Australian Resource Development Group Pty Limited

Scoping Report

Proposed Stone Ridge Quarry Project

Wallaroo State Forest No. 781

February 2020

Scoping Report

Stone Ridge Quarry

Wallaroo State Forest No. 781

Compartment 409 and part Compartments 408 and 410

Lots 36 and 65 DP 753200

Lot 1 DP 724372

Part Lot 540 DP 1207159

Quality Assurance

This document has been prepared, checked and released in accordance with the *Environmental Planning and Assessment Act 1979* by Australian Resource Development Group Pty Limited.

Issue	Date	Description	Prepared By
A	21 October 2019	Rev 1	JM/DB
B	10 January 2020	Rev 2	JM/DB
C	28 February 2020	Final	JM/DB

This document has been authorised by:

Dr Justin Meleo

Date: 28 February 2020

Acknowledgments

This document has been prepared by Australian Resource Development Group Pty Limited with support from Umwelt (Australia) Pty Limited.

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1 Introduction

1.1 Project Overview

Australian Resource Development Group Pty Limited (ARDG) is seeking planning approval for a new hard rock quarry, known as Stone Ridge Quarry (the project). The project is located within Wallaroo State Forest at Balickera, NSW, approximately 20 km north of Newcastle (**Figure 1.1**). The project is seeking to access a high quality, hard rock resource suitable for producing a wide range of quarry products for the Lower Hunter, Central Coast and northern Sydney construction materials markets.

The project will include the following works:

- Construction of a site access off Italia Road
- Clearing and earthworks for site preparation and to enable access to the resource and development of the quarry extraction area
- Installation of on-site processing plant and associated equipment
- Construction of a weighbridge and associated administrative buildings
- Extraction and processing of material to enable the transport of approximately 1.5 million tonnes per annum (Mtpa) of extractive materials from the site (subject to traffic/transport constraints)
- General site maintenance and landscaping works
- Site stabilisation of disturbed areas and progressive rehabilitation.

The project is State Significant Development (SSD) and requires approval under Part 4 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act). A development application will be lodged with the NSW Department of Planning, Industry and Environment (DPIE). An Environmental Impact Statement (EIS) will be prepared to support the development application.

1.2 Proponent Details

ARDG is the proponent for the project with the relevant details provided below.

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ACN:	611 489 804
Contact:	Dr Justin Meleo (Director – Planning & Development)
Contact details:	justin@ardg.com.au

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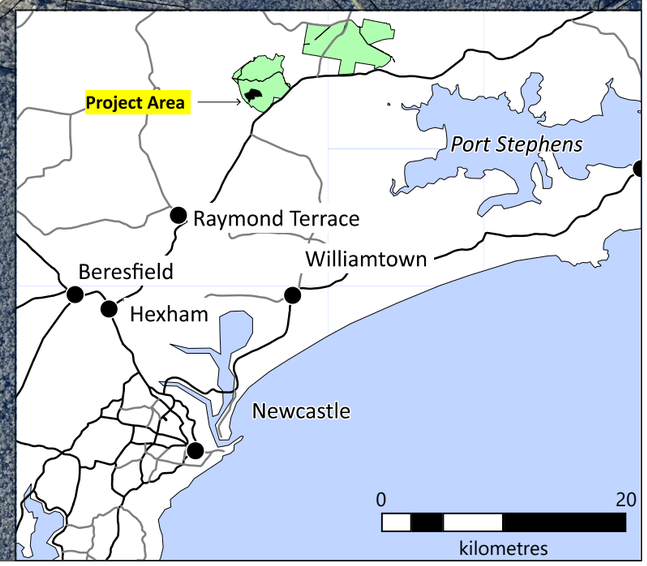
Italia Road
Balickera Channel
Wallaroo State Forest
Seaham Quarry (Boral)
Meadowie Road
Pacific Highway
N



Legend

- Cadastral boundary
- Licence area
- Project Area
- Wallaroo State Forest
- Freeway / Highway
- Major road

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Project:	**STONE RIDGE QUARRY PROJECT**					**Figure 1.1**	
Title:	**Project Location**						
Author:	DMB	*Date:*	February 2020	*Scale:*	1:15,000 @ A3	*Grid:*	MGA Zone 56 (GDA94)
Source:	Aerial Photograph: NearMap Image - 9 September 2018 Cadastral Data: NSW State Government - Six Maps - Port Stephens LGA						

ARDG is a Newcastle-based business with specialist expertise in identifying and developing quarry resources to supply the construction materials requirements of renewable energy projects and major construction materials markets. Its principals have over 50 years combined professional experience in the resource and planning sectors, with extensive experience in the extractive industries (i.e. quarries) sector.

Since 2016, ARDG has undertaken extensive desktop and field investigations in relation to a new hard rock quarry to service the Lower Hunter and surrounding regions. It has also obtained approval for seven quarry operations that have supplied construction materials to major NSW renewable energy projects, including the Sapphire Wind Farm Project and Crudine Ridge Wind Farm Project.

1.3 Project Background

The project is located on land managed by Forestry Corporation of New South Wales (FCNSW). FCNSW is responsible for "*carrying out or authorising the carrying out of forestry operations on Crown-timber land or land owned by the Corporation*" as detailed under section 11 of the *Forestry Act 2012* (Forestry Act). An additional function of FCNSW under section 11 of the Forestry Act is to "*take or authorise the taking of forest materials*" from this land. Forest materials are defined in the Forestry Act as "*rock, stone, clay, shells, earth, sand, gravel or any like material*". At present there are over 20 licenced quarry operations on FCNSW land, all of which pay FCNSW a royalty for materials taken from the land.

ARDG holds a Deed of Agreement (Deed) for a Forest Materials Licence (FML) with FCNSW under section 42 of the Forestry Act. The Deed allows ARDG to seek consent for the operation of a hard rock quarry within a 'licence area' (**Figure 1.1**) within Wallaroo State Forest No. 781 of at least 500,000 tonnes per annum (tpa) for 20 years. The Deed was executed by both parties on 1 November 2018. Should consent for the quarry be granted, upon receipt of all necessary planning approvals and licences required to develop and operate a quarry (the Project), FCNSW will issue a FML to ARDG that will enable the Company to develop and operate a quarry for an initial term of 20 years.

Under the terms of the FML, ARDG will pay FCNSW a royalty for each tonne of quarry product sold from the Stone Ridge Quarry. This royalty stream would translate to a significant revenue stream for FCNSW (effectively, the State of NSW) over the initial 20-year life of a quarry operation, as well as for any subsequent period that may be negotiated beyond the initial 20-year term.

1.4 Related Development

ARDG has consulted closely with Transport for New South Wales (TfNSW) regarding access to the Pacific Highway (**Section 6.1.7**). The project will not dispatch trucks to market until a suitable and safe access arrangement is in place. Access to the Pacific Highway for all trucks from the quarry would be in accordance with TfNSW requirements, which are currently being determined.

Any required planning approvals associated with intersection upgrade works would be determined following confirmation of TfNSW requirements and dealt with separately to the project.

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1.5 Purpose of Document

This Scoping Report has been prepared in accordance with NSW Department of Planning, Infrastructure and Environment's (DPIE's) *Guideline 1: Preparing a Scoping Report: Guidance for State Significant Projects* (DPE, 2019). As outlined in DPE (2019), the primary purpose of scoping is to ensure the EIS focuses on the issues that are of greatest concern and likely to cause the greatest impacts, and to ensure that the level of assessment of every issue is proportionate to its importance.

This document has been prepared to provide a description of the project to key State regulatory agencies to support the preparation of the Secretary's Environmental Assessment Requirements (SEARs) in accordance with clause 3 of Schedule 2 of the NSW Environmental Planning and Assessment Regulation, 2000. The SEARs will identify matters that will need to be addressed in the EIS for the project.

The report contains the following information:

Section 1.0: Introduction – Introduces the project, providing a brief overview of the project, proponent details and the report structure and content.

Section 2.0: Strategic Context – Discusses the existing environment and strategic context of the site and surrounds.

Section 3.0: Project Description – Contains a description of the project including justification and consideration of alternatives.

Section 4.0: Statutory Framework – Describes the statutory context for the project, details the relevant legislative framework for the project.

Section 5.0: Stakeholder Consultation – Details the stakeholder engagement undertaken during the scoping phase and proposed engagement during the EIS preparation phase.

Section 6.0: Scoping of Key Issues – Identifies the relevant environmental and community issues for the project and the level of assessment required in the EIS. A Scoping Worksheet (**Appendix A**) has been prepared to identify the key potential environmental and community issues associated with the project and the proposed level and scope of assessments to assist the DPIE with issuing of the SEARs for the project.

Section 7.0: Conclusion – Summarises the results of the scoping phase and key issues to be assessed in the EIS.

This Scoping Report has been prepared by ARDG with the assistance of Umwelt (Australia) Pty Limited.

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2 Strategic Context

2.1 Location

Wallaroo State Forest is located approximately 30 km north of Newcastle, NSW and comprises three separate areas of land that have a combined area in excess of 3,600 ha (**Figure 1.1**). Wallaroo State Forest is located on the northern side of the Pacific Highway, and extends from Italia Road, in the west, to the Karuah River in the east. The licence area covers 391 ha in the western part of Wallaroo State Forest (**Figure 1.1**), immediately adjacent to Italia Road and to the immediate northeast of Boral's Seaham Quarry, which has been in operation since 1991. The licence area is described as follows:

- Compartment 409 and part Compartments 408 and of 410 Wallaroo State Forest No. 781, Nine Mile Road, Balickera, Port Stephens Council, Parish of Thornton, County of Gloucester, comprising the land in folio identifiers:
    - Lots 27, 36 and 65 DP 753200
    - Part Lot 1 DP 1183485
    - Lot 1 DP 724372
    - Lot 121 DP 1207164
    - Part Lot 540 DP 1207159.

The central part of the site referred to in this report as 'Stone Ridge' (previously informally referred to as 'Hamburger Hill') is a rocky volcanic ridge that trends northeast-southwest and has been the focus of the resource assessment investigations undertaken by ARDG.

2.2 The Project Area

The project area is located fully within the boundary of the licence area and comprises the portion of the licence area where quarry operations will occur. Based on the current conceptual project design, the project area is approximately 89 ha (**Figure 1.1**).

The cadastre of the project area is described as follows:

- Lots 36 and 65 DP 753200
- Lot 1 DP 724372
- Part Lot 540 DP 1207159.

All lots are located on land managed by FCNSW.

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2.3 Land Use Context

Land immediately surrounding the project area comprises Wallaroo State Forest and is managed by FCNSW (**Figure 1.1)**. Wallaroo State Forest extends to the north, east and south of the project area, while Italia Road lies to the west. On the western side of Italia Road is Boral's Seaham Quarry and a number of commercial land uses including a racing circuit, car club and paintball facility. The closest residential premises are located approximately 1 km to the north west along Italia Road and to the south along Nine Mile Creek Road.

A summary of land uses within approximately 2 km of the project area is provided below:

- Several privately-owned residences occur along Italia Road to the west and northwest. The closest of these is located approximately 1.2 km from the centre of the of project area (processing area)
- Boral's Seaham Quarry is located to the southwest of the project area and is accessed off Italia Road
- Seven privately-owned residences are located along Nine Mile Creek Road at Ferodale to the southeast, approximately 1.7 – 2 km from the project area
- A single residence is located approximately 1.6 km to the south on the corner of Italia Road and the Pacific Highway
- Three residences are located on the south side of the Pacific Highway between Balickera Channel and Medowie Road
- An approved motor sports facility (Circuit Italia) is located approximately 1.5 – 2 km to the southwest on Italia Road
- Several lots that surround the open sections of Balickera Channel are managed by Hunter Water. The southern half of the tunnel section of Balickera Channel lies beneath FCNSW land.

The Pacific Highway is located approximately 1.6 km to the south east of the proposed processing area, while beyond that, the land to the south is both privately-owned and in the ownership of Hunter Water. Wallaroo National Park is located between approximately 3 – 4 km (to the north and north-east) on land that was formerly part of the Wallaroo State Forest.

The residential area of Seaham is located approximately 7 km to the west of the project area, while small pockets of rural residential development are located approximately 2 – 5 km to the west at East Seaham, and 2 km to the south east along Nine Mile Creek Road at Ferodale.

The larger townships of Raymond Terrace and Medowie are located approximately 10 km south west and south east of the project area respectively.

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2.4 Wallaroo State Forest History

Wallaroo State Forest was dedicated as State forest in 1922. Prior to dedication it was privately-owned and subjected to hardwood timber cutting by early settlers. 'Working Plans' were drawn up to guide forest management up until 1962 when the first 'Forest Management Plan' was approved (FCNSW, *pers. comm.*).

Prior to 1938, the main product from the forest was sawlogs with substantial quantities of poles, girders and sleepers. From 1962 the emphasis on utilisation fluctuated between small round timber for Masonite billet wood and, increasingly, round mining timber. There was no commitment to supply sawlogs to Crown sawmillers and no attempts made to produce sawlogs from the forest. Forest management focussed solely on the production of small wood. No further timber harvesting has occurred since 1986 (FCNSW, *pers. comm.*).

Fire has been a major source of damage to Wallaroo State Forest with six severe fires experienced between the 1928 and 1968 fire seasons. Increased hazard reduction burning has reduced the incidence of such fires since then, with the last major fire occurring in 2016 (FCNSW, *pers. comm.*).

2.5 Access

Access to the project area is currently from the Pacific Highway via Nine Mile Creek Road. Vehicle access within Wallaroo State Forest can currently only be achieved along several unsealed forest tracks using four-wheel drive vehicles. Most of these tracks are in a relatively poor condition and are often difficult to traverse during wet weather.

Italia Road is a sealed two-lane road that links the village of Seaham in the west, with the Pacific Highway in the east. It is the sole road used by heavy vehicles travelling between Boral's Balickera / Seaham Quarry and the Pacific Highway. The speed limit along Italia Road is currently 90 km/hr.

Nine Mile Creek Road (Old Pacific Highway) is partially sealed, with no posted speed limit. An unsealed FCNSW road (Nine Mile Road) runs in a northwest direction through the Wallaroo State Forest from Nine Mile Creek Road, north of Balickera Channel. The road is generally unsuitable for two-wheel drive vehicles during wet weather.

2.6 Topography

Stone Ridge is the main topographic feature within the project area and is approximately 1200 m long and strikes 058° grid / true north (046° magnetic) (**Figure 2.1**). Stone Ridge comprises two rocky hills separated by a low saddle. The hill at the southwest end of the ridge has a maximum elevation of 107.5 m AHD (Australian Height Datum), whereas the hill to the northeast has a maximum elevation of 83 m AHD.

More gently undulating topography to the northwest and southeast of the project area is associated with more weathered volcano-sedimentary geology that typically ranges in elevation from 20 – 60 m AHD. A prominent broad low ridge ('South Ridge') extends from the central southeastern flank of Stone Ridge, approximately 1600 m southeast to the Pacific Highway. This ridge has a maximum elevation of approximately 62 m AHD.

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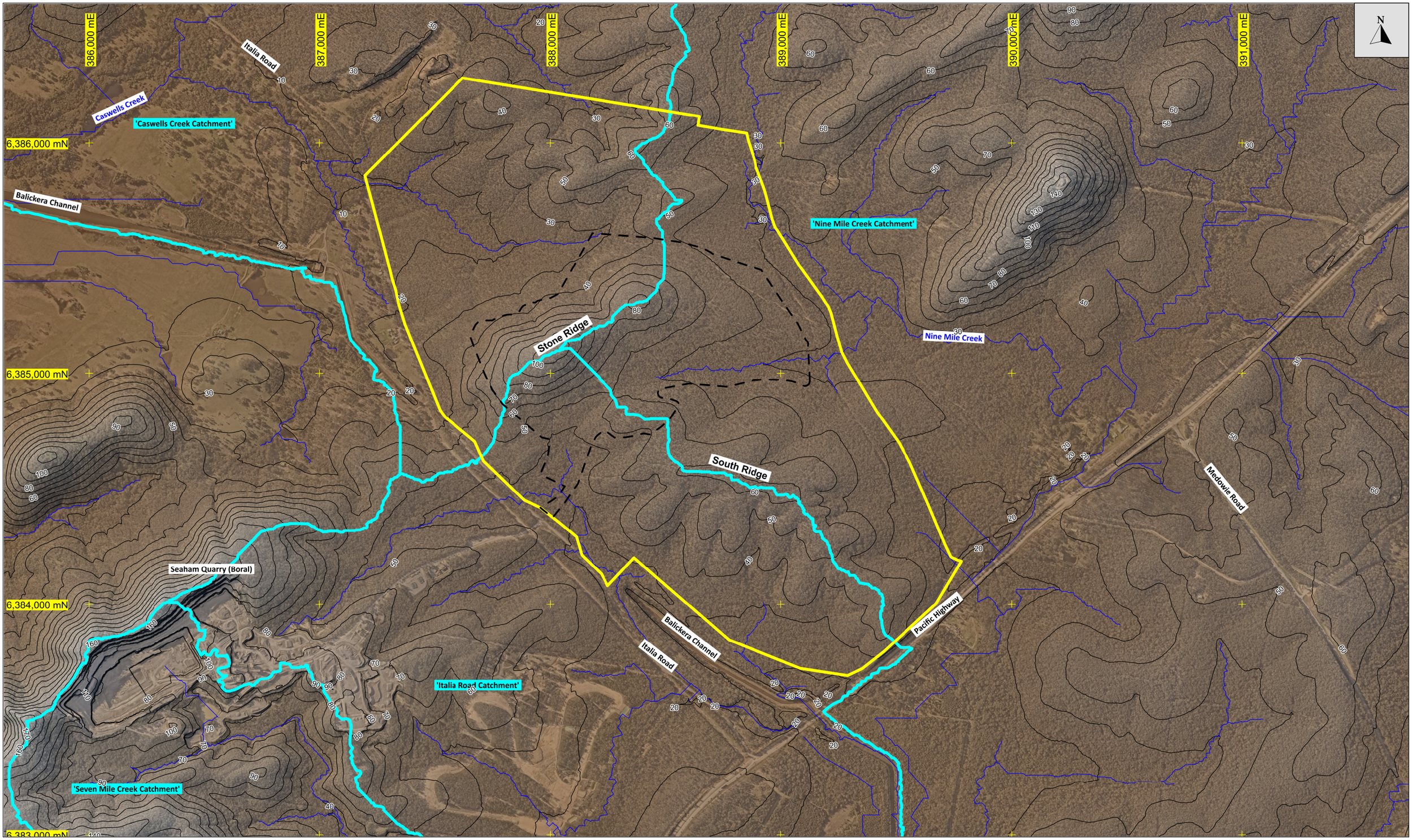

Legend

- Licence area
- Project Area
- Topographic contour (10m contour interval)
- Drainage line (ephemeral)
- Catchment boundary

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Project:	**STONE RIDGE QUARRY PROJECT**					**Figure 2.1**	
Title:	**Topography and Drainage**						
Author:	DMB	*Date:*	February 2020	*Scale:*	1:15,000 @ A3	*Grid:*	MGA Zone 56 (GDA94)
Source:	Aerial Photograph: NearMap Image - 9 September 2018 Digital Elevation Model: Generated from LIDAR 0.5m contour data Topographic Contours: 10m contour interval - generated from Digital Elevation Model - 1m pixel resolution						

2.7 Drainage

The project area is within Grahamstown Dam drinking water catchment and spans the interfluve of three sub-catchments, with these catchment boundaries controlled by Stone Ridge and South Ridge (**Figure 2.1**). The project area does not support any permanent water features, however, several ephemeral drainage pathways are located across the project area, with overland flow draining via these pathways to the three catchments. Note that the names provided for each catchment described below and shown in **Figure 2.1** are informal and for illustrative purposes only.

All drainages within and around the project area are ephemeral, although Nine Mile Creek (to the east and downstream of the project area) tends to hold water in scattered waterholes along its length, depending on antecedent rainfall conditions. Each of these sub-catchments drain to Grahamstown Dam, which has a catchment area of 11500 ha. The project area represents less than 0.8 % of Grahamstown Dam catchment.

Approximately 24.2 ha of the northern part of the project area, including the northern flank of Stone Ridge, is within the 'Caswells Creek' catchment. This catchment has a total area of 1123 ha and drains into Balickera Channel (refer **Section 2.7.1**), approximately 2.7 km to the northwest of Stone Ridge, which ultimately drains into Grahamstown Dam. The portion of the project area in this catchment represents less than 2.2 % of the Caswells Creek catchment and 0.2 % of the Grahamstown Dam catchment.

Approximately 45.3 ha of the eastern side of the project area is within the 'Nine Mile Creek' catchment. This catchment has a total area of approximately 2227 ha and drains into Grahamstown Dam, approximately 6.5 km downstream of the licence area boundary and 4 km to the south of Stone Ridge. The portion of the project area in this catchment represents approximately 2 % of the Nine Mile Creek catchment and 0.4 % of the Grahamstown Dam catchment.

Approximately 19.5 ha of the western side of the of the project area is within the 'Italia Road' catchment. This catchment has a total area of approximately 512 ha and drains via an ephemeral channel to the southeast under the Pacific Highway, then via overland/sheet flow into Grahamstown Dam. The portion of the Project Area in this catchment represents approximately 3.8 % of the Italia Road catchment and 0.2 % of the Grahamstown Dam catchment.

2.7.1 Balickera Channel and Tunnel

Hunter Water Corporation operates the Balickera Channel which transports water from the Williams River to Grahamstown Dam – the main water impoundment that supplies drinking water to Newcastle. The Balickera Channel is primarily an open canal approximately 2.7 km in length cut into the surrounding land. Part of its length includes the Balickera Tunnel which was constructed in 1962. The Balickera Tunnel passes under Italia Road and is approximately 1.2 km in length and 4.3 m in diameter. The Balickera Tunnel and Channel are outside the project area and licence area.

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2.8 Vegetation

Vegetation cover on ridges and ridge flanks within the Project Area is dominated by dry sclerophyll forest types, with several forestry tracks located in the north, south and east of the Project Area. Wallaroo State Forest (including the licence area) has been logged since the 1920's (**Section 2.4**), with the most recent logging activity being in 1986. The majority of vegetation within the project area can be broadly described as 'forestry regrowth' that has occurred following historical logging operations. Vegetation cover at lower elevations transitions to wetter forest types in the north east and south.

2.9 Geology and Resources

2.9.1 Regional Geology

The first detailed historical geological assessment of relevance to the Project was undertaken by Hunter District Water Board in 1957 and documented in its report titled "Report on Geology of Balickera Tunnel Site". This report provided an overview of the geology of the proposed tunnel alignment based on information obtained from surface examination; nine vertical diamond drill holes; surface trenching and petrographic examination. The report confirms that the geology of the area between Seaham and the Pacific Highway comprises a bedded sequence of Carboniferous-age sedimentary and volcanic rocks that dip in a south easterly direction at angles up to 50 °. The stratigraphy is represented by a basal sequence of conglomerate, interbedded with tuff and sandstone, that outcrop between Seaham and the western end of Balickera Tunnel. These are overlain by beds of volcanic lava comprising 'mainly toscanitic and andesitic lavas with a good distribution of interbedded andesitic and rhyolitic tuffs' that are spatially associated with Balickera Tunnel, which passes through the southern limit of Stone Ridge. The volcanic rocks are overlain by a further sequence of basal conglomerate, sandstone and tuff, overlain by toscanitic lava, followed by interbedded tillitic conglomerate and indurated shales. These overlying units characterise the geology between the eastern end of Balickera Tunnel and the Pacific Highway.

Rattigan (1966) generated a detailed stratigraphic section for the geology ultimately exposed in the Balickera Tunnel excavation and used this information to prepare one of the first reliable geological maps for the surrounding area. The results of this work were published in the paper titled *"The Balickera Section of the Carboniferous Kuttung Facies, New South Wales".* Based on Rattigan's mapping, the Carboniferous stratigraphy was interpreted to strike northeast-southwest and dip at approximately 35 ° to the southeast. On the northwest side of Stone Ridge, the geology was characterised by andesitic to dacitic volcanic rocks (including ignimbrites and tuffs) assigned to the *Mosman Swamp Andesite* (Formation) (lower part of the *Gilmore Volcanic Group*). The *Mosman Swamp Andesites* were described as being overlain by the *Eagleton Volcanics* (Formation) – the upper part of the *Gilmore Volcanic Group* – that have since been reclassified. At the time, Rattigan (1966) described the *Eagleton Volcanics* as 'toscanitic, dellentitic and rhyolitic volcaniclastic and pyroclastic rocks with minor intermediate (andesitic or dacitic) tuffs and minor volcanic breccias and tuffaceous sediments'. The term 'toscanite' is a now superseded term that was originally used for a volcanic rock of rhyodacitic composition with a glassy groundmass. Similarly, the term 'dellenite' is a now disused term for a volcanic rock intermediate in composition between rhyolite and dacite and roughly synonymous with rhyodacite. The mapped extent of the *Eagleton Volcanics* was at the time limited to the ridge line defined by Stone Ridge and its southern strike continuation on which the Boral Balickera / Seaham Quarry is located. The geology overlying the Eagleton Volcanics and associated with

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more undulating topography to the southeast, was described by Rattigan (1966) as being dominated by boulder conglomerates and interbedded tuffs. He assigned these units to the *Balickera Conglomerate* (*Kings Hill Group*).

