long-term environmental value. This approach supports more responsible resource use, promotes accountability, and aligns with the principles of Ecologically Sustainable Development.

7.10 Conclusion

In addressing the requirements of the SEARs, the Bluestone Hardrock Project has been demonstrated to be consistent with the objectives of the EP&A Act and is therefore justified based on the findings identified by the environmental, social and economic investigations performed through the production of this EIS.

As a permissible activity under the current RU1 zoning, the quarry is strategically located and positioned on partly cleared area, while well situated to be able to utilise existing suitable road infrastructure efficiently to be able to service both local and regional demand. This strategic site positioning has been carefully designed to minimise social and environmental impacts, which are

further reduced when the management and mitigation measures described throughout are implemented.

The project will contribute significantly to the identified increased demand for the target products throughout the local, regional and state markets where it is needed to service the requirements of construction and infrastructure markets.

The EIS has demonstrated the quarry will not result in any significant impacts during construction or operations, and no significant residual impacts following completion and rehabilitation. This demonstration has been achieved through a thorough identification of the existing environment, a detailed assessment of the potential environmental, social and economic impacts of the construction and operation of the proposed development, and an assessment of how this may contribute to cumulative impacts arising from existing or proposed activities in the associated areas. Any potential impacts identified as part of the EIS have been demonstrated to be able to be managed, mitigated or offset to ensure that the project can operate without significant impacts to the receiving environment and deliver Ecologically Sustainable Development.

The Project has been demonstrated to meet the objectives of ESD and the other objects under Section 1.3 of the EP&A Act and coupled with the ‘overwhelmingly positive’ economic benefits and limited environment and social impacts identified, the project is justified.

8 References

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Appendix A – SEARs Compliance Table

Appendix B – Statutory Compliance Table

Appendix C – Agency Engagement Table

Appendix D – Mitigation Measures

Appendix E – Civil Engineering Plans

Appendix F – BDAR

Appendix G – MNES Assessment

Appendix H – Noise Impact Assessment

Appendix I – Air Quality Impact and Greenhouse Gas Assessment

Appendix J – Water Resources Assessment

Appendix K – Aboriginal Cultural Heritage Assessment Report

Appendix L – Integrated Transport Assessment

Appendix M – Hydrogeological Impact Assessment

Appendix N – Geotechnical and Pit Staging Assessment

Appendix O – Bush Fire Impact Assessment

Appendix P – Landscape and Visual Impact Assessment

Appendix Q – Social Impact Assessment

Appendix R – Economic Impact Assessment

Appendix S – Preliminary Rehabilitation and Closure Plan

Appendix T – Preliminary Contamination Assessment

Appendix U – Estimated Development Cost Report

Appendix V – Queensland-Hunter Gas Pipeline and Project Co-existence Assessment

Appendix W – Historic Heritage Impact Assessment

Appendix X – Waste Management Plan

Appendix Y – Resource Feasibility Assessment