In 2015, the Geological Survey of NSW published its Zone 56 Seamless Geology digital dataset. The dataset presents a revised geological interpretation for the project area and surrounds (**Figure 2.2**), with the geology previously assigned by Rattigan (1966) to the *Mosman Swamp Andesites,* incorporated within the *Eagleton Volcanics*. The geology previously mapped as *Balickera Conglomerate* has now been assigned to the *Mount Johnstone Formation*. The lower part of the *Mount Johnstone Formation* is dominated by conglomerate with subordinate rhyolitic tuff and ignimbrite, whereas the upper part of the Formation is characterised by sandstone, shale and carbonaceous shale.

2.9.2 Project Area Geology

Detailed surface mapping, surface and downhole geophysics, and extensive diamond drilling undertaken by ARDG during 2016 – 2019 has confirmed that the Eagleton Volcanics within the project area is a bedded sequence of rocks that strikes northeast-southwest and dips at approximately 35 ° to the southeast. While the various rock types identified by Rattigan (1966) are all present within the Project Area, the dominant and most relevant rock from a quarrying perspective, are rhyodacitic and dacitic rocks.

Massive tuffs and lavas of rhyodacitic composition outcrop extensively across Stone Ridge above an elevation of approximately 50 m AHD. The rhyodacite has been mapped along the full length of the ridge and over a distance normal to the strike that ranges from 350 – 480 m. The true thickness of this unit is interpreted to range from 200 – 275 m. Where unoxidized, rhyodacitic rocks within the project area are generally massive, dark grey to brown-grey rocks. They contain a significant component of feldspar and quartz phenocrysts up to 3 mm across, with smaller amounts of dark ferromagnesian grains and occasional dark grey to dark red-brown lithic and or vitric fragments. Close to surface, the rhyodacite is typically a pink-brown colour due to weak oxidation associated with supergene effects.

The rhyodacites are underlain by an interbedded sequence of hornblende-biotite dacite, with lesser andesitic lithic fragmental tuff, volcanic breccia and rhyolitic vitric-crystal tuff. Outcrop exposure of these units is confined to areas of low topographic relief beyond the northwest flank of Stone Ridge. They have been mapped over a distance normal to the regional strike in excess of 480 m, from near the interpreted base of rhyodacite, through to the interpreted lower contact of the *Eagleton Volcanics* with the underlying *Newtown Formation* (Geological Survey of NSW, 2015). Based on the interpreted strike and dip of the volcanic stratigraphy, these units are interpreted to underlie the rhyodacite and extend to depth beneath the axis of Stone Ridge. They are interpreted to have a true thickness of approximately 280 m.

A significant thickness of massive, homogeneous hornblende-biotite dacite locally underlies rhyodacitic rocks within the project area. The dacite is described as a crystal-vitric-lithic felsic tuff that has a large component of phenocrystal grains, dominated by plagioclase, with subordinate quartz, hornblende and biotite and microphenocrysts of Fe-Ti oxide (titanomagnetite). The dacite has experienced diagenetic alteration causing replacement of vitriclastic material, largely by very fine alkali feldspar and minor quartz. Drilling has confirmed that this unit has a true thickness of approximately 115 m.

Directly overlying the rhyodacite on the southeast flank of Stone Ridge is an interbedded sequence of moderately to highly weathered volcanic sandstone, siltstone, clayey tuff and rhyolitic tuff. This sequence

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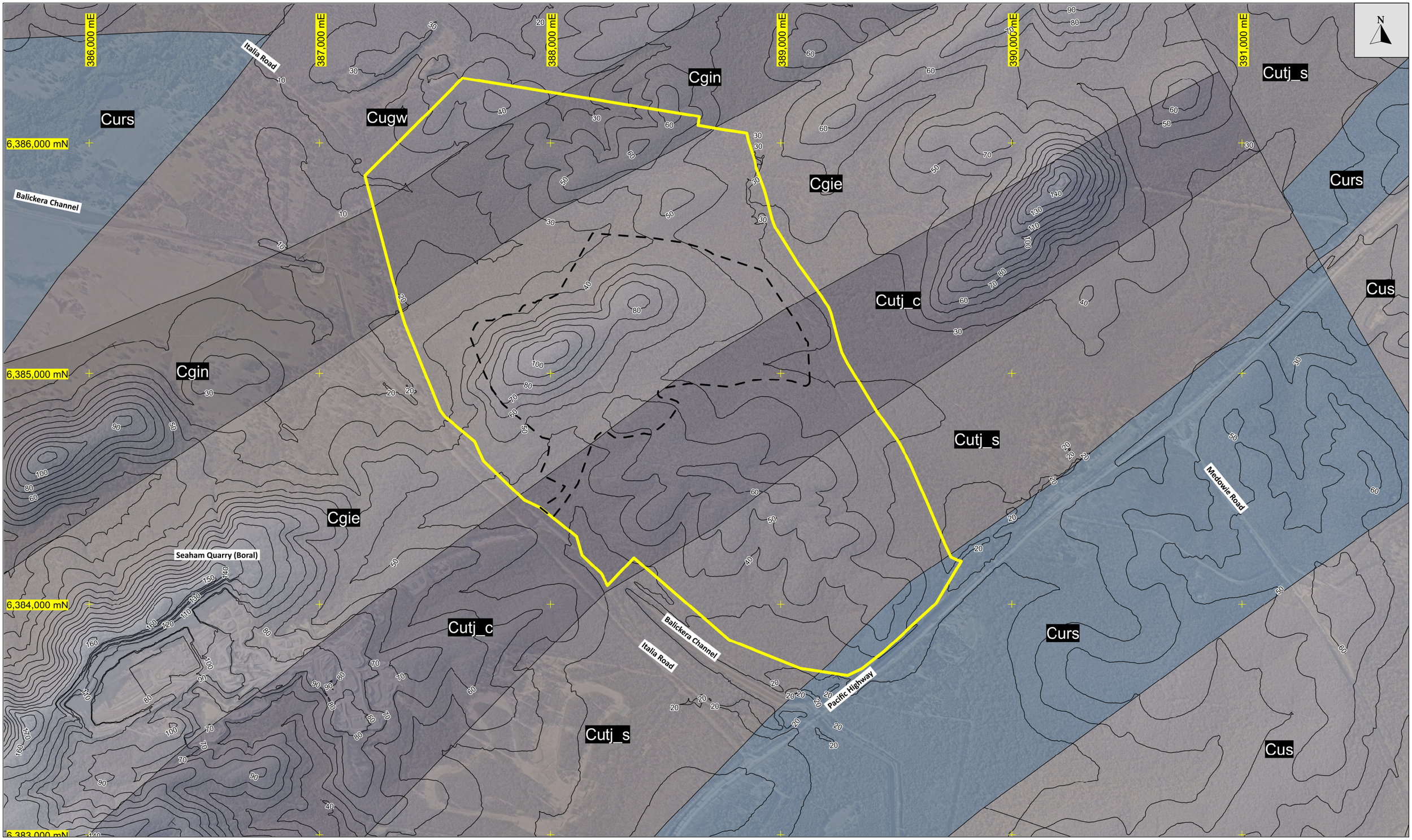

Geology Legend

GILMORE VOLCANIC GROUP

- Unnamed Carboniferous units (Cus) - Sandstone, schist, phyllite, slate, chert, jasper, basalt, tuff and amphibolite
- Seaham Formation (Curs) - Tillite, varved siltstone, tuff, red and green zeolitic mudstone with dropstones interbedded within thick bedded lithic sandstone and conglom
- Mount Johnstone Formation (upper) - sandstone(Cutj_s) - Graded, massive, lithic arenite with interbeds of fine, laminated sandstone, shale, carbonaceous shale, poor c
- Mount Johnstone Formation (lower) - conglomerate (Cutj_c) - Polymictic boulder conglomerate with grey, pumiceous rhyolitic tuff and ignimbrite
- Eagleton Volcanics (Cgie) - Massive toscanite and dellenitic coherent volcanics and ignimbrite units; acid to intermediate lithic, crystal and vitric tuff
- Newtown Formation (Cgin) - Red to purple lithic sandstone, red, purple, or green siltstone, pebble conglomerate with interbedded rhyolitic and rhyodacitic ignimbrite a
- Wallaringa Formation (Cugw) - Pink to brown, thickly bedded lithic sandstone, conglomerate and granitoids, minor sandstone

Legend

- Licence area
- Project Area
- Topographic contour (10m contour interval)

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Project:	**STONE RIDGE QUARRY PROJECT**					**Figure 2.2**	
Title:	**Regional Geology - Geological Survey of NSW**						
Author:	DMB	*Date:*	February 2020	*Scale:*	1:15,000 @ A3	*Grid:*	MGA Zone 56 (GDA94)
Source:	Aerial Photograph: NearMap Image - 9 September 2018 Digital Elevation Model: Generated from LIDAR 0.5m contour data Topographic Contours: 10m contour interval - generated from LIDAR 0.5m contour data Geology: NSW Seamless Geology Zone 56 - Geological Survey of NSW						

outcrops over a distance of approximately 90 m normal to the regional strike and along the full length of Stone Ridge. It has a true thickness of approximately 50 m and will be an important source of high plasticity (clay) material for blending with less weathered material for the production of roadbase.

2.9.3 Resource Quality

A comprehensive geotechnical testing program has been undertaken on diamond core from the project area to confirm the suitability of different rock types within the *Eagleton Volcanics* for producing a range of typical quarry products. The program confirmed that the rhyodacites and dacites achieve the source rock requirements for the production of the following important quarry product types:

- Concrete aggregates – coarse and fine (including manufactured sand) to Australian Standard requirements (AS2758.1-2014)
- Asphalt aggregates – coarse and fine (including manufactured sand) to Australian Standard requirements (AS2758.5-2000) and TfNSW (formerly RMS) requirements (RMS 3152)
- Sealing aggregates – to Australian Standard requirements (AS2758.2-2009) and TfNSW requirements (RMS 3151)
- Railway ballast – to Australian Standard requirements (AS2758.7-2015)
- Armourstone – to Australian Standard requirements (AS2758.6 - 2008)
- Aggregates for gabion baskets and wire mattresses – to Australian Standard requirements (AS2758.4-2017)
- Roadbase materials – to TfNSW requirements (RMS 3051).

2.9.4 Resource Quantity

Modelling of the information obtained from ARDG's resource assessment program has confirmed a combined rhyodacite and dacite quarry resource, sufficient to support the extraction and processing of material to enable the transport of approximately 1.5M tpa, within the conceptual design of the proposed 30-year extraction area. This would be considered a 'measured resource' in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the 'JORC Code'). Given the limited extent of weathering of rhyodacite and dacite across the project area, there is no significant quantity of overburden.

Extensive additional resources exist outside the footprint (laterally and at depth) of the initial 30-year extraction area. These resources would be classified as an 'indicated resource' in accordance with the JORC Code. Further drilling and testing will be undertaken in due course to increase the level of confidence in the extent of these resources.

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2.10 Soils

Soil profile development over the *Eagleton Volcanics* is very poor to non-existent, given the competency and weathering characteristics of the different volcanic rock types. As described in **Section 2.9**, rhyodacite (the dominant rock type) outcrops extensively along the crest and flanks of Stone Ridge. Soils in these areas are generally < 0.3 m in depth and are typically weakly structured, sandy loams.

Soil profiles developed at lower elevations (generally below 50 m AHD), over less resistant volcanic and sedimentary rock types are more developed and are typically moderately structured, sandy light clays.

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3 Proposed Project

3.1 Development Summary

The project will include the following key components:

- An extraction area with sufficient resources to support the extraction and processing of material to enable the transport of approximately 1.5 Mtpa over 30 years
- Processing and stockpiling area
- Storage area for overburden/plant and equipment
- Product loading area
- Drains and dams for surface water management infrastructure
- Weighbridge and administration area (offices, parking, amenities)
- Buffer area.

A single site access point is proposed at Italia Road with an internal one-way traffic circulation through the site. Outbound truck movements will be left hand turn only towards the Pacific Highway. Further details regarding site access, traffic management and access to the Pacific Highway are provided in **Section 6.1.7**.

A summary of the key aspects of the project is provided in **Table 3.1**.

Table 3-1 – Summary of Key Project Aspects

Aspect	Proposed for the Project
Project life	30 years
Limits of production	Up to 1.5M tpa of quarry product/sales per year
Project area	Approximately 89 ha (including extraction, processing and stockpiling areas)
Extraction method	Drill, blast and haul
Material processing	Processing on site using mobile crushing and screening plant, with provision for future fixed processing plant
Overburden management	Overburden will be minimal, any topsoil and overburden will be stockpiled on site for use in progressive rehabilitation
Product transport	Road transport of up to 1.5M tpa of product via the Pacific Highway
Site access	Single access point on Italia Road. No trucks will turn right out of the site onto Italia Road towards East Seaham
Employment	Up to 10 full time employees, 3 – 5 part time employees
Hours of operation	The proposed hours of operation are: • 6.00am to 10.00pm Monday to Friday, with the only activities occurring after 6.00pm being loading and maintenance operations • 7.00am to 3.00pm on Saturdays

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Table 3-1 – Summary of Key Project Aspects	
Aspect	**Proposed for the Project**
	• No operation on Sundays apart from maintenance activities as required
Rehabilitation and final landform	Rehabilitation will be undertaken progressively where appropriate in the context of further resources remaining available in the project area at the end of the planned 30-year approval life. A conceptual final landform will be prepared for the project

3.2 Plant and Equipment

The project will utilise a fleet of mobile plant and equipment for initial and ongoing site operations. The type of mobile equipment used at the site may change during the life of the project to meet operational demands and reflect changes in technology. The project will initially utilise mobile/modular crushing and screening plant to process material on-site, however, this plant may be replaced by fixed processing plant during the project life. A typical list of mobile equipment is provided in **Table 3.2**.

Table 3-2 – Summary of Typical Mobile Equipment	
Typical Activity	**Typical Equipment**
Clearing, topsoil stripping, overburden removal, bench development, shaping emplacement areas, on site haulage	Front-end loader, dozer, grader, excavator, dump truck (rigid body and articulated)
Drilling for blasting activities	Blast hole drill rig
Product processing	Mobile/modular crushing and screening plant
Stockpiling and dispatch loading	Wheel loader
Road haulage	Road trucks (e.g. semi-trailer/truck and trailer)
Dust suppression, miscellaneous jobs	Watercarts/light 4WD vehicles/maintenance and servicing trucks

3.3 Project Area Preparation

Initial works proposed to prepare the Project Area for quarrying activities would include the following:

- Construction of site access and fencing
- Removal of existing vegetation within the areas of the initial extraction pit, initial surface water infrastructure, processing, loading and administration areas
- Removal and stockpiling of topsoil progressively over the extraction area
- Construction of initial surface water management infrastructure
- Mulching/grinding, stockpiling and re-use of vegetation and topsoil material as required

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- Construction of processing, loading and administration areas
- Removal of initial surface rock resource for processing/stockpiling.

3.4 Extraction Staging

Extraction of the quarry resource will be undertaken using typical hard rock quarrying practices (*e.g.* drill and blast/load and haul) to create a geotechnically stable benched quarry profile. Extraction has been designed to be undertaken progressively over numerous stages, in accordance with a detailed extraction plan being prepared for the project. For the purposes of this Scoping Report, three main stages are presented to illustrate the early, mid and late extraction stages of the quarry that relate to a 30-year development horizon (**Figures 3.1** – **3.3**).

It is important to note that as outlined in **Section 2.9**, the detailed resource and technical assessment work undertaken identified extensive additional resources (of the same quality) both within (at depth) and outside of the initial quarry pit development area as a future extractive resource, however, this resource does not form part of the project. If progressed, the additional resource would form future development stages additional to the project and require separate development approval after the cessation of any extant approval.

3.5 Processing and Stockpiling

Following extraction, quarry material will be tr through a series of mobile crushers to reduce the rock into various sized fragments. A series of mobile screens will then be used to sort the crushed rock into various sized categories, resulting in a number of different crushed rock products. The production cycle consists of a three-stage crushing and screening process (primary, secondary and tertiary stages), with each stage producing finer quarry products.

Products will be stockpiled in readiness for dispatch in nominated product-specific stockpiles areas. Quarry products will be produced meet market demand and include concrete, asphalt and sealing aggregates, gabion and crushed rock, armourstone and roadbase (refer **Section 2.9.3**).

3.6 Truck Loading and Transportation

Road trucks will access the site from the Pacific Highway via a single access point on Italia Road. Road trucks will be loaded from the stockpiles using wheel loaders. Loaded trucks will exit the site via a left turn towards the Pacific Highway. No trucks will turn right out of the quarry site onto Italia Road toward Seaham.

The proposed peak truck numbers associated with the project have not been determined at this point, however, will be confirmed as part of the Traffic Impact Assessment prepared during the EIS phase.

ARDG has consulted closely with TfNSW regarding access to the Pacific Highway (refer **Section 6.1.7**). The project will not dispatch trucks to market until a suitable and safe access arrangement is in place. Access to the Pacific Highway for all trucks from the quarry would be in accordance with TfNSW requirements, which are currently being determined.

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387,500 mE
387,750 mE
388,000 mE
388,250 mE
388,500 mE
388,750 mE
389,000 mE
389,250 mE
6,385,500 mN
6,385,250 mN
6,385,000 mN
6,384,750 mN
6,384,500 mN
Indicative Location for Water Management
Stockpile / Overburden / Mulched Vegetation Storage Area
Workshop
Project Area
Stockpile Area
RL88
RL73
RL58
RL43
Stockpile / Laydown Area
Processing Area
Quarry Pit
Indicative Location for Water Management
Vehicle Parking and Equipment Storage Area
Office
Visitor Parking
Weighbridge
Indicative Location for Water Management
Licence Area
Site Access Road
Site Entrance

Australian Resource Development Group	*Project:*	**STONE RIDGE QUARRY PROJECT**		**Figure 3.1**
	Title:	**Conceptual Quarry Layout - Stage 1**		
	Source:	Australian Resource Development Group Pty Limited		
	Author:	DMB	*Date:*	February 2020
	Scale:	1:5000 @ A3	*Grid:*	MGA Zone 56 (GDA94)

387,500 mE
387,750 mE
388,000 mE
388,250 mE
388,500 mE
388,750 mE
389,000 mE
389,250 mE
6,385,500 mN
6,385,250 mN
6,385,000 mN
6,384,750 mN
6,384,500 mN
Indicative Location for Water Management
Stockpile / Overburden / Mulched Vegetation Storage Area
Workshop
Project Area
Quarry Pit
RL28
RL43
RL58
RL73
RL88
RL103
Stockpile Area
Stockpile / Laydown Area
Processing Area
Indicative Location for Water Management
Vehicle Parking and Equipment Storage Area
Office
Visitor Parking
Weighbridge
Indicative Location for Water Management
Licence Area
Site Access Road
Site Entrance

Australian Resource Development Group	*Project:*	**STONE RIDGE QUARRY PROJECT**		**Figure 3.2**
	Title:	**Conceptual Quarry Layout - Stage 5**		
	Source:	Australian Resource Development Group Pty Limited		
	Author:	DMB	*Date:*	February 2020
	Scale:	1:5000 @ A3	*Grid:*	MGA Zone 56 (GDA94)

387,500 mE
387,750 mE
388,000 mE
388,250 mE
388,500 mE
388,750 mE
389,000 mE
389,250 mE
6,385,500 mN
6,385,250 mN
6,385,000 mN
6,384,750 mN
6,384,500 mN
Indicative Location for Water Management
Stockpile / Overburden / Mulched Vegetation Storage Area
Workshop
Project Area
Quarry Pit
RL-2
RL13
RL28
RL43
Stockpile Area
Stockpile / Laydown Area
Processing Area
RL-92
RL-17
RL-2
RL13
RL28
RL43
RL58
RL73
Indicative Location for Water Management
Vehicle Parking and Equipment Storage Area
Office
Visitor Parking
Weighbridge
Indicative Location for Water Management
Licence Area
Site Access Road
Site Entrance

Australian Resource Development Group	Project:	STONE RIDGE QUARRY PROJECT	Figure 3.3
	Title:	Conceptual Quarry Layout - Stage 11	
	Source:	Australian Resource Development Group Pty Limited	
	Author: DMB	Date: February 2020	
	Scale: 1:5000 @ A3	Grid: MGA Zone 56 (GDA94)	

3.7 Hours of Operation

The proposed hours of operation are:

- Quarrying and processing between 6.00am and 6.00pm Monday to Friday and 7.00am to 3.00pm Saturdays
- Truck loading, product transport and maintenance between 6.00am and 10.00pm Monday to Friday, and 7.00am to 3.00pm Saturdays
- No operation on Sundays apart from maintenance activities as required.

3.8 Progressive Rehabilitation

Rehabilitation of the site outside of the extraction area will be undertaken progressively in the context of assuming that the quarry life and operations will not be extended beyond any initial 30-year development horizon, given the extensive resource available at the site.

A detailed site stabilisation plan would be provided as part of the EIS, along with a conceptual rehabilitation strategy and a conceptual final landform.

3.9 Project Need and Justification

The existing supply of hard rock quarry products to the Lower Hunter and Central Coast areas is currently serviced by several large quarries that are generally in the latter stages of their development lives, as well as from several small operations with either comparatively short resource lives and/or sub-optimal resource quality. As a result, it is estimated that in the medium term, these growth areas will be likely to experience significant supply-side pressure for high-quality quarry products unless alternate quarry resources can be located and developed.

Based on a detailed assessment undertaken by ARDG of opportunities and constraints in the region, opportunities to locate replacement quarry resources are considered extremely limited, due to significant constraints relating to the occurrence of prospective geology, as well as planning, environmental and transportation factors.

A comprehensive resource assesment program undertaken by ARDG has confirmed that the project area represents a rare opportunity within the Lower Hunter Region to develop a large tonnage, greenfield quarry operation on geology demonstrated to be favourable for production of the full range of high-quality quarry products. The proximity of the project area to key markets and existing State road infrastructure (*i.e.* the Pacific Highway) would enable a quarry at Stone Ridge to significantly ameliorate long term supply-side pressure of quarry materials for the Lower Hunter and Central Coast regions, as well as provide direct access to the Sydney market if required. The quarry would also generate long-term revenue to the State through royalties payable on quarry products sold from the site.

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3.10 Project Alternatives

3.10.1 Do Nothing

As outlined in **Section 3.9**, the supply of high quality aggregates to the construction sector in the Lower Hunter and Central Coast areas in the medium term is characterised by quarries that are generally in the latter stages of their development lives, and/or operations with either comparatively short resource lives and/or sub-optimal resource quality. Consequently, if no new resources are identified and brought to market, the growth areas of the Lower Hunter and Central Coast will experience significant supply-side pressure for high-quality quarry products, with negative flow-on to costs throughout the entire construction sector value chain.

3.10.2 Alternative Locations

ARDG has undertaken a detailed desktop and field targetting assessment and extensive constraints analysis (*i.e.* geological/planning/environmental) of all potential high quality resource opportunities in the region. Several sites with favourable attributes were identified and subsequently subjected to preliminary field investigations (*e.g.* surface sampling/mapping, geophysics, drilling and testing). None of these sites, however, had either the necessary resource quality or quantity to warrant a commitment to further investigation.

As indicated in **Section 3.9**, the project represents a rare opportunity within the Lower Hunter Region to develop a large tonnage, greenfield quarry operation on geology demonstrated to be favourable for production of the full range of high-quality quarry products, with close proximity to key markets and existing State road infrastructure. As such it represents an ideal site to meet medium and long term demand for high quality aggregates in the region.

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4 Statutory Context

4.1 Approval Pathway

The project is State Significant development under section 4.36 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), as it is development that extracts more than 500,000 tonnes per annum of extractive material and also is a development that extracts from a resource of more than 5 million tonnes, as identified in Schedule 1 cl.7(1) of *State Environmental Planning Policy (State and Regional Development) 2011*:

7 Extractive Industries

(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.

The resource estimate prepared for the project (**Section 2.7.4**) confirms that:

- the resource can support the extraction and processing of material to enable the transport of approximately 1.5M tpa of material from the site over 30 years; and
- the total resource exceeds 5 million tonnes.

Part 4 Division 4.7 of the EP&A Act provides the approval process for SSD proposals and outlines further additional Acts or State Planning Policies that may also need to be considered prior to the granting of consent. A brief review of these instruments is provided in **Section 5.2**.

4.1.1 Permissibility

The project area is located in the Port Stephens Council Local Government Area and is subject to the provisions of the *Port Stephens Local Environmental Plan 2013* (2013 LEP).

The project area is zoned RU3 Forestry under the 2013 LEP (**Figure 4.1**). Uses permitted within the RU3 zone are outlined below:

2 Permitted without consent

Roads; Uses authorised under the Forestry Act 2012 or under Part 5B (Private native forestry) of the Local Land Services Act 2013

3 Permitted with consent

Aquaculture; Dwelling houses; Environmental protection works; Flood mitigation works

As detailed in **Section 2.1**, ARDG has entered into a Deed of Agreement for a Forest Materials Licence (FML) with Forestry Corporation of New South Wales (FCNSW) under section 42 of the *Forestry Act 2012*.

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Legend

- Cadastral boundary
- Licence area
- Project Area
- E1 - National Parks and Nature Reserves
- RU1 - Primary Production
- RU2 - Rural Landscape
- RU3 - Forestry
- SP1 - Special Activities
- SP2 - Infrastructure

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Project:	**STONE RIDGE QUARRY PROJECT**					**Figure 4.1**	
Title:	**Port Stephens Local Environmental Plan 2013 - Land Zoning**						
Author:	DMB	*Date:*	February 2020	*Scale:*	1:15,000 @ A3	*Grid:*	MGA Zone 56 (GDA94)
Source:	Aerial Photograph: NearMap Image - 9 September 2018 Cadastral Data: NSW State Government - Six Maps - Port Stephens LGA						

The use of the site for an extractive industry is therefore permissible in the RU3 Forestry zone, without consent.

Notwithstanding the provisions of the 2013 LEP relating to permissibility without consent, it is relevant that the 2013 LEP also permits aquaculture with consent. The 2013 LEP defines aquaculture as a type of agriculture:

> ***agriculture*** means any of the following –
>
> *(a) aquaculture*
> *(b) extensive agriculture*
> *(c) intensive livestock agriculture,*
> *(d) intensive plant agriculture.*

Clause 7(3)(a) of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* (Extractive Industries SEPP), provides that extractive industry may be carried out with consent on land on which development for the purposes of agriculture is permissible:

> ***7 Development permissible with consent***
>
> *(3) Extractive industry – Development for any of the following purposes may be carried out with development consent –*
>
> *(a) extractive industry on land on which development for the purposes of agriculture or industry may be carried out (with or without development consent)*

As the Extractive Industries SEPP prevails to the extent of any inconsistency with the 2013 LEP, the project is most appropriately considered to be development that is permissible with consent, and therefore assessed under Part 4 of the EP&A Act.

4.2 Additional Relevant Planning Instruments

An overview of additional relevant planning instruments that may also be applicable to the project is shown in **Table 4.1**, which provides a preliminary assessment as to whether concurrent approval would be required. The list is not exhaustive and a full assessment of the applicability and compliance with all relevant planning instruments will be provided in the EIS.

Table 4-1 – Additional Relevant Planning Instruments

Instrument	Comment	Approval Required
Commonwealth Legislation		
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The project area and surrounding site has the potential to provide habitat for a range of EPBC-listed flora and fauna	A referral to the Department of Agriculture, Water and the Environment (DAWE) for determination of whether the Project is a 'Controlled Action' will be prepared given that the proposed development has the potential to impact nationally-listed threatened species.

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Table 4-1 – Additional Relevant Planning Instruments		
Instrument	**Comment**	**Approval Required**
NSW Legislation		
Environmental Planning and Assessment Act, 1979 (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, o an excavation permit 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*; • 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*.	An application will be made under Part 4, Division 4.47 of the EPA&A Act to the NSW Minister for Planning, who is the consent authority for the Project.
Biodiversity Conservation Act 2016 (BC Act)	A licence under this Act is not required for any activity undertaken in accordance with a development consent granted under the EP&A Act. Biodiversity impacts related to the project will be assessed in accordance with the Biodiversity Assessment Method and documented in a Biodiversity Development Assessment Report (BDAR). Any impacts on biodiversity would be offset in accordance with the BC Act.	No approvals are required.
Forestry Act 2012 (Forestry Act)	The project is located within the Wallaroo State Forest on land managed by the Forestry Corporation of NSW (FCNSW). Under section 11 of the Forestry Act the FCNSW is authorised to "take or authorise the taking of forest materials" from this land. Forest materials are defined in the Forestry Act as "rock, stone, clay, shells, earth, sand, gravel or any like material". The FCNSW may issue a Forest Materials Licence under section 42 of the Forestry Act to authorise a license holder to take forest materials.	A Forest Materials Licence will be required prior to commencement of extraction, consistent with the current Deed of Agreement between ARDG and FCNSW.

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Table 4-1 – Additional Relevant Planning Instruments		
Instrument	**Comment**	**Approval Required**
	ARDG has executed a Deed of Agreement for a Forest Materials Licence with FCNSW under section 42 of the Forestry Act.	
National Parks & Wildlife Act 1974 (NPW Act)	An Aboriginal Heritage Impact Permit is typically required under Section 90 of the NP&W Act to harm an Aboriginal object. An Aboriginal Cultural Heritage Assessment will be completed to identify potential impacts to Aboriginal objects.	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.
Heritage Act 1977 (Heritage Act)	An excavation permit under s140 or s60 of the Heritage Act is typically required for impacts to heritage items or relics. No known items of heritage significance are present within the project area. An inspection of the project area by an archaeologist will be undertaken to identify any previously unknown items of heritage significance.	Pursuant to Section 4.41 of the EP&A Act, an excavation permit under s140 or s60 would not be required for the carrying out of the project, if approved.
Water Management Act 2000 (WM Act)	The WM Act regulates the taking, interception, storage and use of surface water and groundwater within areas subject to water sharing plans. The water resources present within the site are managed under the following plans: • The water sharing plan for the *North Coast Fractured and Porous Rock Groundwater Sources* applies to the groundwater sources within the site. The water sharing plan for the *Unregulated and Alluvial Water Sources* applies to the surface water sources within the site.	Any licensing requirements under the WM Act will be identified as part of the groundwater and surface water assessments.
Hunter Water Act 1991 (HW Act)	The project area is located within the direct hydrological catchment of the Grahamstown Dam, which forms part of the Hunter Water drinking water catchment. Under Section 51 of the HW Act, developments within the direct hydrological catchment of surface water storages (including Grahamstown Dam) are required to be referred to Hunter Water who require such developments to demonstrate a Neutral or Beneficial Effect on water quality.	The project will require referral to Hunter Water and will be required to demonstrate a Neutral or Beneficial Effect on water quality.
Protection of the Environment Operations Act 1997 (PoEO Act)	The PoEO Act is administered by the Environment Protection Authority (EPA) NSW, and provides licences relating to air, water, and noise pollution, and waste management.	An environmental protection licence (EPL) will be required for the operation of the proposed quarry, given that it will produce emissions relating to noise, air and water impacts. A comprehensive assessment of these issues will be provided in the EIS.
Roads Act 1993 (Roads Act)	The Roads Act applies to public roads in NSW and, depending upon the type of road, is administered by the TfNSW or local council.	A permit from Port Stephens Council under section 138 of the Roads Act will be required to construct the proposed site access on Italia Road.

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Table 4-1 – Additional Relevant Planning Instruments		
Instrument	**Comment**	**Approval Required**
	Consent is required under section 138 of the Roads Act for works or structures that disturb the surface of a public road or connect a road to a classified road. However, section 4.42(f) of the EP&A Act applies to SSD projects and requires that consent must not be refused, if the works are necessary for carrying out an approved project. The project includes establishing a site access off Italia Road. Any required upgrade works at the intersection of Italia Road and the Pacific Highway would require separate approval from TfNSW.	
State Environmental Planning Policies		
State Environmental Planning Policy (State and Regional Development) 2011 (State and Regional Development SEPP)	The Project is classed as State Significant Development in accordance with Clause 7(1)(b) of Schedule 1 of the State and Regional Development SEPP as the project will extract more than 500,000 tonnes per annum of extractive material, and will extract from a target resource of greater than 5 million tonnes.	Consent is required as the development meets criteria for State significant development
State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33)	A preliminary risk screening of the Project will be performed in accordance with 'Applying SEPP 33', (DUAP, 1997). The only hazardous substances and dangerous goods to be used / stored in the Project Area, however, would be restricted to well managed diesel fuel and other hydrocarbon products. Therefore, the Project is unlikely to classify as hazardous or potentially hazardous industry.	No separate approval required.
State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44)	Port Stephens Local Government Area is identified in Schedule 1 of this policy as an area that could provide habitat for koalas. As required by the SEPP, an investigation will be undertaken to determine if the Project Area represents core or potential koala habitat.	No separate approval required.
State Environmental Planning Policy (Mining, Petroleum and Extractive Industries) 2007 (Mining SEPP)	Part 3 of the Mining SEPP requires the consent authority to consider the following: • Compatibility of the proposal with other land uses; • Voluntary land acquisition • Natural resource management and environmental management (including consideration of voluntary land acquisition and mitigation policies); • Resource recovery; • Transport; and	Consideration of matters listed in Part 3 of the Mining SEPP would be required to be assessed against the proposed works described in the EIS.

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Table 4-1 – Additional Relevant Planning Instruments		
Instrument	**Comment**	**Approval Required**
	• Rehabilitation.	
State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP)	Schedule 3 of the Infrastructure SEPP lists traffic generating development to be referred to the (former) Roads and Maritime Services (RMS) (now TfNSW). The project is likely to qualify as a traffic generating development with relevant size or capacity under Schedule 3 of the Infrastructure SEPP.	If deemed a traffic generating development under Schedule 3 of the Infrastructure SEPP, the consent authority will be required to refer the project to RMS (now TfNSW).
State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)	SEPP 55 aims to provide a state wide planning approach to the remediation of contaminated land, and to reduce the risk of harm to human health and the environment, by consideration of contaminated land as part of the planning process. Under the SEPP, a consent authority must not consent to the carrying out of development on land unless it has considered potential contamination issues. The project area is located within a State Forest with no history of potentially contaminating land uses. No further investigation of contamination is considered warranted and the site is considered suitable for the proposed use from a contamination perspective.	SEPP 55 is not considered to place any constraint on the project. No separate approval required.

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5 Stakeholder Consultation

5.1 Introduction

The Scoping Report Guidelines (DPE, 2019) emphasise the importance of early engagement, commencing during the scoping stage of a project, and continuing throughout the EIS process.

ARDG is committed to developing and maintaining genuine partnerships with all stakeholders; working with the community to develop a project that can co-exist with the local community; and communicating openly, honestly and in a transparent manner with all stakeholders. Engagement will continue to include a range of mechanisms designed to provide opportunities for the community to be involved in the project, provide input for ARDG to consider in its project planning and design and to identify community needs and concerns.

This section summarises the engagement undertaken during the scoping phase for the project and future engagement proposed during preparation of the EIS. A SIA Scoping Report has been prepared by Umwelt Environmental and Social Consultants (Umwelt) (**Appendix B**) in accordance with the SIA Guideline for *State Significant Mining, Petroleum Production and Extractive Industry Development* (DPE, 2017).

5.2 Scoping Phase Engagement

A Stakeholder Engagement Strategy was prepared for the project to identify key stakeholders and outline the process to inform residents, landholders and other stakeholders about the project.

A Community Information Sheet was distributed by ARDG and Umwelt to near neighbours within an approximate 2 km radius of the site, which included 19 residences and six businesses along Italia Road and Nine Mile Creek Road. The locations of these residences are shown in **Figure 5.1**.

Near neighbours were also doorknocked and residents who were at home participated in a semi-structured interview in order to inform them of the project and to gain an understanding regarding:

- local knowledge pertaining to existing quarry projects in the area;
- perceptions of quarrying in general; and
- any concerns associated with the project.

Follow up phone calls were completed with households who were unavailable at this time. A total of 16 participants were consulted during 12 meetings which included 10 face-to-face meetings and two surveys completed over the telephone. All six businesses received the Community Information Sheet by post or email.

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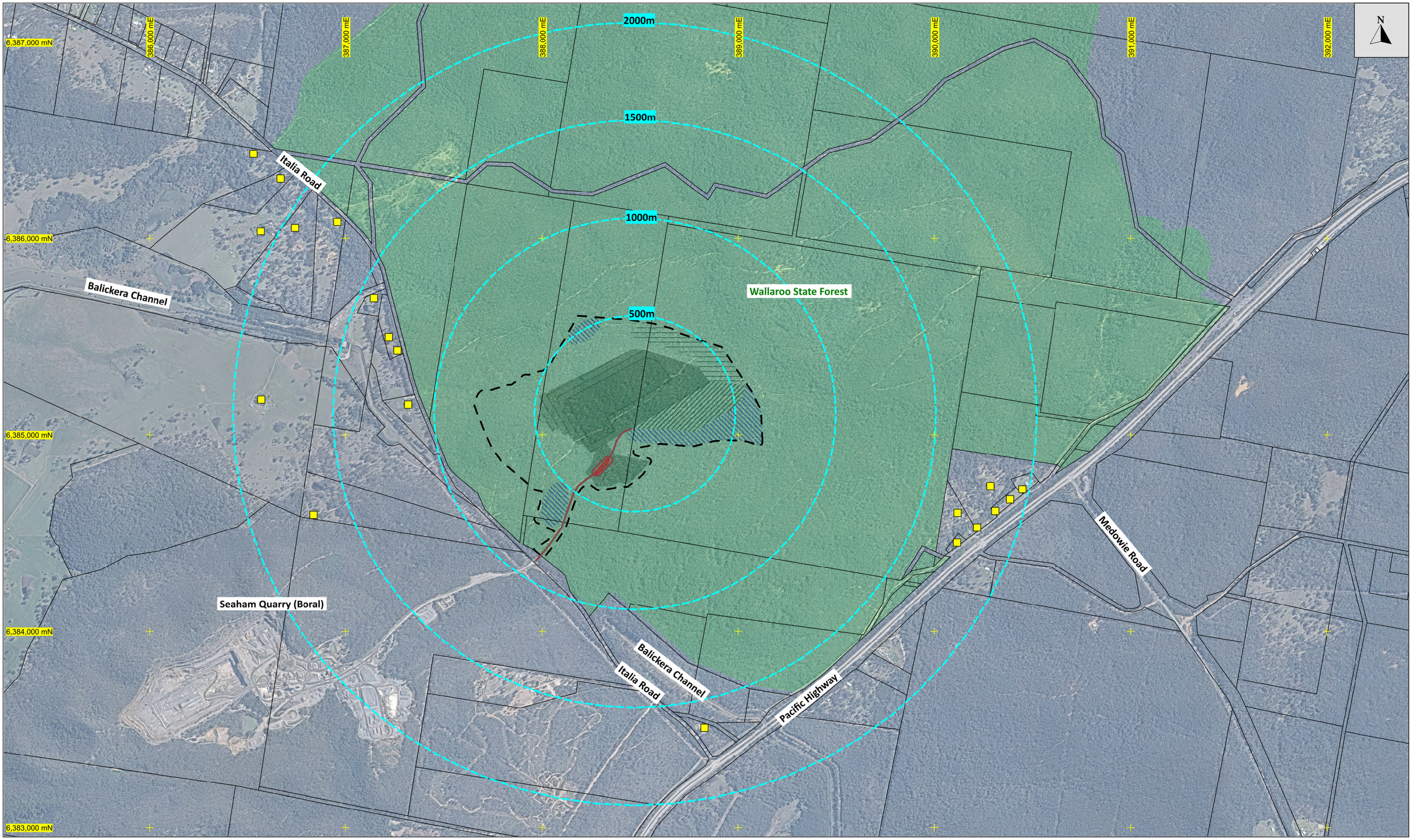

Legend

- Cadastral boundary
- Residence
- Project Area (Stage 5 extraction shown)
- Wallaroo State Forest

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Project:	**STONE RIDGE QUARRY PROJECT**					**Figure 5.1**	
Title:	**Location of Residences for Preliminary Community Consultation**						
Author:	DMB	*Date:*	February 2020	*Scale:*	1:15,000 @ A3	*Grid:*	MGA Zone 56 (GDA94)
Source:	Aerial Photograph: NearMap Image - 9 September 2018 Cadastral Data: NSW State Government - Six Maps - Port Stephens LGA						

5.2.1 Engagement Outcomes

The scoping phase has identified the following key issues of relevance to near neighbours in relation to the project which will be considered as part of the broader SIA and EIS preparation:

- Traffic congestion, safety and access, particularly relating to the Italia Road and Pacific Highway intersection
- Social amenity and health concerns relating to dust and blast fume
- Social amenity relating to noise from quarry operations
- Water quality impacts and/or runoff from operations to Nine Mile Creek
- Impacts on flora and fauna, including management of offset areas
- Blasting vibration and potential property damage
- Property rights relating to acquisition and property value
- Economic benefits and supply of quarry products to industry
- Trust in the assessment and government approvals process.

Further detail on the feedback provided in relation to these issues is provided in **Appendix B**.

5.3 Other Engagement

ARDG has had ongoing engagement with FCNSW since the inception of the project and has held initial discussions with relevant government authorities during the scoping phase, as detailed in **Table 5.1**.

Table 5-1 – Summary of Agency Consultation

Agency	Meeting Date	Purpose
Department of Planning Infrastructure and Environment	21 March 2019	Project scoping/overview and intersection of Italia Road and Pacific Highway
Port Stephens Council	16 April 2019	General project overview and site access
	29 January 2020	Project briefing
Transport for NSW (formerly RMS)	18 December 2017	Intersection of Italia Road and Pacific Highway
	5 June 2018	
	30 October 2018	
	29 March 2019	
	29 August 2019	
Hunter Water Corporation	3 February 2020	Project briefing

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As outlined in **Section 6.1.2**, the consultation process associated with the Aboriginal Cultural Heritage Assessment has also commenced, with the following consultation undertaken in February 2020:

- Notification of the project to specified government agencies and organisations to request information on Aboriginal parties who may be interested in being consulted
- Public notification inviting Aboriginal parties to register an interest in the project
- Letters sent to Aboriginal parties identified by government agencies and organisations to enquire as to whether they would like to register an interest in being consulted regarding the project.

Consultation with Registered Aboriginal Parties will continue during preparation of Aboriginal Cultural Heritage Assessment.

5.4 Future Engagement

As noted in **Section 6**, a detailed SIA and other technical studies will be undertaken for the EIS and will address perceptions of impact raised by key stakeholders in the scoping phase. Subsequent phases of the SIA program will involve the following key activities:

- A detailed update of the baseline social profile to ensure that baseline data relevant to the impacts identified is obtained
- Further validation of the area of social influence utilising updated operational profile data
- Provision of feedback to near neighbours and key stakeholders on the outcomes of the issues raised in the scoping phase and communication of the SEARs for the project (once issued) and the next steps in the assessment process
- Further engagement with near neighbours and other key stakeholders on key impact areas. This will involve feedback on the outcomes of assessment studies and will provide opportunities for input to the development of appropriate mitigation and enhancement measures
- Assessment and prediction of social impacts against existing baseline conditions
- Identification of appropriate management and enhancement measures to address significant social impacts and any residual effects.

Further information on the engagement undertaken with the community during the preparation of the Scoping Report and the proposed community engagement strategy for the EIS is provided in **Appendix B**.

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6 Proposed Assessment

The key environment and community issues for the project have been determined through a detailed scoping process. DPIE (2019) includes a Scoping Worksheet with a checklist of matters to assist proponents to consider all matters, filter out any matters that are not relevant to the project and inform the likely level of assessment required in the EIS.

The Scoping Worksheet (refer to **Appendix A**) has been prepared to identify the key potential environmental and community issues associated with the project and the proposed level and scope of assessments to assist the DPIE with issuing of the SEARs for the project. The proposed level and scope of assessments were determined based upon:

- understanding of the local and regional context of the project (**Section 2.0**);
- feedback from stakeholder consultation undertaken to date (**Section 5.0** and **Appendix B**); and
- environmental data collected from surveys and monitoring undertaken to date (**Section 6.0**).

The key issues requiring preparation of a detailed assessment identified through the Scoping Worksheet are discussed in **Section 6.1**. Other issues requiring assessment as part of the EIS are discussed in **Section 6.2**. In addition, those matters which were considered during scoping, but for which impacts due to the project were considered unlikely, and therefore considered not to require further assessment. Justification for this classification is discussed in **Section 6.3**. Issues requiring cumulative impact assessment are discussed in **Section 6.4**.

6.1 6.1 Matters Requiring Detailed Assessment

6.1.1 Biodiversity

The project area comprises a mix of areas subject to previous logging operations, regrowth and remnant vegetation.

Multiple seasonal biodiversity surveys of the Stone Ridge licence area have been completed, commencing in spring 2017. Surveys have been undertaken in accordance with the Biodiversity Assessment Method (BAM) and include sampling of vegetation integrity plots, plant community type (PCT) mapping and targeted seasonal surveys for species-credit species.

A summary of the effort that has been completed in the licence area to date is provided in **Table 6.1**.

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Table 6-1 – Biodiversity Survey Effort Conducted in Stone Ridge Licence Area		
Survey Type	**Survey Timing**	**Survey Effort**
Vegetation Surveys	Jan, Mar and Apr 2018	18 vegetation integrity plots
Species-Credit Species Survey	Oct 2017	Threatened flora species transects
	Jan 2018	Anabat survey, remote cameras and habitat survey
	Mar 2018	Herpetofauna survey, spotlighting and call playback for green and golden bell frog and green-thighed frog
	July 2018	Diurnal bird searches, including call playback for swift parrot and regent honeyeater Spotlighting and call playback for squirrel glider, barking owl, masked owl and powerful owl
	Oct 2018	Threatened flora species transects
	Aug 2019	Nocturnal hollow tree/stag watching and call playback surveys for powerful owl
	Oct 2019	Threatened flora species transects

Three PCTs have been recorded in the licence area, including one that may align with the *Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions* which is listed as an endangered ecological community under the NSW *Biodiversity Conservation Act 2016* (BC Act).

Several species-credit species have been recorded in the licence area during surveys, including:

- *Callistemon linearifolius*;
- *Pterostylis chaetophora*;
- koala (*Phascolarctos cinereus*);
- southern myotis (*Myotis macropus*) ('possible' identification);
- brush-tailed phascogale (*Phascogale tapoatafa*);
- eastern cave bat (*Vespadelus troughtoni*) ('possible' identification);
- little bentwing-bat (*Miniopterus australis*) (species-credit species for breeding habitat only, which has not been confirmed in the project area); and
- powerful owl (*Ninox strenua*) (species-credit species for breeding habitat only, which has not been confirmed in the project area).

Ecosystem-credit species have also been recorded in the licence area, including:

- eastern coastal free-tailed bat (*Micronomus norfolkensis*) ('possible' identification);
- greater broad-nosed bat (*Scoteanax rueppellii*) ('possible' identification);

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- little lorikeet (*Glossopsitta pusilla*); and
- yellow-bellied sheathtail-bat (*Saccolaimus flaviventris*).

In response to the identification of *Pterostylis chaetophora* in discrete sections of the licence area, the proposed project area footprint was modified to avoid impacts on this species.

Proposed Further Assessment

A detailed Biodiversity Development Assessment Report (BDAR) under the BC Act will be completed for the project and additional surveys may be required. Biodiversity offset options will be investigated and may include the preparation of a Biodiversity Stewardship Site Assessment Report and associated field surveys.

The BDAR will outline the measures taken to avoid, minimise and mitigate impacts to the vegetation and species habitat present within the site and methodologies to minimise impacts during construction and operation of the project. Following consideration of all the above aspects, the residual unavoidable impacts of the project will be calculated in accordance with the BAM by utilising the Biodiversity Assessment Method Credit Calculator.

A formal assessment of matters of national environmental significance will be undertaken to determine whether referral is required to the Commonwealth Minister for the Environment and Energy for consideration as to whether the project meets the criteria for a 'Controlled Action' listed under the *Environment Protection and Biodiversity Conservation Act 1999*.

6.1.2 Aboriginal Archaeology and Cultural Heritage

Potential impacts associated with the project may include disturbance to objects with Aboriginal cultural heritage significance. A basic AHIMS database search has identified three Aboriginal sites within 1 km of the project area.

Proposed Further Assessment

A detailed Aboriginal Archaeology and Cultural Heritage Assessment (ACHA) will be completed as part of the EIS addressing the requirements in accordance with the *National Parks and Wildlife Regulation 2019*, the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010a), *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010b) and the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011).

The ACHA will include the following:

- Assessment of impacts on items of Aboriginal heritage, landscapes and cultural values
- Assessment of potential cumulative impacts resulting from the Project and other known or potential impacts on Aboriginal cultural heritage
- Investigation of measures to avoid, mitigate, monitor and manage the potential impacts of the Project

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- Focused engagement with registered Aboriginal parties.

A key objective of the ACHA will be to ensure that any information provided by registered Aboriginal parties informs decision making on the management of Aboriginal cultural heritage for the project.

The consultation process associated with the ACHA has commenced, with the following consultation undertaken to date:

- Notification of the project to specified government agencies and organisations to request information on Aboriginal parties who may be interested in being consulted
- Public notification inviting Aboriginal parties to register an interest in the project
- Letters sent to Aboriginal parties identified by government agencies and organisations to enquire as to whether they would like to register an interest in being consulted regarding the project.

6.1.3 Air Quality

The key air quality impacts associated with the project will be the emissions of particulate matter and the potential for these emissions to cause adverse impacts at the nearest sensitive receivers. Blast fume and diesel exhaust emissions are also issues that require consideration.

Other sources of particulate emissions in the local area include the Boral Seaham Quarry and motorsports facilities to the west of the site, and traffic from Italia Road and the Pacific Highway. Available air quality and meteorological data will be sourced across appropriate temporal and spatial scales to assist in characterising the existing air quality environment.

Proposed Further Assessment

A detailed air quality impact assessment (AQIA) will be completed as part of the EIS. It is anticipated that the AQIA (subject to any further requirements in the SEARs) will assess the following:

- Review of the existing ambient air quality and meteorological environment
- Preparation of an air emissions inventory for construction and a number of operational scenarios
- Air dispersion modelling to quantify the potential air quality impacts of the project, including PM2.5, PM10, TSP, dust deposition, blast fume and diesel exhaust
- Assessment of potential cumulative impacts resulting from the Project and nearby developments, including the Boral Seaham Quarry
- Proposed mitigation measures to minimise emissions
- Proposed monitoring program for ongoing operations, with particular regard to real-time air quality monitoring.

Modelling and assessment of potential air quality impacts will be undertaken in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2016). It will involve the establishment of a computer-based dispersion model of dust emissions from the Project and outline air quality management measures such as:

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- dust management controls on the crushing and screening plant such as enclosures, dust extraction and water sprays;
- dust management controls on quarrying operations such as water carts, fixed water sprays and use of dust suppressants on haul roads;
- optimisation of haulage routes to reduce travel distance and concentrate truck usage on dust managed haul roads; and
- progressive rehabilitation of disturbed areas to reduce exposed earth.

These controls will all be applied to the quarry operations proposed at the site. The AQIA will also provide details of an air quality monitoring program for implementation at the site to monitor dust levels in the area surrounding the quarry and ensure that relevant dust limits specified in the consent for the quarry achieve compliance with these criteria.

6.1.4 Surface Water

The project is located in Hunter Water's Grahamstown Dam Drinking Water Special Area as gazetted in the Hunter Water Regulation 2015. In accordance with Hunter Water's Guideline *Protecting our Drinking Water Catchments: Guidelines for developments in the drinking water catchments* (Hunter Water 2017), the project must demonstrate 'Neutral or Beneficial Effect (NorBE)' on water quality (including wet years and during storm events). This standard requires that the development:

- has no identifiable potential negative effect on water quality; or
- contain water quality impacts to the development site and prevent it from reaching any watercourse, water body or drainage depression on the site; or
- transfer any water quality impact outside the site where it is treated and disposed to standards approved by the consent authority.

Hunter Water has a preference for a closed water quality treatment system on-site (*i.e.* no discharge from the project area), although in the absence of such, discharge would need to demonstrate NorBE.

While a closed system (*e.g.* in-pit sump) is feasible, in the short term this is not practical, given that extraction elevations in the quarry pit will be higher than the surrounding areas from where surface water runoff would be collected. Therefore, given the relatively unconstrained nature of the site with respect to available space, the preference would be for a water quality treatment design comprising a surface water management system with appropriately sized detention/retention basins such that the quarry operations will comply with Hunter Water's NorBE requirements.

In order to achieve the design parameters required for NorBE, a surface water quality monitoring program has commenced (and continues to be undertaken) to ensure sufficient background data exists for input into the design process.

Potential impacts to water resources as a result of the project include quality of runoff and management of water utilisation.

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Proposed Further Assessment

A detailed surface water impact assessment (SWIA) will be undertaken for the project as part of the EIS. The surface water assessment will include the following:

- Identification and documentation of catchments and watercourses within and surrounding the site
- Identification of conceptual layouts of water management controls/measures
- Preparation of a site water balance.

The EIS will include an assessment of the project's potential impacts on surface water flows and quality, as well as assessing the potential for impacts on downstream water users. The surface water assessment will also include consideration of water licensing requirements under relevant legislation.

The SWIA will not include flood modelling, as a review of Flood Hazard Mapping (Port Stephens Council, 2016) indicates that the project will not be located on flood prone land.

6.1.5 Noise

The quarry operations at the site will involve a range of noise generating activities including:

- the use of large, mobile earthmoving equipment;
- mobile crushing and screening plant; and
- additional heavy vehicle traffic on Italia Road south of the proposed site access point.

The project therefore has the potential to result in noise impacts to nearby sensitive receivers. Although not envisaged as being in use in the early years of the operation, the Noise Impact Assessment (NIA) undertaken for the Project will also model a scenario for a fixed processing plant operation.

There are relatively few sensitive receivers located close to the site, while the Pacific Highway is an existing significant background noise source located approximately 1.6 km to the south-east of the site. As detailed in **Figure 5.1**, the closest residential receptor to the main (noise generating) processing area of the site is approximately 1.2 km to the west. Extraction staging has been designed to ensure that noise generation from the quarry operations are separated from residences to the west and northwest by the retention of an easterly-facing extraction face. This face will be at a higher maximum level than the noise generating sources, thereby creating a physical barrier to noise generation which will be retained as the extraction area advances to the west and north. The design of the pit and operations will therefore utilise natural features of the site and surrounding landscape to ameliorate potential operational noise impacts.

Proposed Further Assessment

A detailed NIA will be prepared for the Project in accordance with the *NSW Noise Policy for Industry (*NPfI) (EPA, 2017), *NSW Road Noise Policy* (DECCW 2011) and the *NSW Interim Construction Noise Guideline (DECC, 2009)* and will assess the noise impacts from the project on surrounding sensitive receivers. The results of the NIA will be used to inform the detailed quarry design.

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6.1.6 Blasting

Blasting associated with quarrying results in vibration and blast overpressure which if not managed correctly has the potential to impact on nearby residences and infrastructure. Blasts will be designed to avoid the potential for adverse vibration impacts to residences, heritage items and infrastructure, including the nearby tunnel of Balickera Channel. Note that an operations exclusion zone will be proposed around the tunnel. Other key infrastructure that needs to be considered in blast design includes the Pacific Highway.

The EPA sets guidelines for blasting based on human comfort levels. The guidelines have been adapted from the Australian and New Zealand Environment and Conservation Council (ANZECC) Guidelines *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* (ANZECC, 1990). The ANZECC guidelines are based on human comfort levels and are much more stringent than those based on the potential for damage to structures. These guidelines will be reflected in the blasting criteria proposed for adoption in the Project Approval.

Vibration criteria are also required for infrastructure within the surrounding area to ensure that potential impacts can be managed. In consultation with Hunter Water Corporation, criteria will be developed for the tunnel section of Balickera Channel and proposed for adoption in the Project Approval.

Proposed Further Assessment

A detailed Blast Impact Assessment will be undertaken for the project. The assessment will provide predictions of ground vibration and airblast overpressure for surrounding residences, heritage structures and existing infrastructure, including the Hunter Water pumping Station, Balickera Channel and tunnel. The assessment will identify appropriate blast management practices required to protect the local community and surrounding structures.

The assessment will be completed in accordance with the guidelines produced by the ANZECC, Assessing Vibration technical guidelines (DEC, 2006) and the latest Australian Standard and other relevant documents.

6.1.7 Traffic and Access

Product from the project will be dispatched by truck via a new access point off Italia Road. All project-related heavy vehicles movements will be left turn out of the project area towards the Pacific Highway. The increase in traffic resulting from the project will have an impact on the local road network, including the performance of the key local intersection of Italia Road and the Pacific Highway. ARDG have consulted with Port Stephens Council and TfNSW in relation to site access and the Pacific Highway / Italia Road intersection, with the outcomes of these discussions summarised below.

Site Access

ARDG has consulted closely with TfNSW engineering staff regarding the proposed site access for the Project. TfNSW is opposed to an access point directly onto the Pacific Highway, which means access for the site must be via Italia Road.

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A range of options for access to the site from Italia Road have been reviewed and discussed with Port Stephens Council engineering and planning staff. The process for determining the proposed site access point off Italia Road included a review on site of the existing Italia Road pavement alignment and geometry, its position within the existing road reserve, adjacent topographical constraints and the existing access to Italia Road from the Boral Seaham Quarry site. It was concluded that, based on these constraints, the optimal location for access to the site from Italia Road is opposite the current Boral Seaham Quarry access point. At present, the traffic arrangement at this access point is sub-optimal, with right turn truck movements from the Boral Seaham Quarry entering directly into southbound through traffic without any widening for through traffic on the eastern side of Italia Road.

Preliminary discussions with Council indicated their preference for no new conflict points on Italia Road and a single access point for both quarries. An access point to Stone Ridge Quarry at this location would provide an opportunity to improve the current conflict point and upgrade it to Austroads standard.

Therefore, a single access/egress point is proposed at Italia Road with an internal one-way traffic circulation through the site. All outbound trucks will be left hand turn only onto Italia Road towards the Pacific Highway. As discussed, ARDG has had preliminary discussions with Port Stephens Council regarding site access from Italia Road and will develop an appropriate intersection treatment in consultation with Council and TfNSW. Italia Road is classified as a 'local' road under the care and control of Port Stephens Council. It is not a 'Classified Road' as defined under the *Roads Act 1993*. Notwithstanding, the application will require referral to TfNSW pursuant to Schedule 3 of the *Infrastructure SEPP*.

Pacific Highway/Italia Road Intersection

ARDG has consulted closely with TfNSW over the last two years regarding access to the Pacific Highway. It is expected that the vast majority of all outbound truck movements on the Pacific Highway will be southbound (driven by market demand). As noted in **Section 1.4**, the project will not dispatch trucks to market until a suitable and safe access arrangement is in place. Access to the Pacific Highway for all trucks from the quarry would be in accordance with TfNSW requirements, which are currently being determined.

Proposed Further Assessment

A detailed traffic impact assessment (TIA) will be prepared to assess the changes in traffic volumes on the surrounding road network in accordance with the *Guide to Traffic Generating Developments* (Roads and Traffic Authority, 2002).

The peak number of trucks proposed for the project will be informed by the TIA, which will include consideration of intersection capacity, road safety, accessibility and assessment of potential cumulative impacts on the road network resulting from the project, the Boral Seaham Quarry and other nearby developments.

6.1.8 Groundwater

The detailed resource investigation program (**Section 2.9**) completed for the project indicates that the hard rock resource present within the project area is assessed as being poorly to very-poorly permeable. The extent of this hard rock resource has been well defined, and the proposed extraction area will remain well within the limits of the hard rock resource, thereby limiting potential interaction with groundwater.

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A series of groundwater piezometers have been installed across the site to build a more detailed understanding of the local groundwater regime.

Proposed Further Assessment

The project will be designed to remain well within the limits of the low permeability hard rock resource, thereby limiting potential for interaction with groundwater. Notwithstanding, a detailed Groundwater Impact Assessment will be prepared for the project to identify the existing groundwater environment, assess the potential impacts of the project on the local groundwater environment and to meet the requirements of the NSW Aquifer Interference Policy. A key element of the groundwater assessment will be the development of a conceptual model, based on the geological and groundwater data obtained from the investigation program. The conceptual model will identify groundwater inputs and outputs, groundwater flow systems and groundwater receptors. Based on the level of risk to groundwater receptors, groundwater modelling (either analytical or numerical) may be undertaken to quantify groundwater inflows into the pit and groundwater drawdown surrounding the pit. The project will be assessed against the rules of the relevant Water Sharing Plan(s), and Water Access Licence requirements will be identified (if any). Mitigation and ongoing groundwater monitoring requirements will be included in the groundwater assessment. The results of the groundwater assessment will be integrated into the site water balance for the project.

6.1.9 *Social Impacts*

The EIS will include preparation of a detailed social impact assessment (SIA) in accordance with the *Social Impact Assessment Guideline for State Significant Mining, Petroleum Production and Extractive Industry Development* (DPE, 2017).

Building on the outcomes of the stakeholder consultation undertaken during the scoping phase (**Section 5**), a detailed community engagement program will be undertaken to identify any issues or potential impacts that need to be considered in the design and implementation of the Project. The social impact assessment will include consideration of potential impacts of the Project, both positive and negative, on the community. The issues considered in the assessment will include (but not be limited to):

- environmental impacts on neighbouring communities (*e.g.* dust, noise, traffic, visual amenity, rehabilitation/end land use);
- issues relating to the ongoing sustainability and viability of neighbouring communities;
- impacts on sense of community;
- impacts on community infrastructure and services; and
- impacts on other businesses and key industry sectors.

The SIA will consider the potential for the project to contribute to the local, regional and State economies through capital expenditure and employment. It is not proposed to undertake a comprehensive economic impact assessment for the project.

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6.2 Matters Requiring Standard Assessment

6.2.1 Visual Amenity

The project area is located within Wallaroo State Forest. Substantial existing regrowth and remnant vegetation will be retained around the proposed quarry operations which will act to shield views of these operations from surrounding public and private property viewing locations. In addition, as outlined in **Section 6.1.5**, the project has been designed such that there will be shielding of quarry operations from nearby receivers to the west and northwest (refer **Figure 5.1**). The quarry extraction and infrastructure areas are not likely to be visible from any public or private viewing location, including Italia Road, the Pacific Highway or private residences. Visual impacts are likely to be limited to possible indirect glow associated with lighting for mobile equipment and lighting in the loading/operations area of the quarry (up until 10.00 pm Monday to Friday), however, given the relative remoteness of the operations is not expected to significantly or adversely affect the amenity of residences in the area.

The potential for any adverse visual impacts associated with the project are therefore considered limited.

Proposed Further Assessment

Based on the site and surrounding topography, surrounding vegetation and distance from potential sensitive receptors and viewpoints, a preliminary assessment indicates that the project infrastructure components and associated activities will not be visible from any public or private viewing locations (*e.g*. Italia Road, Nine Mile Creek Road, Pacific Highway).

A qualitative assessment of visual impact will be included in the EIS, including radial analysis, based on analysis of Lidar data and site photographs to confirm the potential visibility of project. The visual assessment will feed into the development of management and mitigation measures to minimise the visual impacts of the project on the landscape if required.

6.2.2 Historic Heritage

Apart from intermittent logging, the site has no known history of development of any kind, being a relatively intact parcel of land. No known items of historic heritage significance are present within the project area.

Proposed Further Assessment

A desktop review of historical heritage will be undertaken, and a survey of the project area will be completed by an archaeologist to identify any potential items of historic heritage. Should any historical heritage items be located, an assessment of potential historic heritage impacts will be prepared in accordance the *NSW Heritage Manual 1996 (*Heritage Branch, OEH) and with consideration of the principles contained in the *Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance*.

6.2.3 Hazard Analysis

Given the location and nature of the project, a range of hazard and risk related matters will require consideration as part of the EIS. These include bushfire, SEPP 33 risk screening and waste.

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Bushfire

Planning law in NSW requires new development on bush fire prone land to comply with the provisions of the NSW Rural Fire Service publication, Planning for Bush Fire Protection (2019) and related National building standards. Although state significant projects are exempt from requiring a Bush Fire Safety Authority and are not required to be assessed under s4.14 of the EP&A Act, the requirements of Planning for Bush Fire Protection 2019 should still be applied.

The project area has been classified as Bushfire Prone Vegetation Category 1 within the Port Stephens Council planning overlays and has the potential to carry significant fire that could impact on life and property.

A Bush Fire Risk Assessment will be undertaken with the objective of identifying requirements for potential clearing for Asset Protection Zones. The Bush Fire Risk Assessment will take into account vegetation types and effective land slopes to determine bush fire attack levels across the Project area.

SEPP 33 Risk Screening

The only hazardous substances and dangerous goods to be used / stored on the site would be restricted to well-managed diesel fuel and other hydrocarbon products. As such, the project is unlikely to classify as a hazardous or potentially hazardous industry. Notwithstanding, a preliminary risk screening will be carried out in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* (SEPP 33) and *Applying SEPP 33* (Department of Planning (DoP), 2011).

The preliminary risk screening will include:

- review of the proposed hazardous materials storage inventory for the project;
- review of the proposed hazardous materials transport frequency and quantities associated with the project;
- a preliminary risk screening for storage and transport of hazardous materials associated with the project with respect to SEPP 33 screening thresholds; and
- a high-level review of potential off-site risks associated with the project and identify risk mitigation measures.

Waste

A high-level review of the nature and quantity of waste generated by the project will be undertaken including the proposed measures to minimize, manage or dispose of these waste streams.

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6.2.4 Greenhouse Gas and Energy

The project will generate greenhouse gas emissions through electricity consumption, the use of diesel-powered mobile equipment and fuel consumed in the transport of quarry products.

Proposed Further Assessment

A greenhouse gas and energy assessment (GHGEA) will be prepared for the Project using the nationally accepted principles developed by the Greenhouse Gas Protocol (2004) and the methodologies contained in the National Greenhouse Accounts Factors (2018).

6.2.5 Land Resources and Rehabilitation

As discussed in **Section 2.9**, the resource and technical assessment work undertaken has identified extensive additional resources (of similar quality) both within (at depth) and outside of the initial quarry pit development area as a future extractive resource. This resource would be highly likely to form future stages to the development of the quarry (subject to separate development approval after the cessation of any extant approval).

A detailed rehabilitation plan for the quarry extraction area is not proposed, rather, rehabilitation will be presented in the context of assuming that the quarry life and operations will be extended beyond any initial 30 year development horizon, given the extensive high quality resource available at the site.

Proposed Further Assessment

A conceptual rehabilitation strategy will be prepared for the project, focusing on progressive rehabilitation of areas outside the quarry extraction area. The EIS will present a conceptual final landform, rehabilitation objectives and rehabilitation criteria for the site. The EIS will also include an outline of the approach to stabilisation of the site and quarry pit over the life of the approval. Future land use for the site would be identified prior to decommissioning and would be consistent with the land zoning and strategic planning context at that time.

6.3 Matters Requiring No Further Assessment

The following matters were considered during the scoping phase and were considered unlikely to result in any impact as a result of the project.

6.3.1 Parking

The project will have limited need for parking, due to the low visitor numbers and relatively low number of employees working onsite. The project area will provide sufficient parking capacity for all light and heavy vehicles and mobile equipment stored on site. No further parking analysis is considered required.

6.3.2 Odour

No significant odour generating activities or materials will be handled or produced by the project. An assessment of potential odour impacts is not considered warranted.

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6.3.3 Contamination

Apart from intermittent logging, the site has no known history of development of any kind and has not been subject to any potentially contaminating land uses. A review of the NSW contaminated land register indicates no current or past notices relating to contamination affect the project area. No visual evidence of contamination is present on site.

In the absence of any historical potentially contaminating land uses, no further site investigation is considered warranted and the site is considered suitable for the proposed use from a contamination perspective.

6.3.4 Land Movements

The infrastructure and extraction areas will be designed to be safe and stable to provide for safe access to the extraction area and surrounds for quarry workers. The geology of the site is well known through a process of detailed resource definition. The geological information collected is considered sufficient to enable the detailed design of the quarry extraction area.

6.3.5 Soil Chemistry

The project area is outside the extent of any acid sulphate soil or salinity risk mapping.

Minimal overburden and topsoil is present across the project area (**Section 2.9.4**). Based on the extensive drilling program completed by ARDG and a knowledge of the soils of the site, areas of the project area are known to contain highly dispersive soils. This will be considered as part of the Surface Water Impact Assessment to be prepared for the project, however, further detailed soils surveys are not considered necessary to inform topsoil management practices.

6.4 Cumulative Impacts

An assessment of cumulative impact assessments of the project and existing or proposed developments will be undertaken, including Boral's Seaham Quarry to the west of the site and the proposed Eagleton Quarry to the south-west of the site. The assessment will focus on emissions (noise/blasting; air quality; surface water) and other potential impacts, that in combination with Boral's operations (*e.g.* traffic) may have the potential to adversely affect the existing amenity of surrounding landowners, residents and road users.

6.5 Summary of Proposed Assessment Approach

Table 6.2 summarises the proposed level of assessment to be presented in the EIS for the project.

The level of assessment is in line with the definitions in DPIE's guidelines for preparing a scoping report (DPE, 2019), which define the following:

- **Detailed assessment**: The assessment of the impacts of the project on the matter requires detailed studies to be undertaken by specialists. It may also require the implementation of strategies to manage any uncertainties associated with this assessment. The impact assessment section of the EIS

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should include a detailed summary of findings of the specialist studies, while the full specialist study should be included as appendices to the EIS.

- **Standard assessment**: The approach to assessment and potential mitigation measures are well understood and routinely used on similar projects. The results of the assessment of these matters should be summarised in the impact assessment section of the EIS but may not need to be supported by a detailed specialist study in the appendices of the EIS.

Table 6-2 – Summary of Proposed Level of Impact Assessment

Key Issue	Proposed Level of Assessment
Biodiversity	Detailed
Aboriginal heritage	Detailed
Air quality	Detailed
Surface water	Detailed
Noise	Detailed
Blasting	Detailed
Traffic and transport	Detailed
Groundwater	Detailed
Social	Detailed
Visual	Standard
Economics	Standard
Historic heritage	Standard
Hazards	Standard
Greenhouse gas	Standard
Land resources and rehabilitation	Standard

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7 Conclusion

This Scoping Report report has presented the background to the project, the size and importance of the extractive resource on the site and the range of environmental matters that would be addressed in the EIS prepared for the project. It has demonstrated that the project meets two of the criteria for State significant development as defined within *Schedule 1 cl.7(1) of State Environmental Planning Policy (State and Regional Development) 2011*. Accordingly, this Scoping Report supports a SEARS request for the project.

If developed, Stone Ridge Quarry would be capable of producing a full suite of high-quality quarry products, including in-specification:

- concrete aggregates;
- sealing aggregates;
- high Polished Aggregate Friction Value (PAFV) asphalt aggregates;
- gabion;
- armour rock;
- ballast;
- roadbase; and
- crushed rock products.

A quarry located at the project area and in close proximity to the Pacific Highway would be ideally situated from a transportation cost perspective to competitively ameliorate pending supply-side pressure of high-quality quarry products to the Lower Hunter, Central Coast and northern Sydney construction materials markets.

A quarry on the site would generate a significant revenue stream for FCNSW (and the State of NSW) for the initial 20-year term of a Forest Materials Licence with ARDG, as well as from any subsequent licence period approved by FCNSW. Given the large size of the hard rock resource confirmed by ARDG, it is expected that the life of the quarry resource and royalty revenue stream to the State would be very significant.

Based on current project timing, ARDG intends to lodge an EIS for the project in late 2020.

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8 References

Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (NSW Department of Environment, Climate Change and Water, 2010)

Australian and New Zealand Environment and Conservation Council (ANZECC), 1990. *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration*.

Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010b) and *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011).

Department of Urban Affairs and Planning, (1997). *Applying SEPP 33*.

Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (NSW Department of Environment and Conservation, 2005),

Department of Environment and Conservation, (2006) *Assessing Vibration: a technical guidelines*, February 2006.Department of Planning and Environment, (2017). *Guideline 6: Community and Stakeholder Engagement, Draft Environmental Impact Assessment Guidance Series, June 2017*.

Department of Planning and Environment, (2017) *Social impact assessment guideline – For State significant mining, petroleum production and extractive industry development*. September 2017.

Department of Planning and Environment, 2019. *Guideline 1: Preparing a Scoping Report: Guidance for State Significant Projects, June 2019*.

Environment Protection Authority, (2016). *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*.

Geological Survey of NSW, (2015). *Zone 56 Seamless Geology digital dataset.*

Hunter District Water Board, (1957). *Report on Geology of Balickera Tunnel Site*. Unpublished report.

Hunter Water Corporation, (2017). *Protecting Our Drinking Water Catchments: Guidelines for developments in the drinking water catchments.*

JORC, (2012). *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code) [online]*. Available from: (The Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia).

NSW Office of Environment and Heritage (1996). *NSW Heritage Manual 1996.*

NSW Rural Fire Service (2019). *Planning for Bush Fire Protection*.

Port Stephens Council, (2016). *Flood Hazard Mapping* https://www.portstephens.nsw.gov.au/grow/land-environment-and-heritage/flooding/flood-hazard-mapping

Rattigan, (1966). The Balickera Section of the Carboniferous Kuttung Facies, New South Wales. *Journal and Proceedings of the Royal Society of New South Wales, Vol. 100, pp. 75-84, 1966*

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Appendix 1

Scoping Worksheet

Project : Stone Ridge Quarry

MATTERS		IMPACTS		ASSESSMENT LEVEL	CUMULATIVE IMPACTS	COMMUNITY ISSUES	ASSESSMENT APPROACH	SCOPING REPORT
Potential matters that could be affected by the project		Is the project (without mitigation) likely to cause an impact?	Are the impacts (without mitigation) likely to be significant based on the magnitude of the impacts and/or sensitivity of receivers?	What level of assessment is required to assess impacts and determine mitigation measures?	Will cumulative assessment be required?	Did the community raise any concerns about the impacts?	Indicative approach to assessment in EIS	Where was this addressed in the Scoping Report?
Group	**Specific**	**Impact?**	**Significant Impact?**	**Assessment Level**	**Cumulative Impact?**	**Concerns?**	**Category**	**Section**
ACCESS	access to property	Yes	Likely	Detailed	Yes	Yes	Detailed Assessment + CIA + focussed engagement	Section 6.1.7
	parking	No				No	None	Section 6.3
	port / airport facilities	N/A					None	N/A
	road / rail network	Yes	Likely	Detailed	Yes	Yes	Detailed Assessment + CIA + focussed engagement	Section 6.1.7
AIR	atmospheric emissions	Yes	Unlikely			Yes	Standard Assessment	Section 6.2.4
	gases	Yes	Unlikely			Yes	Detailed Assessment + CIA + focussed engagement	Section 6.1.3
	particulate matter	Yes	Likely	Detailed	Yes	Yes	Detailed Assessment + CIA + focussed engagement	Section 6.1.3
AMENITY	noise	Yes	Likely	Detailed	Yes	Yes	Detailed Assessment + CIA + focussed engagement	Section 6.1.5
	odour	No				No	None	Section 6.3
	blasting and vibration	Yes	Likely	Detailed	Yes	Yes	Detailed Assessment + CIA + focussed engagement	Section 6.1.6
	visual	Yes	Unlikely			No	Standard Assessment	Section 6.2.1
BIODIVERSITY	conservation areas	Yes	Likely	Detailed	Yes	Yes	Detailed Assessment + CIA + focussed engagement	Section 6.1.1
	native vegetation	Yes	Likely	Detailed	Yes	Yes	Detailed Assessment + CIA + focussed engagement	Section 6.1.1
	native fauna	Yes	Likely	Detailed	Yes	Yes	Detailed Assessment + CIA + focussed engagement	Section 6.1.1
BUILT ENVIRONMENT	private property	N/A					None	N/A
	public domain	Yes	Unlikely			No	Standard Assessment	Section 1.3
	public infrastructure	Yes	Unlikely			Yes	Detailed Blasting & Traffic Assessments + focussed engagement	Section 6.1.6 & 6.1.7
ECONOMIC	livelihood	No				No	Standard Assessment	Section 6.1.9
	natural resource use	Yes	Likely	Standard	Yes	Yes	Standard Assessment + focussed engagement	Section 2.4 & 6.1.9
	opportunity cost	Yes	Unlikely			Yes	Standard Assessment + focussed engagement	Section 2.4 & 6.1.9
HAZARDS & RISKS	biosecurity	N/A					None	N/A
	bush fire	Yes	Likely	Standard	Yes	Yes	Standard Assessment + focussed engagement	Section 6.2.3
	coastal hazards	N/A					None	N/A
	dams	Yes	Likely	Detailed	Yes	No	Detailed Assessment	Section 6.1.6
	dangerous goods	Yes	Unlikely			No	Standard Assessment (risk screening)	Section 6.2.3
	environmental hazards	N/A					None	N/A
	floods	No				Yes	Standard Assessment (within detailed SWIA) + focussed engagement	Section 6.1.4
	groundwater contamination	Yes	Unlikely			No	Standard Assessment (within detailed SWIA)	Section 6.1.4
	hazardous / offensive development	Yes	Unlikely			No	Standard Assessment	Section 6.2.3
	land contamination	No				No	None	Section 6.3
	land movement	No				No	None	Section 6.3
	waste	Yes	Likely	Standard	No	No	Standard Assessment	Section 6.2.3
HERITAGE	Aboriginal cultural	Unknown	Unknown	Detailed	No	Yes	Detailed Assessment + focussed engagement	Section 6.1.2
	historic	Unknown	Unknown	Standard	No	No	Standard Assessment (supported by site inspection)	Section 6.2.2
	natural	No				Yes	Standard Assessment + focussed engagement	Section 2.0
LAND	land capability	Yes	Likely	Standard	No	No	Standard Assessment	Section 2.0
	soil chemistry	No				No	None	Section 6.3
	stability / structure	Yes	Likely	Detailed	No	No	Detailed Surface Water Assessment	Section 6.1.4
	topography	Yes	Likely	Standard	No	No	Standard Assessment	Section 2.0
SOCIAL	community services / facilities	No				Yes	Detailed Social Impact Assessment + focussed engagement	Section 6.1.9
	health	Yes	Unknown	Detailed	Yes	Yes	Detailed Social Impact Assessment + focussed engagement	Section 6.1.9
	housing availability	N/A					None	N/A
	safety	Yes	Likely	Detailed	Yes	Yes	Detailed Traffic Impact Assessment + CIA + focussed engagement	Section 6.1.7
	social cohesion	Yes	Unknown	Detailed	Yes	Yes	Detailed Social Impact Assessment + focussed engagement	Section 6.1.9
WATER	ground water quality	Yes	Unknown	Detailed	Yes	Yes	Detailed Groundwater Assessment + CIA + focussed engagement	Section 6.1.8
	hydrological flows (including flooding)	Yes	Likely	Detailed	Yes	Yes	Detailed Surface Water Assessment + CIA + focussed engagement	Section 6.1.4
	surface water quality	Yes	Likely	Detailed	Yes	Yes	Detailed Surface Water Assessment + CIA + focussed engagement	Section 6.1.4
	water availability	Yes	Likely	Detailed	Yes	Yes	Detailed Surface Water Assessment + CIA + focussed engagement	Section 6.1.4
	drinking water catchment	Yes	Likely	Detailed	Yes	Yes	Detailed Surface Water Assessment + CIA + focussed engagement	Section 6.1.4

Appendix 2

Scoping SIA

umwelt
Environmental & Social Consultants

AUSTRALIAN RESOURCE
DEVELOPMENT GROUP PTY LIMITED

STONE RIDGE QUARRY PROJECT

Social Impact Assessment
Scoping Report

FINAL

February 2020

AUSTRALIAN RESOURCE
DEVELOPMENT GROUP PTY LIMITED

STONE RIDGE QUARRY PROJECT

Social Impact Assessment
Scoping Report

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Australian Resource Development Group

Project Director:	Dr Sheridan Coakes
Project Manager:	Sarah Bell
Report No.	4158C/R05
Date:	February 2020

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Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
V1	Dr Sheridan Coakes	25/02/2020	Sarah Bell	28/02/2020

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1.0 Introduction

This report documents the outcomes of the Scoping Phase of the Social Impact Assessment (SIA) undertaken by Umwelt (Australia) Pty Ltd (Umwelt) on behalf of Australian Resource Development Group (ARDG), and which forms Appendix B of the Scoping Report for the Stone Ridge Quarry Project.

The Project is a State Significant Development (SSD), and requires a SIA to be prepared to satisfy relevant NSW Government guidelines and assessment standards including, but not limited to, the Department of Planning, Industry and Environment's (DPIE) Social Impact Assessment Guidelines for State significant mining, petroleum production and extractive industry development (September 2017).

1.1 Project Overview

The proponent, ARDG is seeking planning approval for a new hard rock quarry within the Wallaroo State Forest at Balickera, NSW, approximately 20 kilometres (km) north of Newcastle. The small community of East Seaham is located approximately 6 km north-west of the Project area, and comprises around 140 households (ABS Census, 2016).

The Stone Ridge Quarry Project (the Project) is seeking to access a high quality, hard rock resource suitable for producing a wide range of quarry products. The Project is well positioned to supply the Lower Hunter, Central Coast and northern Sydney construction materials markets.

Detailed geological assessments of the available resource have occurred since 2016. The Project area is approximately 89 hectares (ha) and is on land managed by Forestry Corporation of NSW (FCNSW). ARDG and FCNSW have executed a Deed of Agreement for a Forest Materials Licence (FML) under the Forestry Act which allows ARGD to seek approval for the Project. Should the Project be approved, and following receipt of all necessary approvals and licences, a FML will be issued for ARDG to develop and operate the Project. ARDG will pay a royalty to FCNSW (effectively, the State of NSW) for each tonne of quarry product sold.

It is expected that approximately 1.5 million tonnes (Mt) of quarry product will be transported from the site over the Project's 30-year approval life.

The Project will include the following components:

- Quarry extraction area
- Processing and stockpiling area
- Storage area for overburden/plant and equipment
- Loading area
- Drains and dams for surface water management
- Weighbridge and administration area (offices, parking, amenities)
- Buffer area, and
- A single access point at Italia Road.

All trucks to and from the quarry will travel via the Pacific Highway and access the Project from a single access point on Italia Road. No trucks will turn right out of the Project site onto Italia Road toward East Seaham.

ARDG recognises that there are existing concerns regarding the Italia Road intersection with the Pacific Highway and has consulted closely with Transport for NSW (TfNSW) regarding access to the Pacific Highway. The Project will not dispatch trucks to market until a suitable and safe access arrangement is in place. Access to the Pacific Highway for all trucks from the quarry would be in accordance with TfNSW requirements, which are currently being determined.

2.0 Methodology

2.1 Assessment Requirements

A 'best practice' approach to SIA has been adopted during the Scoping Phase to inform the Scoping Report for the Project, by integrating international and NSW SIA Guideline requirements. Commissioning of the SIA phases early in the Project and conducting regular meetings with the Project team throughout the assessment program will provide opportunities to effectively align the SIA outcomes with the broader Environmental Impact Statement (EIS) program.

The scoping phase of this SIA has been conducted in accordance with the SIA Guideline (DPIE, 2017), and as such has involved a number of key phases of work to inform Project planning and design (refer to **Figure 2.1**), including:

- Preparatory Planning - undertaking appropriate planning for the Project and development of a Stakeholder Engagement Strategy which is summarised in this report.
- Scoping – preliminary identification of social impacts/issues relevant to the Project, to determine the level of assessment required for the EIS
- Profiling - defining the baseline social context in which the Project is based.

This work has been led and conducted by Umwelt's qualified and experienced social team.

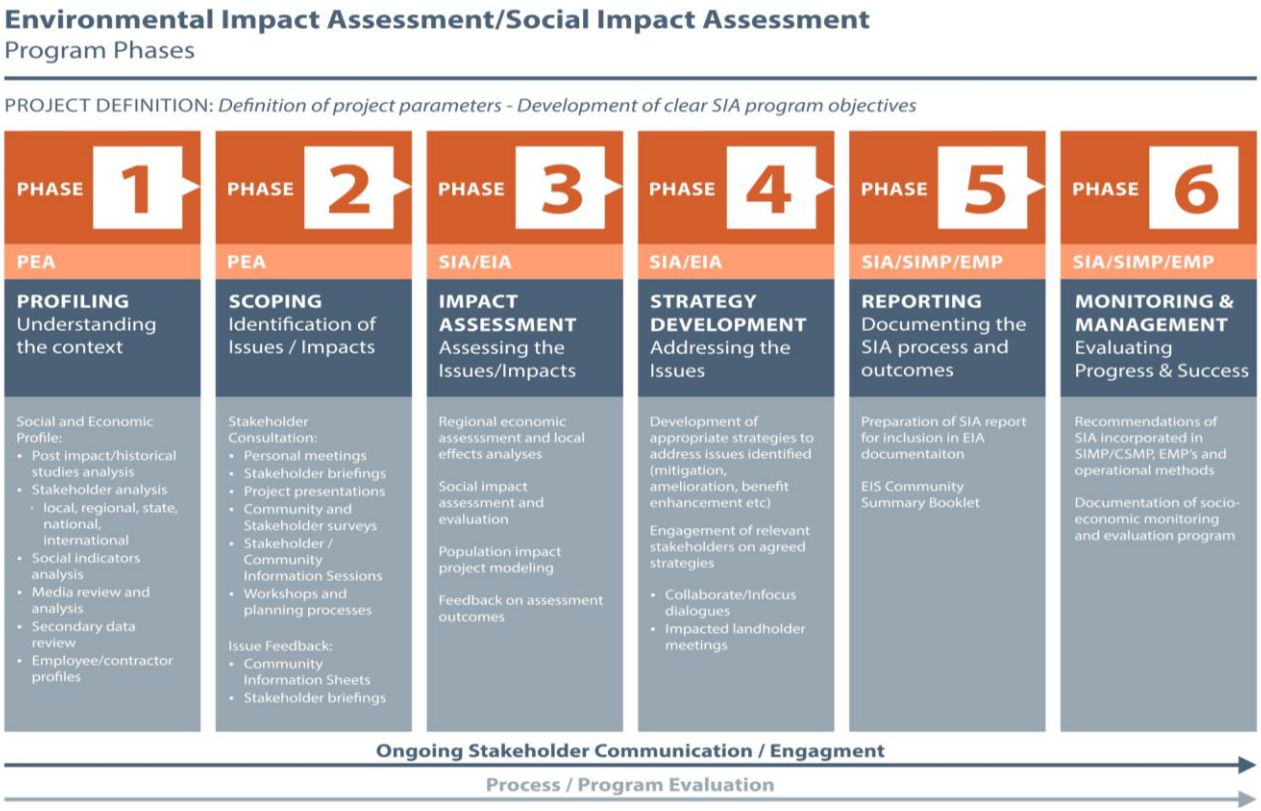


Figure 2.1 Phases of the SIA Program

- As outlined in **Figure 2.1**, the SIA process in its entirety involves a number of key phases. Engagement is a key component affording input from near neighbours and local and regional stakeholders at key SIA phases. The broader SIA will also include a comprehensive assessment and prediction of impacts and the development of relevant strategies to mitigate any negative impacts and to enhance positive impacts associated with the Project. Consideration of how social impacts will be monitored will also be included in the final SIA.

As noted in the DPIE SIA guideline (2017), social impacts can involve changes to people's:

- **Way of life** - how they live, work, play and interact with one another on a day to day basis
- **Culture** - their shared beliefs, customs, values and language or dialect
- **Community** - its cohesion, stability, character, services and facilities
- **Access to and use of infrastructure, services and facilities –** including those provided by local, state, federal or not-for-profit groups
- **Environment** - the quality of the air and water people use, the availability and quality of the food they eat, the level of hazard or risk, dust and noise they are exposed to, the adequacy of sanitation, their physical safety, and their access to and control over resources
- **Health and wellbeing** - a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity
- **Personal and property rights** - particularly whether people are economically affected or experience personal disadvantage which may include a violation of their civil liberties
- **Decision Making Systems** – ability to voice concerns, access to complaints processes and have to have a say in decisions that affect their lives
- **Fears and aspirations** - their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

As is the case with any type of change, some individuals or groups within the community may benefit, while others may experience negative impacts. If negative impacts are predicted, it is the role of the SIA to determine how such impacts may be addressed effectively to reduce the degree of social disruption to those affected. If positive impacts are predicted, the aim of the SIA is to maximise these opportunities and identify how they might be further enhanced.

Monitoring and evaluation are also a key component of the SIA process and will identify any unanticipated impacts that may arise in the future.

2.2 Preliminary Stakeholder Identification

Social impact assessment involves the cooperation and coordination of a number of '*social partners*' or '*stakeholders*'. As Burdge (2004) outlines, stakeholders may be affected groups or individuals that:

- Live nearby the resource or Project
- Have an interest in the proposed action or change

- Use or value a resource
- Are interested in the use of the resource
- Are forced to relocate as a result of the Project.

As part of the SIA program for the Project, several stakeholders have been identified as important to engage throughout the SIA process (refer to **Figure 2.2**).

Figure 2.2 Stakeholder Groupings

Key stakeholder groups relevant to the Project include:

- **Near Neighbours -** residents and landholders (approximately 19 households) residing within 2 km of the Project site.
- **Wider Community -** Residents and landholders in the surrounding suburbs of Balickera State Suburb Code (SSC); Eagleton SSC, East Seaham SSC and Ferodale SSC (approximately 210 households), and residents located along the transport route.
- **Aboriginal Stakeholders -** including Registered Aboriginal Parties (RAP), Native Title and Aboriginal Land Council claimants.
- **Local Businesses –** businesses operating along the proposed transport route and located within the surrounding state suburbs of Balickera, Eagleton, East Seaham and Ferodale.

- **Employees** – ARDG employees and contractors.
- **Service Providers -** service providers located within the surrounding state suburbs of Balickera, Eagleton, East Seaham and Ferodale; and along the transport route.
- **Local, State and Federal Government –** relevant government agencies.

As noted in **Section 1.1**, the Project is located within the Wallaroo State Forest, within the proposed ARDG Forest Minerals Licence Area, and in the vicinity of the Wallaroo National Park. The small community of East Seaham is located approximately 6 km north-west of the Project area and comprises around 140 households (ABS Census, 2016).

In consideration of the above stakeholder groups, the following stakeholders have been identified as important to engage throughout the SIA process (refer to **Table 2.1**). Stakeholders listed in bold were consulted during the Scoping Phase. Subsequent phases of the SIA will seek broader involvement across the stakeholder groupings noted and will include wider community involvement as part of the broader EIS and SIA assessment process.

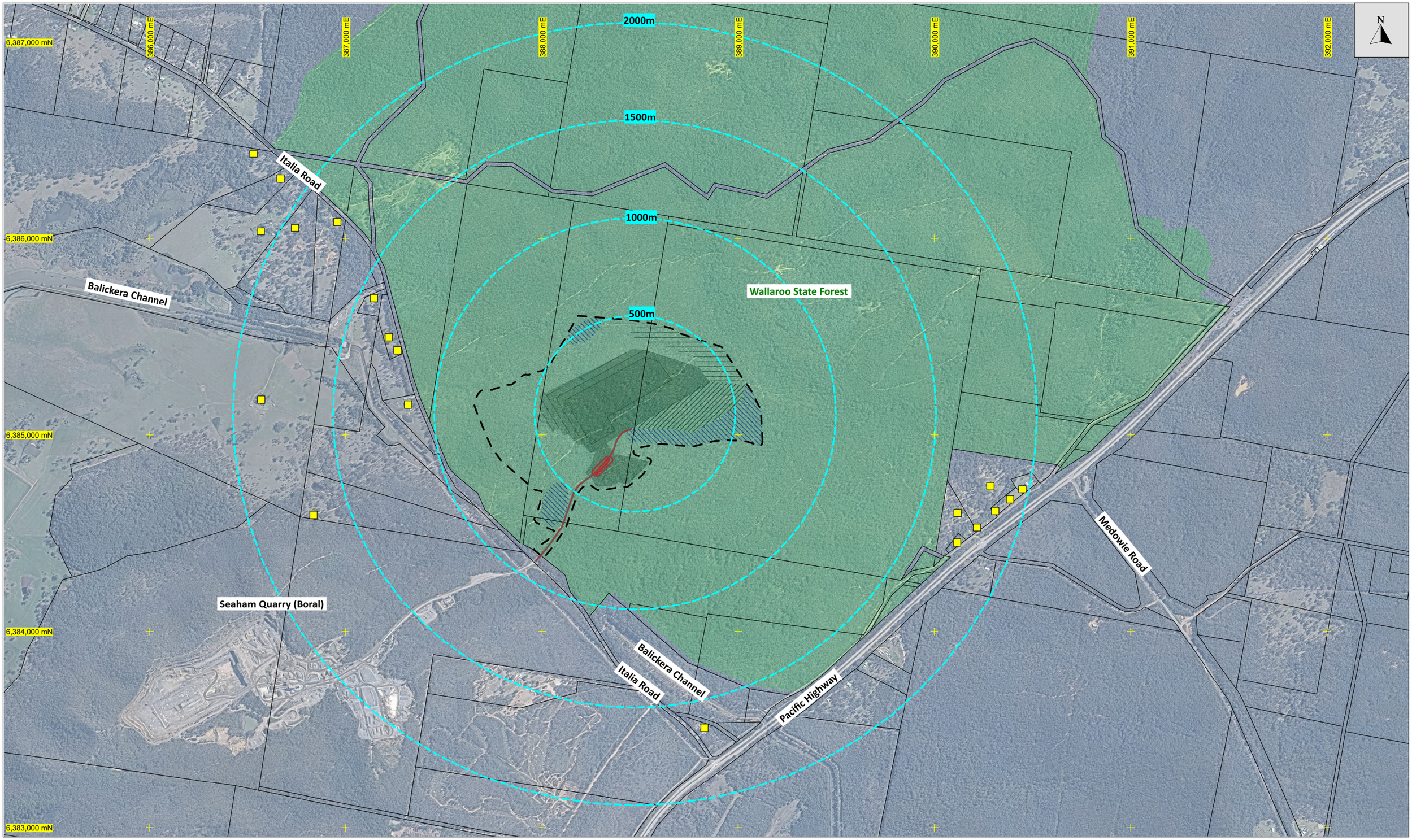
Table 2.1 Preliminary Identification of Project Stakeholders

Stakeholder Group	Stakeholders
Near Neighbours	**Residents of Italia Road, East Seaham (southeast of Caswells Creek)** **Residents of Nine Mile Creek Road, Ferodale**
Wider Community	Residents of the state suburbs of Balickera, East Seaham, Eagleton and Ferodale.
Aboriginal Groups	Worimi Local Aboriginal Land Council
Local Businesses	Local businesses within 2 km of the Project site: • **Boral Seaham Quarry** • **Port Stephens Gardenland** • **MG Car Club** • **Hunter Valley Paintball** • **MX Central – Motor Cross** • **Circuit Italia** Other interested local businesses in East Seaham, Ferodale and Eagleton
Service Providers	Seaham Rural Fire Service Essential Energy **Hunter Water Corporation**
Local Government	**Port Stephens Council (PSC)**
State Government	**Department of Planning, Industry and Environment (DPIE)** **Forestry Corporation of NSW (FCNSW)** DPIE-Resource Regulator (RR) Environment Protection Agency (EPA) Department of Primary Industries – Water **Transport for NSW (TfNSW); [formerly Roads and Maritime Services (RMS)]** Other Government Agencies (as required)
Federal Government	Commonwealth Department of Environment and Energy/Office of Water Science (DoEE)
Employees	ARDG employees Contractors

Note: Stakeholders in bold have been engaged as part of the Scoping Phase.

2.3 Community Consultation

Community engagement has been undertaken early during the Scoping Phase of the SIA, to inform Project design and development, to identify perceived issues/impacts and to build stakeholder relationships with near neighbours, residents and businesses in proximity to the Project. To achieve these aims, an engagement strategy workshop was undertaken between Umwelt and ARDG and determined that initial contact will be sought with stakeholders located within approximately two kilometres of the proposed Project site. **Figure 2.3** shows the consultation area considered during the Scoping Phase. Ongoing community consultation during the Assessment Phase of the SIA will continue and will include the wider community of the study areas and further agency consultations as identified in **Table 2.1** above.



Legend

- Cadastral boundary
- Residence
- Project Area (Stage 5 extraction shown)
- Wallaroo State Forest

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Project:	**STONE RIDGE QUARRY PROJECT**					**Figure 2.3**	
Title:	**Location of Residences for Preliminary Community Consultation**						
Author:	DMB	*Date:*	February 2020	*Scale:*	1:15,000 @ A3	*Grid:*	MGA Zone 56 (GDA94)
Source:	Aerial Photograph: NearMap Image - 9 September 2018 Cadastral Data: NSW State Government - Six Maps - Port Stephens LGA						

A range of mechanisms have been utilised to obtain the input of various stakeholder groups in the Scoping Phase. The mechanisms to engage with local landholders, key stakeholders and the wider community during the preparation of the Scoping Report are defined in **Table 2.2**.

Table 2.2 Project Engagement Mechanisms – Scoping Phase

Mechanisms	Description	Targeted Stakeholder Group
Community Information Sheet (CIS) (No.1) (February 2020)	Community information sheet detailing the proposed Project and contact details for the project team. Delivered to mailboxes of near neighbours and business stakeholders. Three businesses received the Community information sheet via email communications.	Near Neighbours (19) Businesses (6)
Door Knocks	Door knocks undertaken to inform near neighbours of the Project and invite them to participate in a SIA personal interview.	Near neighbours (19)
Telephone calls to invite participants to participate in personal interviews (where residents not home during doorknocking)	Proactive contact with landholders/residents (where contact details were available). Scheduling of personal interviews (face-to-face or telephone) according to stakeholder preference. Individual meetings held in person or via telephone, utilising a semi-structured interview guide/questionnaire (refer to **Appendix 1**).	Near neighbours Local Businesses
Project Briefings	Targeted meetings and briefings with key local and state government agencies as required, including Port Stephens Shire Council, Hunter Water Corporation and RMS.	Local Government State Government

A Community Information Sheet was distributed by ARDG and Umwelt consultants in February 2020, to near neighbours which included 19 residents and six businesses along Italia Road, Balickera and East Seaham and Nine Mile Creek Road, Ferodale to facilitate community involvement.

Near neighbours were also doorknocked and residents who were at home at the time participated in a semi-structured interview in order to inform them of the Project and understand:

- local knowledge pertaining to existing Quarry projects in the area
- perceptions of quarrying in general, and
- any concerns associated with the Project.

Follow up phone calls were completed with households who were unavailable at this time. A total of 16 participants were consulted during 12 meetings which included 10 face to face meetings and two surveys completed over the telephone.

All businesses (6) received the Community Information Sheet by post or email. Two (2) near neighbours consulted also owned businesses along Italia Road.

Table 2.3 provides a summary of the number of stakeholders engaged during the scoping phase up to 28 February 2020.

Table 2.3 Consultation Statistics – Scoping Phase

Stakeholder Group	No. households contacted	No. consultations (Meetings undertaken)	No. participants in meetings^	No. declined	No. unable to be contacted/No response
Near Neighbours	19*	12	16	0	4
Businesses (in the local area)	6	2	2	-	-
TOTAL	**25**	**14**	**18**	**0**	**4**

^Interview responses may reflect the views of two or more people interviewed in a group setting.

** Note one near neighbour also operates a business on their property.*

Quantitative and qualitative information collected through the engagement process has been analysed to inform the preliminary analysis of perceived social impacts associated with the Project and is outlined in **Section 4.0**.

The next phases of the EIS and SIA programs will involve further engagement with these groups and other key stakeholders relevant to the Project, as outlined in **Table 2.1.** Mechanisms identified in the stakeholder engagement strategy for the Project to ensure engagement with local landholders, key stakeholders and the wider community during the Assessment Phase of the SIA and broader EIS, are defined in **Table 2.4**.

Table 2.4 Project Engagement Mechanisms - EIS Phase

Mechanism	Description	Stakeholder Group/s	Materials
Letterbox drop	Distribution of Community information sheet (CIS) via post	Near neighbours Local businesses Wider community	CIS No. 2
Telephone calls to those who registered interest in the Project during the scoping phase	Proactive contact to those stakeholders who were interviewed or registered interest in the Project during the scoping phase. Scheduling of personal interviews (face-to-face or telephone) according to preference.	Community members who were interviewed in the first round of engagement or have showed interest in the Project	CIS No.2 Interview guide Q&A sheet
Personal interviews	Personal interviews used to identify Project issues and to inform Project mitigation and enhancement.	Community members who were interviewed in first round of engagement or have showed interest in the Project Landholders in Project environmental management zones	Interview Guide CIS No.2 Q&A sheet

Mechanism	Description	Stakeholder Group/s	Materials
Project briefings	Informal and formal briefings to key government agencies as well as any key community groups, local business groups or political stakeholders that express an interest during the scope phase, to outline the Project and the objectives of engagement.	Port Stephens Council DPIE (complete) Hunter Water Corporation TfNSW ARDG Employees	Interview guide CIS No. 2 Briefing materials e.g. Project and engagement program Presentation
Project briefing letters	Distribution of Project briefing letters to relevant government agencies providing an update on the Project.	Port Stephens Council Hunter Water Corporation Forestry Corporation TfNSW EPA	Letter and supporting plans

3.0 Socio-Economic Context and Profile

3.1 Historic Context

The earliest inhabitants of the Port Stephens area are the Worimi people, who lived on the water's edge surrounding the port. The area remains important for the Worimi and possesses many sites of Aboriginal heritage significance, the most prominent being the Canoe Trees at Little Beach. Currently, no native title claims have been recognised in the Port Stephens LGA, however on several occasions the Worimi Aboriginal Land Council has submitted applications for title claim, with no success (National Native Title Tribunal, 2020).

Port Stephens was first noted by Europeans in May 1770. At this time Captain James Cook described the area as 'an opening forming a bay', with the area in its early settler history, known as a haven for convicts escaping Sydney.

The area continued to grow throughout the 1800's as new colonies settled in the area. A century after the earliest leasehold was advertised in 1838 near Wallaroo National Park and prior to their dedication as conservation reserves, timber was removed from the Karuah, Medowie and Wallaroo state forests for the use of pit props and other mining timber. Historic sites within in the Wallaroo National Park include cattle yards on Ripley's and Callaghans trails, an old sawmill site, bridges along Drews and Ten Mile Roads and a post-and-rail fence line (Port Stephens Council, 2020b).

3.2 Governance

At a State level, the Project falls in the Port Stephens Electorate which has been represented by the Australian Labor Party Member Kate Washington since 2015. Federally, the region is represented by Labour member Meryl Swanson in the Federal seat of Paterson, however the study communities are represented by the Nationals member David Gillespie in the Federal seat of Lyne. The Labour Party has been in opposition at the federal level since the 2013 election.

Locally, Port Stephens LGA is represented by the Port Stephens Council and consists of 10 councillors, including the Mayor. The LGA is divided into three Wards — West Ward, Central Ward and East Ward. The Mayor, Ryan Palmer and three Councillors elected from each of the three wards, form the governing body of the Council and each hold office for a term of four years. The study areas of Balickera, East Seaham, Eagleton and Ferodale are located within the West Ward and is governed by Cr Giacomo Arnott, Cr Ken Jordan and Cr Paul Le Mottee.

Table 3.1 shows the full list of current councillors of the Port Stephens Council, as elected in 2017.

Table 3.1 Port Stephens Council Representatives 2020

Role	Councillors	
Mayor	Ryan Palmer	
Deputy Mayor	Chris Doohan	
Councillors	Sarah Smith	Giacomo Arnott
	Steve Tucker	Ken Jordan
	Jaimie Abbott	Paul Le Mottee
	John Nell	Glen Dunkley

Source: Port Stephens Council (2020b)

The Port Stephens Council uphold five values as core requirements of their organisation: R*espect*, *Integrity*, *Teamwork*, *Excellence* and *Safety*. Their vision for the Port Stephens LGA is '*a great lifestyle in a treasured environment*'.

Services provided by Port Stephens Council include development planning and building, support and regulatory services to local business and industry, childcare, library, youth programs and events, roads, waste and recycling, water and other residential services.

The Port Stephens Integrated Plans 2013-2023 consists of the Community Strategic Plan, which sets out the long-term vision for the community; Council's Delivery Program, which outlines Council's contribution to that vision; and the Operational Plan, consisting of a more detailed program of actions that are a subset of the Delivery Program.

In 2018, the Port Stephens Council released their Community Strategic Plan (2018-2028). The plan outlines the Council's focus to improve, manage and promote growth within the region, across four key focus areas – Community, Place, Environment and Council Leadership (Port Stephens Council, 2020c).

Within these four categories there is a clear focus on meeting the needs of the community by:

- Supporting diverse needs including childcare and services for children, young people and an aging population.
- Recognition and support of local Aboriginal and Torres Strait Islander culture.
- Supporting local community events to foster creative expression and diversity.
- Provision of recreational and leisure facilities.
- Supporting sustainable business development.
- Maintaining and improving community infrastructure, including road upgrades.
- Enhancing public safety, amenity and the identity of Port Stephens.
- Protecting the natural environment, including promotion to the public of environmental awareness.
- Maximising non-rate revenue and investment opportunities to support Council services.

3.3 Sustainable Livelihoods Approach – Community Capitals

According to the SIA Guidelines, in order to scope potential social impacts an understanding of the Project's area of social influence is required. A baseline social profile gathers knowledge of primary and secondary sources to increase understanding of the existing social environment in which a project is proposed and provides a foundation from which direct, indirect and cumulative impacts associated with the Project, can be predicted and analysed.

For the purpose of the SIA Scoping Report, a profile has been developed to obtain a preliminary understanding of the social environment and community context in which the Project is proposed.

The profile outlines:

- Features of the locality identified as being of value, importance or high sensitivity in social terms.
- Relevant current and anticipated social change processes or social trends within the locality.

- Previous development within the locality – how communities near the proposed Project site and within the surrounding region have experienced similar development projects.

Data sources used in the preparation of this baseline profile include:

- ABS Census data (ABS, 2016)
- Social Health Atlas (PHIDU, 2020) and other social indicators
- Local and State Government Reports
- Analysis of submissions raised in relation to nearby quarries
- Review of relevant media.

In the development of the profile, the Sustainable Livelihoods Approach (Department for International Development (DFID), 1999) is utilised to provide a comprehensive understanding of the relevant communities proximate to the Project and to evaluate their resilience and sensitivity to change[1].

The DFID approach draws on broad categories of community capitals as a fundamental basis to identifying and further enhancing community capacity and resilience. According to DFID[2], a livelihood includes the capabilities, assets (including both material and social resources) and activities required for people to meet their basic needs and support their well-being.

A livelihood is considered sustainable *'…when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base'.*

In preparation of the social Scoping Report , the collection, collation and analysis of social indicators is combined, where relevant, with primary data, collected through stakeholder interviews, to inform the profiling of key study communities according to five 'community capitals' or 'capital assets – economic, physical, social, human and natural capital.

For example, **human capital** refers to the health and welfare of human beings, their knowledge and skills, as well as their overall capacities to contribute to ongoing community sustainability. A community that is heavily dependent on a particular industry, but which exhibits low levels of human capital, is likely to face greater challenges in embracing socioeconomic change as a result of disruption.

Social capital relates to how individuals, groups, organisations and institutions within a community interact and cooperate; and can be broadly defined as a multifaceted concept relating to the dynamics and strength of relationships and/or interactions within a given community; this includes the degree of social cohesion and interconnectedness between community members.

Economic capital is defined as the extent of financial or economic resources within a town or community, including access to credit. For instance, a town/locality lacking in economic capital, but predominantly reliant on a specific industry sector such as mining, is likely to be more vulnerable to change and consequently more likely to experience greater difficulties in adapting to change given this dependence, particularly once an industry declines or as a result of industry closure.

[1] Coakes, S., Sadler, A., 2011. Utilising a sustainable livelihoods approach to inform social impact assessment practice, in: New Directions in Social Impact Assessment. Edward Elgar Publishing, Cheltenham, pp. 3–20.

[2] Department for International Development, 1999. Sustainable Livelihoods Guidance Sheets.

Physical capital is broadly defined as a town or community's-built infrastructure and services, including hospitals, schools as well as social service provision e.g. health care, aged care, childcare. For example, a highly remote community that lacks access to basic facilities and social services may lack the capacity to enhance its local human skills base and is likely to be more disadvantaged in capitalising on opportunities for further industry development and economic capital growth.

Lastly, **Natural capital** is defined as the stock of natural resources e.g. minerals, oil and gas, agricultural lands, oceans, forests etc. that provide natural beauty, generate sustainable economic and commercial activities and which provide ecosystem services.

Elements of each capital area are further outlined in **Figure 3.1**.

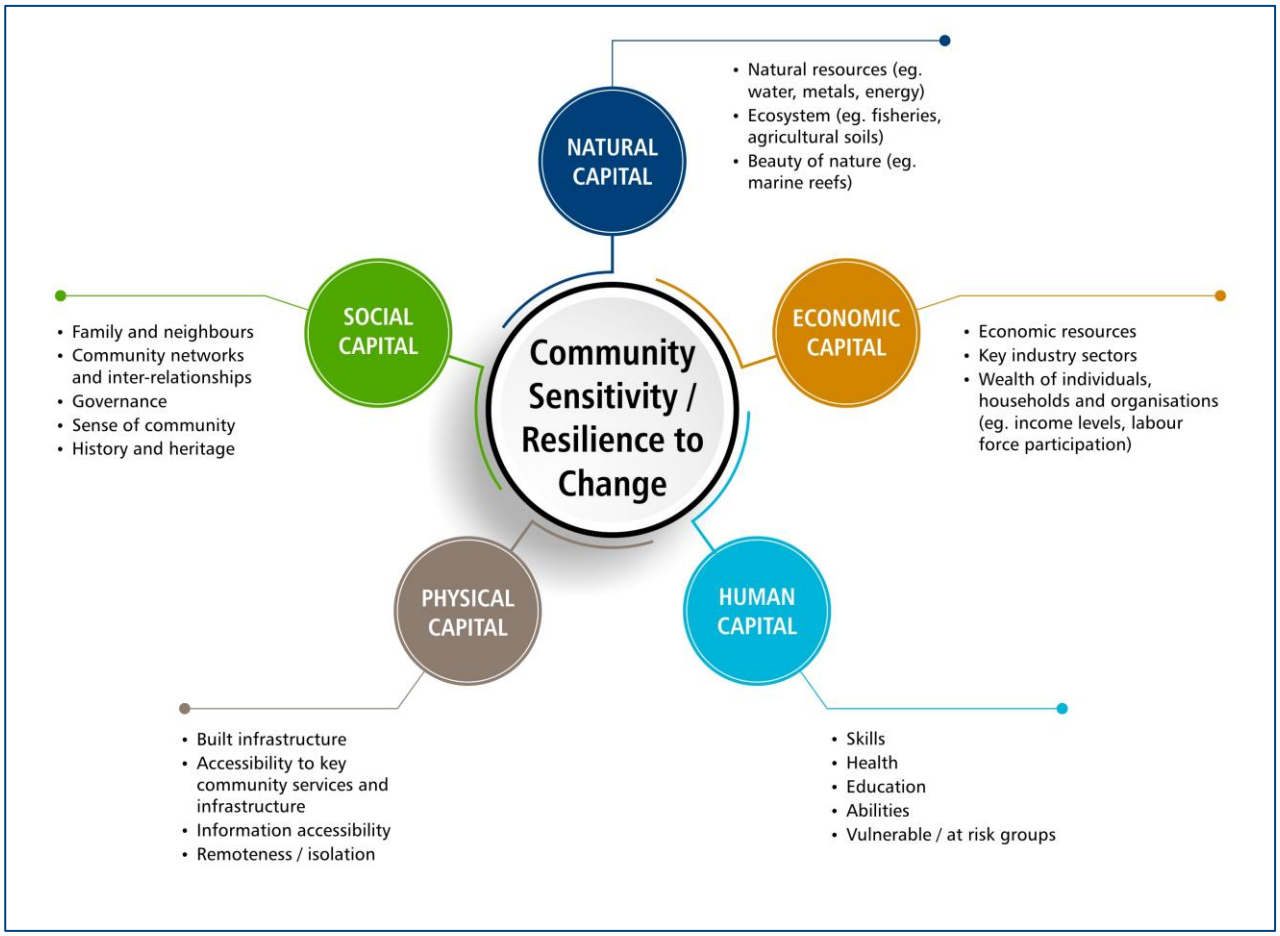


Figure 3.1 Capital framework

Source: Adapted from Coakes and Sadler (2011)

3.4 Demographic Analysis

A key component in the development of the social baseline profile for the assessment has been the collation, interpretation and analysis of demographic data.

Analyses undertaken relate to:

- **Indicator** identification and selection to afford appropriate assessment of social impact relating to the Project.
- **Comparative analysis** across the different localities identified as being relevant to the Project including Port Stephens LGA and NSW State.

Socio-economic characteristics of the relevant localities are largely based on State Suburb Code (SSC) and LGA levels of analysis and informed by data available from the latest 2016 Census, and other social indicators data sources as relevant. The primary communities of interest (refer to **Figure 3.2**) for the purposes of this assessment include:

- Balickera SSC
- Eagleton SSC
- East Seaham SSC
- Ferodale SSC
- Port Stephens LGA
- NSW State (for comparative purposes)

It is important to note that data for Balickera and Ferodale should be interpreted with a degree of caution due to low population sizes. As the ABS applies small random adjustments to cell values to protect the confidentiality of data, this can have slight impacts to data with small samples sizes. As such the ABS state that no reliance should be placed on small counts (that is, counts of 20 or less).

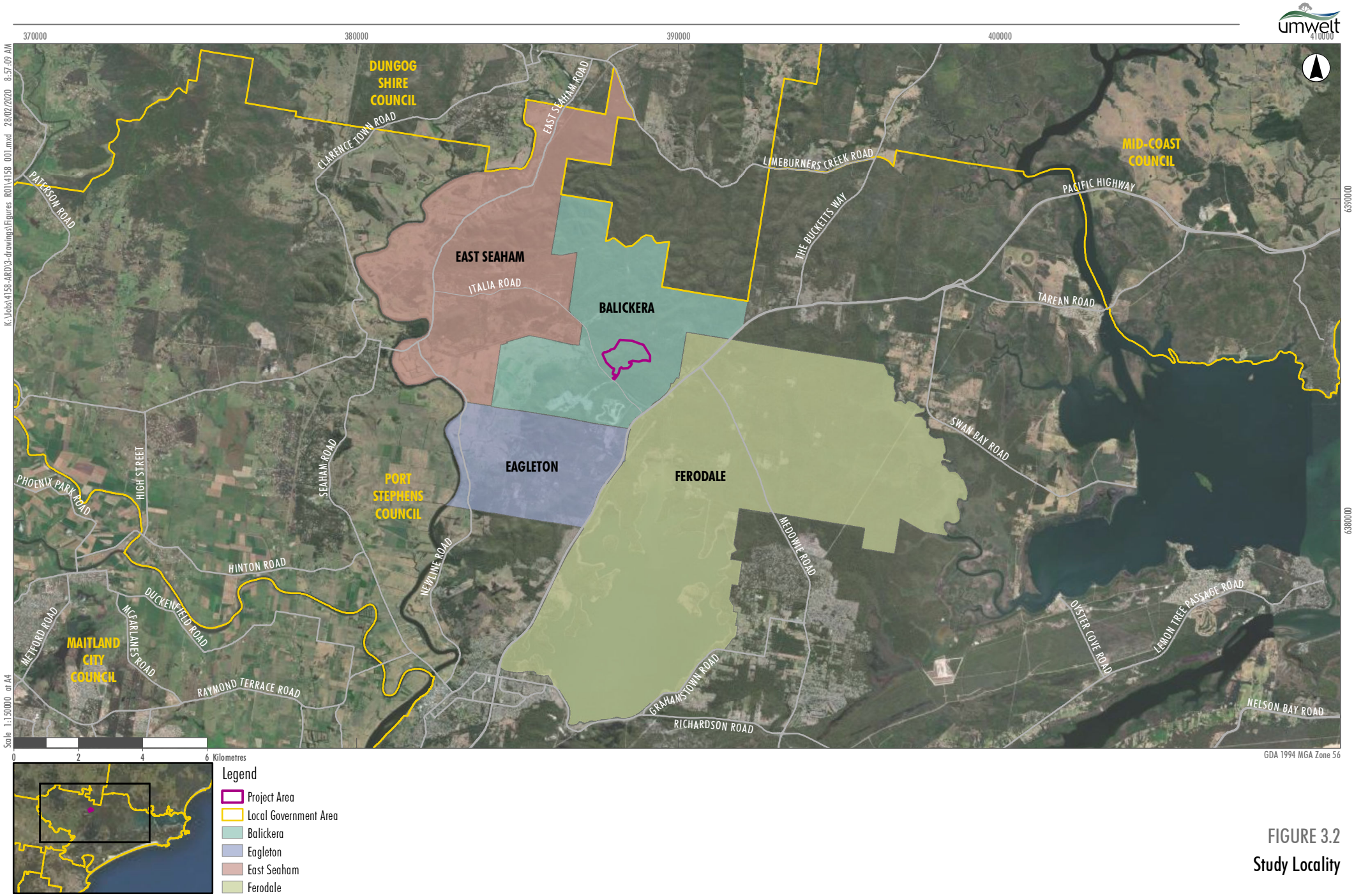


FIGURE 3.2
Study Locality

Image Source: ESRI World Imagery Data source: DFSI (2019)

3.4.1 Natural Capital

Natural capital refers to the natural assets and resources that contribute to community strength and sustainability. Natural capital can include resources such as minerals, productive agricultural soil, presence of oil and gas and forests which provide commercial and practical benefit to the community. Natural capital can also include other environmental assets that generate tourism or provide other social, cultural, and recreational value, such as waterways or lakes.

In the Port Stephens LGA, there are a variety of recreational and tourist attractions, particularly near the more coastal towns of Nelson Bay and Salt Ash. The Wallaroo State Forest covers an area of approximately 6,200 ha, 2780 ha of which comprise the Wallaroo National Park (National Parks and Wildlife Service, 2020).

The Wallaroo National Park is located approximately 20 km north-east of Raymond Terrace in Balickera. The National Park was formerly Wallaroo State Forest (reserved in 1922) until gazetted as Wallaroo Nature Reserve by the *Forestry and National Parks Estate Act 1998*, then reclassified as Wallaroo National Park under the *National Park Estate (Lower Hunter Region Reservations) Act 2006* (Office of Environment and Heritage, 2012). The southern portion of the forest remains categorised as Wallaroo State Forest (refer to **Figure 3.3**).

The State Forest is used by visitors for a number of recreational activities such as bushwalking, camping, picnicking, and recreational activities such as dirt bike riding and four-wheel driving. The Forest also hosts an annual Fun Run that follows fire trails throughout the forest. The William Hind Picnic Area located within the State Forest has picnic tables, toilets, BBQ facilities and parking.

Near neighbours to the Project noted their appreciation for the forest surrounding their properties and the visual amenity it provides them. In addition, people valued the rural nature of the area as a result of larger rural acreages, with some people able to run hobby farms on their properties.

> *We are able to bird watch in our rainforest out the back.*
>
> *I have a strong interest in nature, local vegetation, flora and fauna. It is a hobby and I can indulge it quite easily here.*
>
> *We love the rural atmosphere. [We]… have a small agriculture business.*

The area is also rich in resources with numerous sand and hard rock quarries located in the Port Stephens LGA, including Boral Seaham quarry which has been in operation since 1991 and is located in close proximity to the Project. The Karuah, Medowie and Wallaroo Group Plan of Management (2016) outlines the existence of several quarry operations within the National Park and proposes to endorse and manage resource development alongside historic heritage, ecological sustainability and visitor and recreational uses. Further quarrying activities are discussed in **Section 3.5.**

Legend

- Project Area
- Local Government Area
- National Park
- State Forest

FIGURE 3.3

Wallaroo State Forest and National Park Boundaries

Image Source: ESRI World Imagery Data source: DFSI (2019)

3.4.2 Human Capital

3.4.2.1 Population Characteristics

The Project is located in the Balickera SSC boundary within the Port Stephens LGA (ABS, 2016). Balickera is located approximately 14 km north-west of Medowie, 12 km north of Raymond Terrace and 41 km north is the Newcastle CBD. Suburbs surrounding Balickera are Ferodale to the South East, Eagleton to the South and East Seaham to the West.

It is proposed that trucks carrying quarried material will exit the Project area onto Italia Road then proceed to the Pacific Highway. No trucks will turn right out of the site onto Italia Road towards East Seaham.

There are 69,556 people residing in the Port Stephens LGA (**Table 3.2**), 642 (1%) of whom live within the study areas**.** Across the LGA, 5% of the population are Aboriginal or Torres Strait Islander. As shown in **Table 3.3**, the study communities have higher than State average proportions of people in the older working age brackets (45-64 years) and those entering retirement (65-74 years). According to the ABS (2016), 37% of the population in Balickera are within the 45-54 years age group.

Table 3.2 Human capital summary

	Balickera SSC*	Eagleton SSC	East Seaham SSC	Ferodale SSC	Port Stephens LGA	NSW
Population	27	211	324	83	69,556	7,480,231
Median age (years)	37	49	40	48	45	38
Aboriginal and/or Torres Strait Islander people (%)	0	4.3	3.4	4.8	4.6	2.9
Workforce participation (%)	50	62	67.8	62.2	42.8	59.2

Source: ABS Quickstats, 2016; ABS Census, 2016; ABS Tablebuilder, 2016.

*Due to the low population numbers, data may be affected by random adjustments and should be taken as indicative only.

Table 3.3 Age Distribution

	Balickera (SSC)	Eagleton (SSC)	East Seaham (SSC)	Ferodale (SSC)	Port Stephens LGA	NSW
0-4 years (%)	4	6	0	3	6	6
5-14 years (%)	17	14	16	19	12	12
15-19 years (%)	3	8	16	11	6	6
20-24 years (%)	1	3	0	7	5	7
25-34 years (%)	3	12	0	3	10	14
35-44 years (%)	8	12	0	7	11	13
45-54 years (%)	20	19	37	17	13	13
55-64 years (%)	26	13	0	14	14	12
65-74 years (%)	14	10	0	11	14	9
75-84 years (%)	3	4	0	0	7	5
85 years and over (%)	1	0	0	0	2	2

Source: ABS, 2016

* Due to the low population numbers, data may be affected by random adjustments and should be taken as indicative only.

The study communities show signs of an aging population, with the exception of Balickera where the population size is too small to determine any trends. The ageing population is more prominent in the Port Stephens LGA as a whole, with a median age greater than the NSW median (45 years compared to 38 years for NSW) (refer to **Table 3.2**). This is due at least in part to the Port Stephens LGA including several over 50's and over 55's lifestyle villages. Overall predictions from the Port Stephens Council Community Strategic Plan 2018-2028 suggest a total population of 92,800 in the Port Stephens LGA by 2026, with the largest population increase expected in the 65-79 years age bracket. Similarly, according to the NSW Australian Statistical Geography Standard (ASGS) (2019) population projections, it is anticipated that by 2041 there will be a substantial increase in the 75 years and over age cohort (**Figure 3.4** and **Figure 3.5**). As part of Council's push for increased community diversity, a key delivery target is the provision of support for the needs of the aging population as well as provision of facilities and services for children and support to encourage young people to engage in their communities (Port Stephens Council, 2020c).

Similarly, workforce participation is lower in the LGA (52.2%) and Balickera (50%) than in NSW (59.2%). However, due to there being a large proportion of working aged people in the study communities of Eagleton, East Seaham and Ferodale, labour force participation was higher than the NSW average at 62%, 67.8% and 62.2% respectively in these localities.

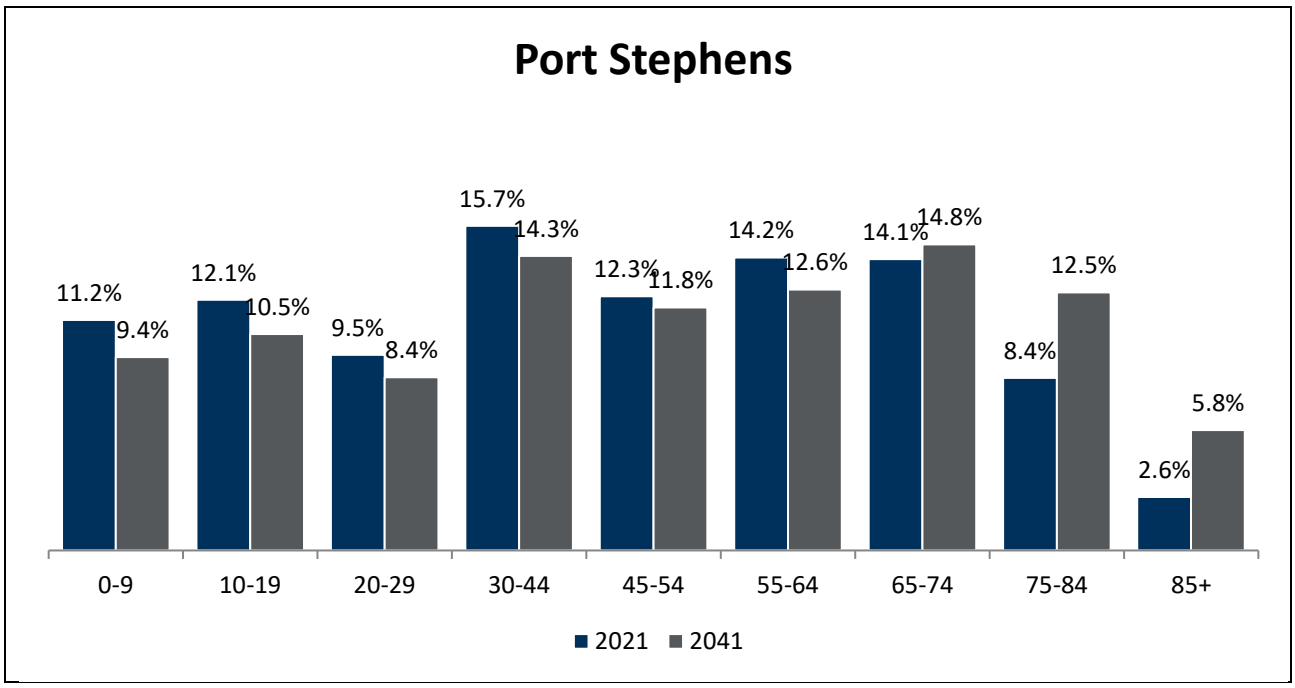


Figure 3.4 Port Stephens LGA Population Projections

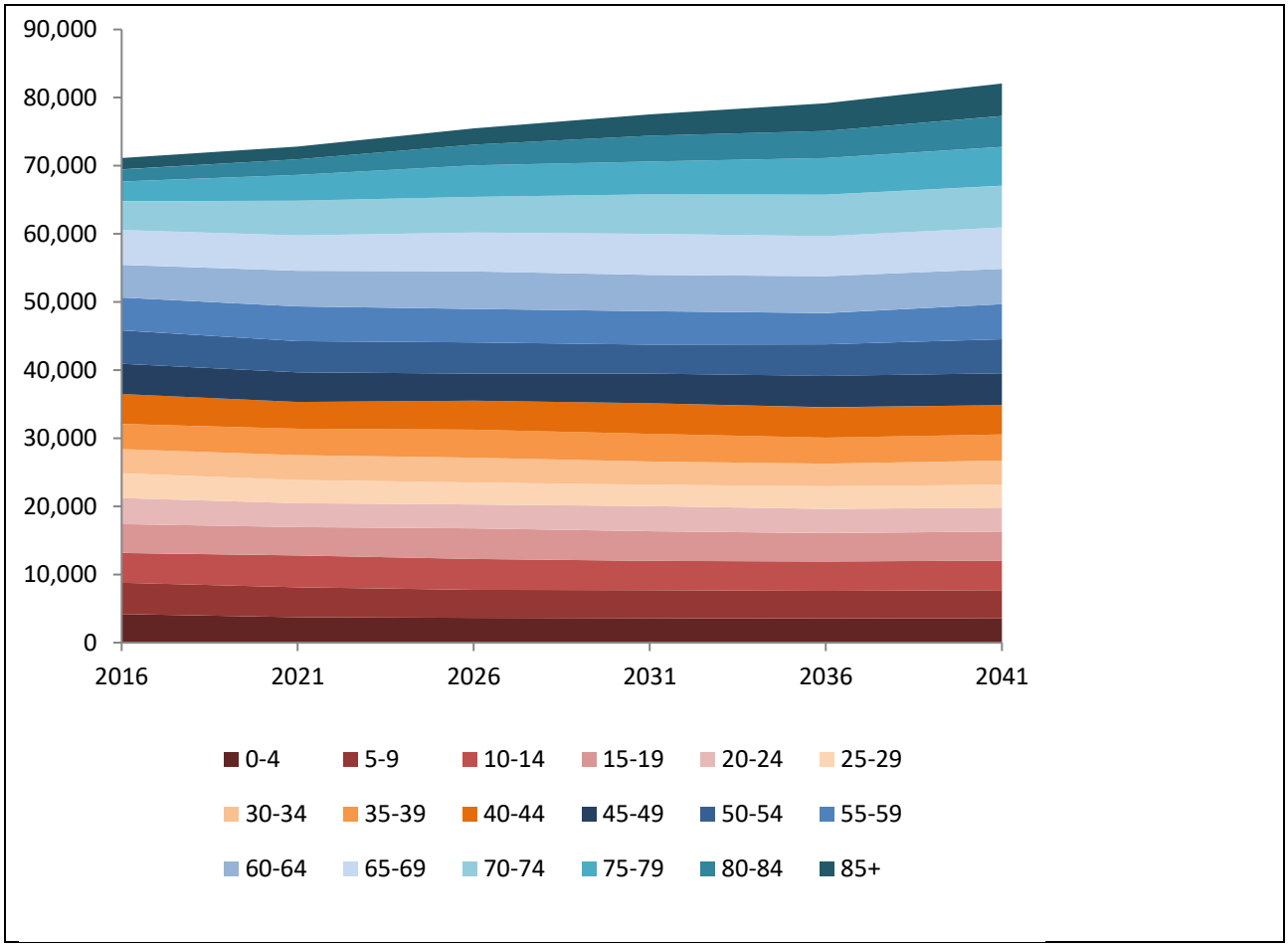


Figure 3.5 Port Stephens LGA Population Projections

3.4.2.2 Community Health and Wellbeing

Overall, people residing in the Port Stephens LGA tend to experience equivalent or below-average levels of health and wellbeing across a wide range of health-related factors compared to average health levels across NSW. A number of key health indicators for the Port Stephens LGA and NSW broadly for comparative purposes, are displayed in **Table 3.4**. For example, in the Port Stephens LGA, an approximately equivalent proportion of people rated themselves as having fair or poor health (age-standardised rate [ASR] 15.5 per 100) as in NSW more broadly (ASR 14.1 per 100). Furthermore, the number of people with respiratory diseases (ASR 30.6 per 100) was roughly equal to that across NSW (ASR 30.2 per 100). However, disease specific data shows that rates of asthma were slightly higher in Port Stephens (ASR 12.7 per 100) than NSW (10.6 per 100).

For circulatory system disease, the modelled number of people in the community (ASR per 100) was higher for both the overall disease grouping (21.0 compared to 18.6 in NSW) and specifically in terms of heart, stroke and vascular diseases (5.6 compared to 4.9 in NSW). The number of people in the LGA with mental and behavioural problems was also higher (ASR 19.8 per 100) relative to NSW averages (ASR 16.9 per 100).

Table 3.4 Health Indicators

Indicator	Port Stephens LGA	NSW
Fair or poor self-assessed health (ASR per 100) (2017-18)	15.5	14.1
Circulatory system diseases (ASR per 100) (2014-15)	21.0	18.6
Heart, stroke and vascular diseases (ASR per 100) (2017-18)	5.6	4.9
Respiratory diseases (ASR per 100) (2014-15)	30.6	30.2
Asthma (ASR per 100) (2017-18)	12.7	10.6
Mental and behavioural problems (ASR per 100) (2017-18)	19.8	16.9
Living with a profound or severe disability in the community (%) (2016)	6.2	4.9

Source: PHIDU, January 2020 release.

3.4.2.3 Human Capital Summary

The population of the study communities are predominantly in the older working age brackets, consistent with the broader LGA. This is projected to increase from 25.1% of the population in 2021 to approximately 33.1% in 2041.

Those residing in the Port Stephens LGA tend to experience equivalent or below-average levels of health and wellbeing across the range of selected health-related factors compared to average health levels across NSW. Port Stephens also demonstrates higher rates of circulatory disease, asthma, mental and behavioural problems, compared to NSW.

3.4.3 Social Capital

3.4.3.1 Volunteerism and Mobility

There were higher proportions of volunteerism across all the study communities when compared with Port Stephens LGA (18%) and the NSW average (18%). Ferodale had the highest proportion with 30% of people having done voluntary work through an organisation or group at the time of the 2016 census (refer to **Table 3.5**).

The 2016 census also showed that higher proportions of people in the study communities had lived at the same address for 5 years or more (refer to **Table 3.5**), indicating a more established population.

Table 3.5 Volunteerism and mobility

	Balickera SSC*	Eagleton SSC	East Seaham SSC	Ferodale SSC	Port Stephens LGA	NSW
Did voluntary work through an organisation or group (last 12 months) (%)	21	28	21	30	18	18
Same address 5 years ago (2016) (%)	67	70	67	73	53	54

Source: ABS Quickstats, 2016; ABS Census, 2016; ABS Tablebuilder, 2016.

*Due to the low population numbers, data may be affected by random adjustments and should be taken as indicative only.

3.4.3.2 Household and Family Composition

There are nine (9) private dwellings in Balickera and a total of seven (7) families residing in the suburb consisting of 19 people, with a median age of 37 years (ABS, 2016). Balickera currently has no properties for rent or being rented (realestate.com, 2020) and according to the ABS 2016, no houses are being mortgaged. It is important to note that due to low population size, data may not be available for the area.

Nearby localities include Eagleton, East Seaham, and Ferodale and consist of 75, 130 and 38 private dwellings respectively. In Eagleton, Ferodale and Port Stephens LGA, there are lower proportions of couple families with children and higher proportions of families without children compared to the NSW average (refer to **Table 3.6**), while East Seaham and Balickera reported having larger proportions of couple families with children. As shown in **Table 3.6**, there are lower proportions of one-parent families amongst all study communities, than in NSW (16%).

There are approximately 231 occupied private dwellings within the study communities, with occupancy rates being generally high across the area (>87% in all studied state suburbs, but 81.9% across the LGA more broadly compared to NSW (90.1%)). The diversity of dwelling structures is low, with almost all houses in Eagleton, East Seaham, Balickera and Ferodale being separate houses. A high proportion of houses are owned outright, compared to NSW, and there are lower levels of rentals across all suburbs. ABS Data for property ownership within Balickera SSC was removed from analysis due to low population sizes.

Table 3.6 Household and family composition

	Balickera SSC*	Eagleton SSC	East Seaham SSC	Ferodale SSC	Port Stephens LGA	NSW
Private dwellings	9	75	130	38	33,082	2,889,061
Private dwelling occupancy rate (%)	100	88.1	83.7	87	81.9	90.1
Number of families	7	62	96	25	18,893	1,940,226
Couple Families with children (%)	57	35	43	32	38	46
Families without Children (%)	0	56	39	52	44	37
One parent families with Children (%)	0	11	11	0	16	16
Other families (%)	0	0	0	0	1	2
Separate Houses (%)	100	96	97	88	80	66
Owned outright (%)	-	51.4	38.1	48.5	38.6	32.2
Rented (%)	-	9.5	18.6	9.1	26.2	31.8

Source: ABS Quickstats, 2016; ABS Census, 2016; ABS Tablebuilder, 2016

*Due to the low population numbers, data may be affected by random adjustments and should be taken as indicative only

A key focus of the Port Stephens Council, as outlined in their Community Strategic Plan 2018-2028, includes community diversity, which they aim to achieve by providing facilities and services for children and young people (such as childcare centres and programmed youth activities), providing recreational and leisure facilities, encouraging inclusivity and access through infrastructure upgrades, supporting the needs of an ageing population, and providing support for volunteers who deliver community services.

3.4.3.3 Social Capital Summary

The study communities, particularly Balickera are made of a small number of properties with high proportions of home ownership. In Balickera these homes are predominantly owned by couple families with children. Higher proportions of people in these communities reported engaging in voluntary work than Port Stephens LGA and NSW overall and had lived at their current address for longer than 5 years. This is indicative of a well-established community.

3.4.4 Economic Capital

3.4.4.1 Industry and Employment

Of those working, the proportion of persons employed full time was lower than the NSW average of 59.2% in East Seaham (57.4%), Balickera (57.1%), Ferodale (45.7%) and the Port Stephens LGA more broadly (53.5%), and higher in the suburb of Eagleton (65%) (refer to **Table 3.7**).

Unemployment rates across the study communities varies. East Seaham and Eagleton were shown to have unemployment rates below the State average (0% and 4.4 % respectively, compared to 6.3% in NSW), while Balickera, Ferodale and the LGA were reported to have higher than State average unemployment rates (refer to **Table 3.7**).

Table 3.7 Employment Status

	Balickera SSC*	Eagleton SSC	East Seaham SSC	Ferodale SSC	Port Stephens LGA	NSW
Worked full-time (%)	65.0	57.4	57.1	45.7	53.5	59.2
Worked part-time (%)	26.2	32.2	42.9	37.0	33.6	29.7
Away from work (%)	3.9	1.6	0.0	0.0	3.8	3.0
Unemployed (%)	6.8	4.4	0.0	6.5	7.2	6.3

Source: ABS Census, 2016

*Due to the low population numbers, data may be affected by random adjustments and should be taken as indicative only.

Table 3.8 displays the top industries of employment within the study communities. Health care and social assistance was the largest industry of employment for those living in Eagleton (11.3%), across the broader Port Stephens LGA (12.6%), and was also one of the largest in East Seaham (14.1%). Construction, manufacturing, and retail trade were also high across some of the study areas.

Table 3.8 Top Industries of Employment

	Balickera SSC*	Eagleton SSC	East Seaham SSC	Ferodale SSC	Port Stephens LGA	NSW
Accommodation and food services (%)	27.3	4.1	3.4	7.5	9.0	7.1
Retail trade (%)	0.0	10.3	10.7	17.5	10.9	9.7
Construction (%)	0.0	8.2	19.2	7.5	10.0	8.4
Manufacturing (%)	0.0	4.1	11.9	17.5	6.9	5.8
Health care and social assistance (%)	0.0	11.3	14.1	0.0	12.6	12.5
Other services (%)	0.0	6.2	4.0	12.5	4.3	3.7
Public administration and safety (%)	0.0	9.3	1.7	0.0	9.9	6.0

Source: ABS Census, 2016.

*Due to the low population numbers, data may be affected by random adjustments and should be taken as indicative only.

3.4.4.2 Income, Spending and Cost of Living

The median total personal weekly income across each of the study areas was higher than Port Stephens LGA ($571) and NSW ($664), excluding Balickera ($383) which was lower. This was also reflected in the median weekly income of households across all the study communities being higher than Port Stephens LGA ($1,180) and NSW ($1,486) (refer to **Table 3.9**). Even though those in Balickera have a lower median personal income, the average number of people per household (3.7 persons) is much higher compared to the NSW average (2.6 persons), resulting in a higher median weekly income per household.

Median weekly household rent varies across communities, with the lowest in Eagleton ($260) and the highest in Ferodale ($385), compared to a median of $380 across NSW. However, as mentioned earlier (**Section 3.4.3.2**), the proportion of rentals across the study areas is very low with the highest proportion being in East Seaham (18.6%) (refer to **Table 3.9**). Due to the small population of Balickera data pertaining to home ownership is considered unreliable.

Table 3.9 Income, Spending and Cost of Living

	Balickera SSC*	Eagleton SSC	East Seaham SSC	Ferodale SSC	Port Stephens LGA	NSW
Median mortgage repayment ($/monthly)	1600	1993	0	1517	1733	1986
Median rent ($/weekly)	260	300	0	385	305	380
Median total household income ($/weekly)	1,625	1,708	1,625	1,625	1,180	1,486

	Balickera SSC*	Eagleton SSC	East Seaham SSC	Ferodale SSC	Port Stephens LGA	NSW
Median total personal income ($/weekly)	743	774	383	669	571	664
Average no. of people per household	3.7	2.7	2.7	2.7	2.5	2.6

Source: ABS Census, 2016.

*Due to the low population numbers, data may be affected by random adjustments and should be taken as indicative only.

3.4.4.3 Tourism and Recreation

Tourism is also a key industry for the LGA, with approximately 1.8 million visitors to Port Stephens LGA from 2018 to 2019 (PSC Annual Report, 2019). Tourism provides support to numerous industries through expenditure, with approximately $435.6 million was generated from tourism in the LGA. ABS (2016) data shows a total of 2,140 (7.8%) jobs are supported by tourism in Port Stephens LGA, proportionally this is higher than in Newcastle (6.1%) and NSW (6.1%). Furthermore, 1436 (55%) jobs in the largest industry of employment subsector, accommodation and food services, are supported by tourist expenditure (Remplan, 2020).

The results of the Port Stephens Council community satisfaction survey indicate that the community places a high value on the local tourism and visitor industry, with residents expressing the need to develop town centres and expand tourism services to facilitate the industry (Port Stephens Council, 2018). A key objective of the Council's Community Strategic plan 2018-2028 under the focus area of 'Our Place', is to support and deliver services that attract sustainable visitation to the LGA (refer to **Section 3.4.1**).

3.4.4.4 Economic Capital Summary

Excluding Eagleton, the study communities and the Port Stephens LGA had lower levels of full-time employment and higher proportions of people working part-time. While data for Balickera was inconclusive, it appeared that there were a large proportion of people working in the accommodation and food services industry. Those living in Eagleton, East Seaham and the broader Port Stephens LGA predominantly work in health care and social assistance. Construction, manufacturing and retail trade were also large industries of employment across the study communities. This was reflected in the reported personal and household incomes for people in these localities. Those in Balickera tend to earn less than the Port Stephens and NSW state averages, whereas those in the other study communities tend to earn more. In conjunction, East Seaham and Eagleton had lower living costs.

Tourism and recreation are also integral to the economy and the community of the Port Stephens LGA. With approximately 1.8 million visitors to the region from 2018 to 2019, the tourism industry provides support to numerous industries and 2,140 (7.8%) jobs across the Port Stephens LGA; a higher proportion than was found in Newcastle (6.1%) and NSW (6.1%) (Remplan, 2020).

3.4.5 Physical Capital

As shown in **Table 3.10,** there is a limited range of community services in the study communities, with residents often having to travel to townships such as Seaham, Medowie or Raymond Terrace to access different services. The closest primary school to the Project is Seaham Public School and the closest secondary schools are the Medowie Christian School and Irrawang High School in Raymond Terrace (refer to **Table 3.10**).

Childcare services are located in Seaham, Medowie and Raymond Terrace service and include those provided at the Seaham Public School and Seaham Preschool. Similarly, Seaham, Medowie and Raymond Terrace Rural Fire Brigades and Fire stations service the area (refer to **Table 3.10**).

During consultation, for the scoping phase of the SIA, participants revealed that Raymond Terrace was the main location to access health services, groceries and retail shopping, with some residents utilising Seaham, Maitland (Greenhills) and Medowie as well. Education facilities were most utilised in Seaham.

Table 3.10 Summary of Infrastructure and Services

Service	Seaham	Medowie	Raymond Terrace
School	Seaham Public School	Medowie Christian School – Combined Medowie Public School Wirreanda Public School	Irrawang High School Grahamstown Public School Irrawang Public School Raymond Terrace Public School St Bridgid's Primary School
Childcare	Seaham Public School Seaham Preschool	Little Miracles Medowie Little Big Futures Medowie Community Pre-School The Medowie Gumnut Preschool United Early Learning Busy Owl Family Day Care	KiddyHawk Family Day Care and Preschool TLC Early Learning Centre Steps to Starting School Raymond Terrace Early Education St Nicholas Early Education
Fire Service	Seaham Rural Fire Brigade	Medowie Fire Station	Raymond Terrace rural Fire Brigade Fire and Rescue NSW Raymond Terrace
Police Station	-	-	Raymond Terrace Police Station

3.4.5.1 Health Infrastructure and Services

With approximately 10,169 people above the age of 70 and 534 aged care facilities, Port Stephens appears to be underserviced in relation to aged care, with only 52.5 residential aged care facilities per 1,000 people over 70, compared to NSW (83.4 per 1,000) (refer to **Table 3.11**).

Table 3.11 Residential aged care places

Indicator	Port Stephens LGA	NSW
Residential aged care places per 1,000 population aged 70 years and over (2016)	52.5	83.4

Source: PHIDU, January 2020 release.

A wide range of health services are available in the Port Stephens LGA, with Medowie and Raymond Terrace being the closest health service hubs for the study communities (refer to **Table 3.12**). Tomaree Community Hospital in Nelson Bay is the only hospital in the Port Stephens LGA, with referral hospitals and specialist services primarily accessed from Newcastle.

Table 3.12 Health Facilities in the Port Stephens LGA

Facility	Suburb/location	Services
Tomaree Hospital	Nelson Bay	Emergency Services (Adult and paediatric) Adult acute medical care Palliative care
Nelson Bay Medical Centre	Nelson Bay	GP services Skin Cancer Clinic Minor Surgical Procedures Pathology on-site
Seaside Medical Centre	Fern Bay	GP services Skin Cancer Clinic After Hours Care
Fern Bay Medical Centre	Fern Bay	GP services
Central Health Alliance	Williamtown	GP services
Raymond Terrace Family Practice	Raymond Terrace	GP services
Sturgeon St Clinic	Raymond Terrace	GP services
William St Family Practice	Raymond Terrace	GP services
Awabakal Medical Service	Raymond Terrace	GP services
Seaham Surgery	Seaham	GP services
Dentist for Chickens	Raymond Terrace	Dental services
No Gap Smiles Raymond Terrace	Raymond Terrace	Dental services
Medowie Family Clinic	Medowie	GP services
Medowie Medical Centre	Medowie	GP services
Raymond Terrace Twin Rivers Dental Practice	Raymond Terrace	Dental services
Medowie Dental Surgery	Medowie	Dental services
No Gap Smiles	Raymond Terrace	Dental services
Raymond Terrace Dental Care	Raymond Terrace	Dental services

3.4.5.2 Traffic and Transport

There are two main highways that run through the Port Stephens LGA, the Pacific Highway which runs south-west from the Mid-Coast through to Newcastle where it meets up with Maitland Road. The other is Nelson Bay Road which connects Newcastle to Nelson Bay.

As the Project will involve the movement of quarry product by truck along the Pacific Highway toward Newcastle, the Central Coast and the Lower Hunter, it is important to consider the current baseline for incidents of casualties from crashes in the area and along these roads.

The latest data from TfNSW (2020) indicates the number of casualties from crashes by LGA. In 2018 Port Stephens LGA had 170 casualties from crashes, 63 of which resulted in serious injuries, and eight (8) deaths. In comparison to other LGAs, Port Stephens has a low to moderate number of casalities, similar to that of Port Macquarie-Hastings (179) and Tamworth Regional (163). In 2018 there were four (4) heavy vehicle incidents along the Pacific Highway, predominantly south of the proposed Project site, only one of which resulted in serious injury.

The Social Values Review for the proposed Eagleton Quarry Project (Kleinfelder, 2017) reported transport concerns for those who access Italia Road and the Pacific Highway.

- **Italia Road** - Residents reported concerns around limited visibility when turning right onto the Pacific Highway from Italia Road. This caused some people to avoid the intersection all together and use East Seaham and Newline Roads towards Raymond Terrace. Others choose to only turn left at the intersection and either make a U-turn or travel south through Medowie.

- **Pacific Highway -** The highway is used by heavy vehicles to avoid local roads and to varying degrees by local residents depending on traffic, time and preference. The Pacific Highway is used when travelling north from Raymond Terrace given the simplicity of the left-hand turn into the local road network. Turning right across the highway to travel south has more varied use largely based on the individuals perceived additional risk. Where holiday traffic is heavy, some will opt to use other local roads to avoid the additional traffic.

These concerns align with the consultation outcomes of the scoping phase for the Project (refer to **Section 4.0**).

The overwhelming majority of people in each study community travel to work in a car as a driver or passenger, with no one in the study areas reporting using public transport (ABS, 2016). Compared to NSW, a higher proportion of households have one or more cars and less households have no car. These statistics suggest a high level of road use in the area and is consistent with ABS (2016) data that shows there are a high proportion of people traveling between 10-30 kilometres or 30-50 kilometres to get to work across all study areas. There were also a small proportion of people living in East Seaham and Ferodale travelling up to 250 kilometres to get to work.

According to TfNSW (2020), no regular bus services exist for those living in Balickera and there is no official school bus route allocated for school children travelling to and from Seaham Public School or to Irrawang High school. Anecdotal evidence provided by near neighbours during the scoping phase however, suggests that there is an unofficial bus service that provides pick up and drop off for children in Balickera going to and from Seaham Public School, along several points of Italia Road (refer to **Section 4.0**).

3.4.5.3 Physical Capital Summary

In relation to health services generally, Port Stephens LGA is relatively well equipped. Further health services and specialist care can be accessed in the neighbouring LGA of Newcastle. However, with quite a large population over the age of 70 years, there appears to be a severe under servicing of residential aged care facilities in the Port Stephens LGA.

Port Stephens is accessible via two main roads, the Pacific Highway and Nelson Bay Road. The Pacific Highway is the transport route for the Project providing access to Newcastle, the Central Coast and the Lower Hunter. With the majority of people using the road networks to travel to work in a car, residents emphasised concerns surrounding visibility when turning right onto the Pacific Highway from Italia Road. Local residents report having to adjust their travel behaviour, for example by turning left onto the Pacific Highway and traveling towards Medowie Road, or avoiding the intersection altogether and travelling Italia Road towards East Seaham and Newline Roads.

3.5 Operational Context and Existing Quarry Operations

This section outlines stakeholder attitudes pertaining to local quarrying operations or proposed developments in the area, that were obtained during stakeholder engagement during the Scoping Phase. Further, a review of other existing and proposed quarrying developments has been undertaken to better understand potential community issues associated with these projects and to inform Project planning and design as well as potential mitigation or enhancement strategies relating to the proposed Project.

During consultation throughout the Scoping Phase, near neighbours were introduced to the proposed Project, with four (4) near neighbours reporting an awareness of exploration works occurring near their properties, as they witnessed water trucks and equipment being accessed via Nine Mile Creek Road. Project specific information sought by near neighbours throughout the consultation process included:

- What is the life of the Project?
- What materials would be extracted and their purpose?
- How many tonnes per year would be extracted?
- Who would be the proprietor of the Project?

The DPIE are currently in consideration of an application to develop a quarry south of the existing Boral Seaham Quarry, which has been extracting hard rock materials in the area of Balickera for almost 30 years. When asked to identify any known developments in the area, Boral Seaham Quarry was frequently mentioned (9). Near neighbours shared positive experiences of their relationship with the Boral Seaham Quarry, stating that any community concerns that were raised were promptly addressed by the company.

> *We get on with them.*
>
> *[Boral] have been good neighbours, they listen to you and do what they can.*

Other recognised developments included the Brandy Hill Quarry Expansion Project in the neighbouring suburb of Seaham. The EIA for Brandy Hill Expansion Project (Hanson, 2017) suggests that the operation is approved to operate 24 hours a day, 7 days a week and that the Expansion Project seeks only to maintain operations. In addition, quarries operated by Daracon were also mentioned (2).

Near neighbours were asked to state their current attitudes towards quarrying in the area, which was rated relatively low on average (4.5 out of 10), however it must be noted that only five (5) near neighbours (31%) consulted answered this question and as a result, this rating may not be indicative of the entire sample. When asked to provide a rating of how accepting near neighbours were of the proposed Project, an average score of 6.3 out of 10 was received from seven (7) near neighbours (44%).

The Port Stephens Examiner released an article regarding the proposed Project to the public at the end of February 2020 (**Appendix 2**, Media Article 5). Issues identified by council member Giacomo Arnott and Paul Le Mottee as important considerations of the approvals process, included potential cumulative impacts of truck movements on local roads and the safety of the Italia Road–Pacific Highway intersection, from any existing or proposed quarry developments. Further Arnott expressed concern for potential social impacts and minimising the disturbance of ecological habitats.

3.5.1 Boral Seaham Quarry

Boral Seaham Quarry, located in bushland near the Wallaroo State Forest, Balickera, is a hard rock quarry that has been operating since 1991 following the issue of a planning consent (DA 2683_85) by the Port Stephens Council in September 1985. Operations are largely protected from public view by thick vegetation. The quarry extracts hard rock materials, such as ignimbrite and igneous rock, used in the manufacture of concrete and asphalt. Quarrying activities take place between 6.00 am and 10.00 pm weekdays, 6.00 am to 5.00 pm Saturdays and operations cease on Sundays. On average, the quarry has produced up to 800,000 tonnes per annum of aggregates since operations commenced (Boral, 2020).

The planning consent of Boral Seaham Quarry is valid until 2035 and has included four modifications to account for minor production changes and an amendment to the site's hours of operation. In August 2019, a fifth modification was proposed. This proposal sought to extract 3.3 million tonnes of rock within the existing quarry pit by quarrying deeper (to a depth of 45m) throughout the whole quarry pit area, rather than extend operations towards a new, vegetated area near Italia Road. If approved, this fifth modification would allow operations to continue for a further five years.

Secondary data analysis found that no media articles pertaining to environmental or social impacts are recorded for the Boral Seaham Quarry.

3.5.2 (Proposed) Eagleton Quarry

Eagleton Rock Syndicate Pty Ltd (Eagleton Rock) proposed the development in 2015 (SSD-7332) for a 30-year hard rock quarry operation located on Barleigh Ranch Way, Eagleton. The site is approximately 2 km southwest of the Pacific Highway and Italia Road intersection, with access to the proposed quarry via Barleigh Ranch Way and Italia Road. The project is seeking approval to extract and process up to 600,000 tonnes of igneous and sedimentary rock per annum over an area of approximately 30 ha. Quarrying activities are proposed between 7.00 am and 6.00 pm weekdays and 7.00 am to 4.00 pm Saturdays. The proposed development is not yet approved and is currently being considered by DPIE.

Community consultation was undertaken by Umwelt in 2016 with residents from the Eagleton area, local businesses and government agencies, regarding the proposed Eagleton Quarry. Responses revealed that noise from quarrying equipment was the most frequently raised issue of concern, followed by dust and potential property damage due to blasting (refer to **Appendix 2**, Media Article 1).

The Eagleton Quarry proposal was submitted for development approval in 2017 and was publicly exhibited between 3 February 2017 and 6 March 2017. A total of 59 submissions were received for the project, with 50 from residents and special interest groups and nine from government agencies. The most frequently identified social impacts identified during the submissions phase included:

- Traffic and transport
- Water management
- Noise and vibration (including blasting)
- Air quality and dust
- Biodiversity
- Social impacts
- Economic impacts
- Rehabilitation
- Heritage.

Public submissions revealed that traffic and transport concerns were of particular concern for local road users (68% of public submissions), with safety of the Italia Road - Pacific Highway intersection questioned, and suggestions made regarding a potential intersection upgrade. Traffic risks associated with speed and limited visibility of oncoming traffic and congestion were also raised as high concerns.

Water management issues were raised in 52% of public submissions during the submissions phase, with DPIE requiring sufficient evidence that the proposed site's water management system was sufficient to store water without spillage, up to and including a 1:500-year rainfall event. A media article (**Appendix 2**, Media Article 1) in the Newcastle Herald outlined the NSW Environmental Protection Authority's (EPA) concerns that the Hunter's largest drinking water source, the Grahamstown Dam, must be protected from discharge of polluted water associated with the proposed quarry development.

Further media articles also cited traffic, water issues, air quality concerns and depositional dust in rainwater tanks (**Appendix 2**, Media Article 2) as perceived impacts of the proposed development.

3.5.3 Brandy Hill Quarry

The Port Stephens Council granted development consent for the Brandy Hill Quarry in 1983. Since 2001, Hanson Construction Materials Ptd Ltd (Hanson) has been operating the quarry. In February 2017, Hanson sought approval to expand extraction to 1.5 million tonnes per annum, doubling their current consent of 700,000 tonnes per annum. As part of the Expansion Project, Hanson were also seeking to install a concrete batching plant capable of receiving up to 20,000 tonnes per annum of concrete washout material for recycling. The DPIE are yet to determine an outcome for the proposed expansion (DPIE, 2020).

According to the EIS conducted for the Brandy Hill Expansion Project (Hanson, 2017), the quarry currently operates 24 hours a day, 7 days a week and if approval is granted, a total of 31 jobs for the local community would be created. However, Media Article 3 (2019) (**Appendix 2**) suggests that Brandy Hill residents are opposed to the Expansion Project, citing road safety, health, noise and dust as social impacts of the proposed expansion. The Brandy Hill/Seaham Action Group was formed due to a lack of communication regarding the Quarry's plans for expansion. Social impact concerns relating to the proposed expansion included an increase in the number of quarry truck movements and their website encourages the public to report any truck movements outside the hours of 6.00 am to 6.00 pm, questioning the validity of the 24 hours a day, 7 days a week operational hours. The article further outlines the need for the provision of information to the community by other means, other than only through the Community Consultative Committee (CCC).

Social impacts identified in the EIS for the proposed expansion included road safety, noise (especially at night), vibration caused by heavy vehicles, access to private property, air quality and dust, road condition and water concerns. Ecological impacts were raised in September 2019, when an injured koala was found on the boundary of the Brandy Hill Quarry (**Appendix 2**, Media Article 4), raising community concerns regarding the 46 ha required to be removed, should the Expansion Project be approved. The article also outlined that air quality concerns raised by the EPA were not adequately addressed in the EIS, particularly in regard to dust from heavy vehicle movements.

4.0 Community Values and Perceived Project Impacts

This section documents key community values held by local residents in proximity to the proposed site, and summarises the perceived impacts (both positive and negative) in relation to the Project, as identified through engagement with near neighbours and local businesses consulted in the Scoping Phase of the SIA in February 2020.

As noted in **Section 2.0,** Community Information Sheets were provided to approximately 25 stakeholders within a 2 km radius of the Project Area (refer to **Figure 2.3**). Interviews were also conducted with a total of 16 landholders/residents (11 households) through personal and telephone consultations and with two (2)[3] businesses along the proposed Project haul route.

4.1 Community Values

Near neighbours consulted during the Scoping Phase of the Stone Ridge SIA were long-term residents of the area, residing in their respective properties for on average 23 years, or in the area (including Raymond Terrace) for 38 years. The quiet, rural outlook, lack of immediate neighbours, proximity to nature and the forest that affords activities such as birdwatching, horse riding, 4-wheel driving, motorbike riding and camping, and access to local shops and services were lifestyle aspects that were highly valued by those consulted.

> *Close to everything. It's still close to services, it's ten minutes to the shops, ten minutes to the school, thirty minutes to the beach.*
>
> *We will never have neighbours.*
>
> *We liked that we would never have the possibility of being built out.*
>
> *I like it here for the forestry. Been here 26 years and enjoy horse riding, motorbike riding, 4WDing, camping, exploring the State Forest. We have peace and quiet all the time.*
>
> *Lack of noise. No neighbours.*
>
> *Quiet, rural atmosphere. I have a strong interest in nature, local vegetation, flora and fauna. It is a hobby and I can indulge it quite easily here. We love living here.*
>
> *Bird watching, nature.*

Stakeholders were particularly interested in the protection and maintenance of their rural amenity, often citing the increased illegal disposal of household waste through the State Forest and the dumping of vehicles noted as a regular occurrence. Some neighbours valued the presence of deer in the forest, while others spoke of the need for the population to be controlled and wanted to see improved maintenance of fire trails and access roads. There was also a desire to see increased recreational facilities throughout the State Forest and improved public transport services to main towns e.g. Raymond Terrace and Maitland.

[3] Two near neighbours operate businesses on site of their property

4.2 Perceived Social Impacts of the Project

Figure 4.1 and **Figure 4.2** summarise the perceived impacts (positive and negative) raised during engagement with stakeholders in the scoping phase.

In relation to negative perceived impacts of the Project, traffic impacts were the most frequently raised and primarily related to traffic safety as a result of increased traffic congestion and individual property access (refer to **Section 4.3)**.

Social amenity concerns including noise and dust were also frequently raised, followed by health and wellbeing impacts, personal and property rights, impacts on surface and ground water and ecological (flora and fauna) impacts. One near neighbour did not express any concerns with the Project.

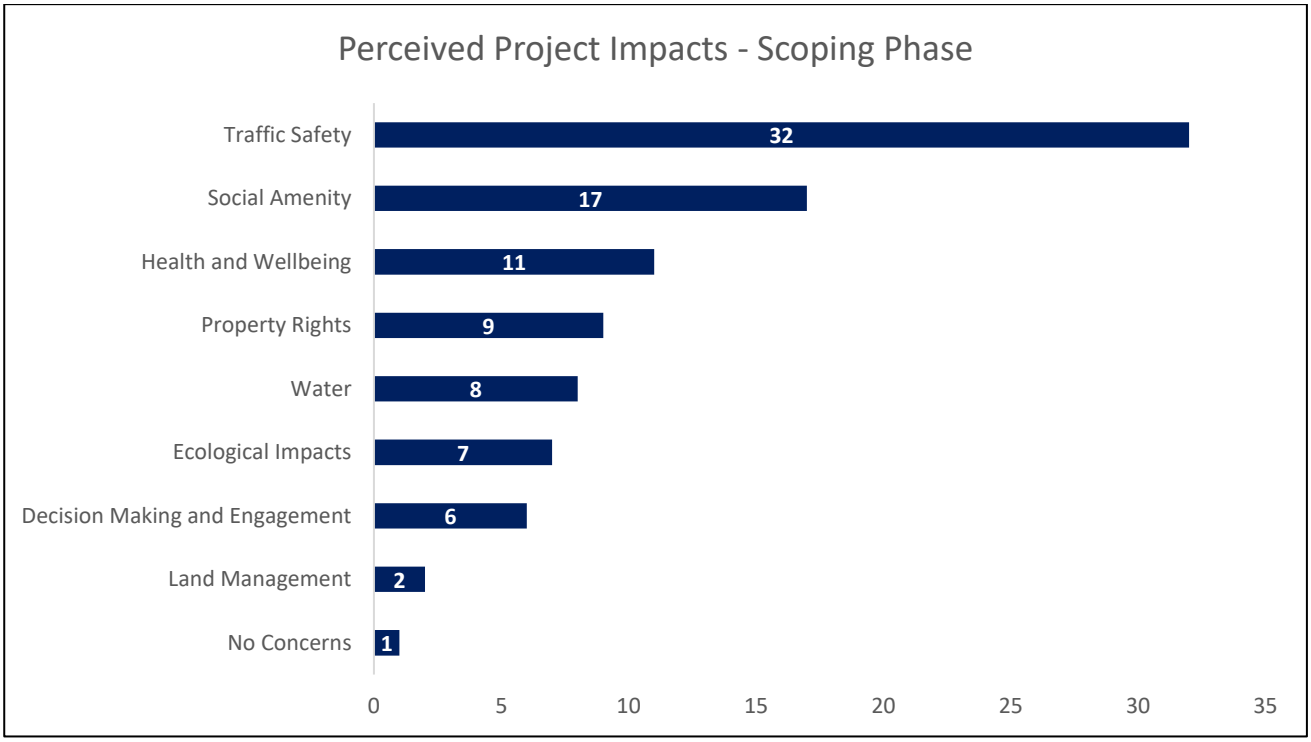


Figure 4.1 Perceived Project Impacts - Scoping Phase

n=16; multiple responses allowed.

Near neighbours were also asked whether they considered there to be any benefits of the Project if approved, with responses summarised in **Figure 4.2**.

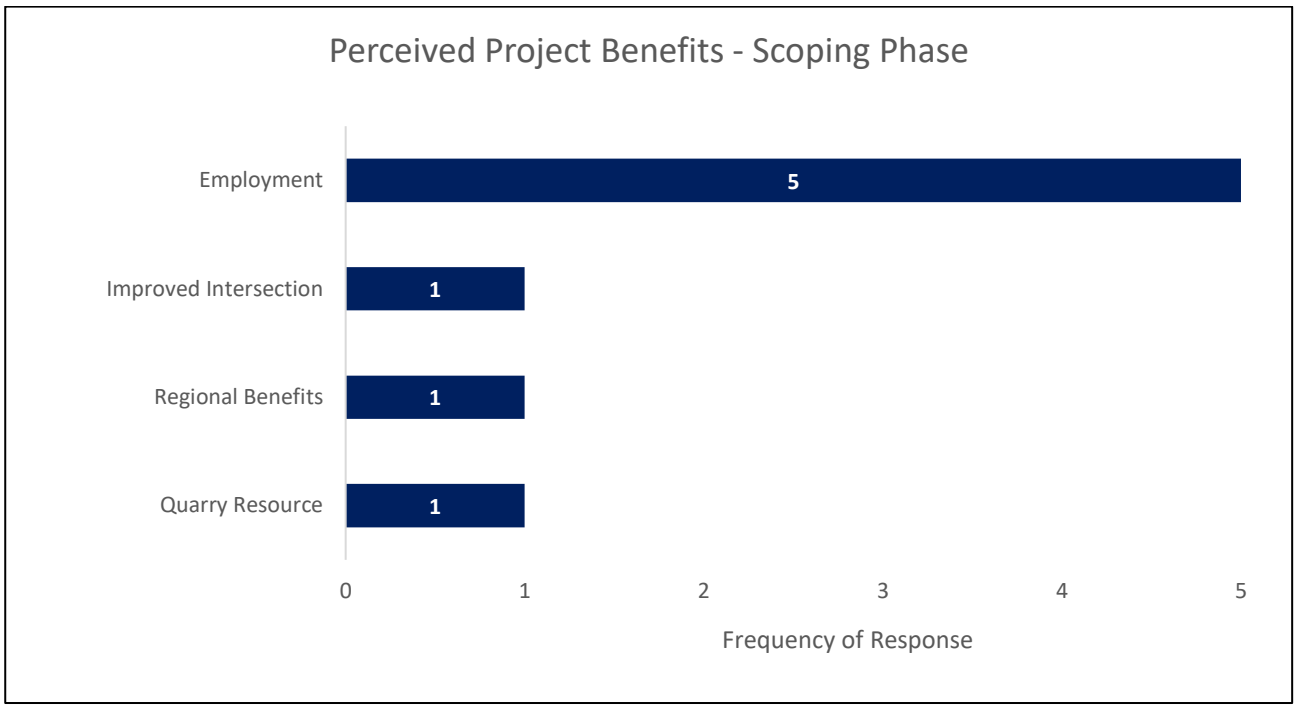


Figure 4.2 Perceived Project Benefits – Scoping Phase

n=16; multiple responses allowed.

Employment was raised most frequently as a potential benefit of the Project by five (5) near neighbours, with one business owner suggesting that the Project may result in an improved intersection on the Pacific Highway and Italia Road. Regional benefits relating to employment and procurement and the opportunities associated with extraction of quarry materials for infrastructure development were also noted by two (2) stakeholders.

In accordance with the SIA Guideline (2017), and as outlined in **Section 2.1**, these issues have been further categorised according to the defined social impact categories and are summarised in **Table 4.2** with the majority of perceived impacts relating to surroundings, defined by the SIA Guideline (2017) as the 'access to and use of ecosystem services, public safety and security, access to and use of the natural and built environment, and its aesthetic value and/or amenity'. Health and wellbeing impacts were the second most frequently identified social impact category.

The following sections provide a more detailed analysis of each issue raised by those consulted. Qualitative responses are provided where possible to demonstrate the sentiment expressed by stakeholders regarding each potential issue/impact and where identified, community suggested mitigation or enhancement strategies have been outlined and are further discussed in **Section 5.0**.

Table 4.1 Perceived Project Impacts by SIA Impact Category

Social Impact Theme	SIA Category								
	Way of Life	Community	Access to and Use of Infrastructure, Services and Facilities	Culture	Health and Wellbeing	Surroundings	Personal and Property Rights	Decision-Making Systems	Fears and Aspirations
Decision Making and Engagement									
Ecological Impacts									
Health and Wellbeing – Blasting fumes									
Health and Wellbeing – Air Quality									
Health and Wellbeing – Dust in Rainwater Tanks									
Land Management									
No Concerns									
Property Rights - Acquisition									
Property Rights – Property Damage (Blasting)									
Property Rights - Property Value									
Social Amenity - Dust (Cumulative)									
Social Amenity - Visual									
Social Amenity – Operational Noise									
Traffic Safety - Increase / Congestion									
Traffic Safety - Nine Mile Creek Road									
Traffic Safety - Property Access									
Traffic - Safety at Intersection									
Water - Ground Water									
Water - Surface Water									

4.3 Traffic Safety

Traffic safety impacts were top of mind for near neighbours consulted along Italia Road and Nine Mile Creek Road, with responses specifically related to the location of residents along either of the two roads. ARDG have recognised that there are existing concerns regarding the Italia Road intersection with the Pacific Highway and discussions with Transport for NSW (TfNSW) regarding access to the Pacific Highway are ongoing.

Several themes emerged during engagement with near neighbours in relation to traffic safety and are summarised in **Figure 4.3**. It should be noted that the Project will not dispatch trucks to market until a suitable and safe access arrangement is in place for the intersection, in accordance with TfNSW requirements which are currently being determined by TfNSW."

Safety impacts were noted in terms of those currently experienced and those which could potentially be exacerbated by the Project, with traffic congestion (17) and intersection safety (8), the most frequently raised traffic concerns for near neighbours. The following sections outline each of the traffic related safety concerns raised by near neighbours.

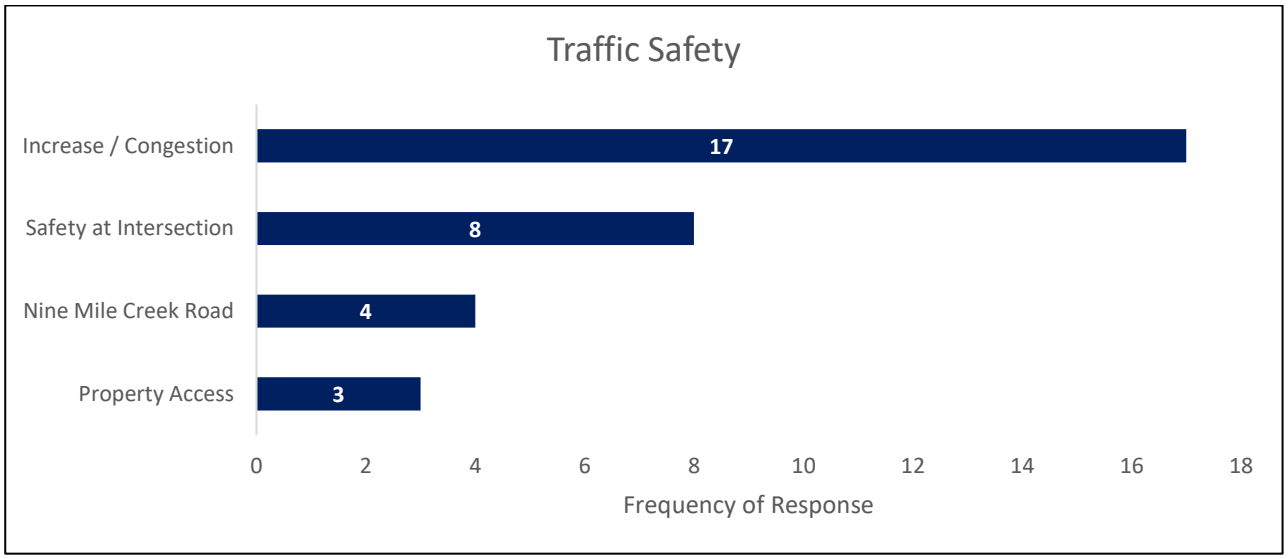


Figure 4.3 Perceived Social Impacts – Traffic Safety

n=16; multiple responses allowed.

4.3.1 Increase in Traffic/Congestion – Italia Road

The Intersection between Italia Road and the Pacific Highway was reported as a high concern for near neighbours (17) with cumulative traffic impacts of residential and business traffic applying pressure to the road and intersection.

Traffic was reported as increasing over the years along Italia Road due to an increase in commercial and residential traffic preferring to use Italia Road as an alternative to the Pacific Highway when travelling toward Medowie and Maitland.

The approved entry and exit route for contractor trucks and suppliers of current local businesses along Italia Road is toward the Italia Road – Pacific Highway intersection, however near neighbours reported that several trucks tend to traverse Italia Road to avoid the intersection and to improve their transport times.

Speeding along Italia Road by local businesses contractors was also raised as a concern for residents along the route.

> *I think the flow would be more.*
>
> *All day trucks are on the horn waiting to get across.*
>
> *The car traffic is phenomenal from Medowie for people accessing Green Hills [shopping centre].*
>
> *The trucks are banked up now.*
>
> *People all come this way to miss the Hexham Bridge. It was once a quiet rural road and now it's quite busy.*
>
> *Already more people use this road.*
>
> *They (the trucks) should go toward the highway.*
>
> *We get many B-Doubles along here. They said there wouldn't be, but they come this way.*
>
> *We have trucks, gravel trucks, they always do 100m/hr, always speeding.*
>
> *No one slows down.*

When referencing the frequency of heavy vehicle traffic along Italia Road, one (1) near neighbour commented that the road condition was poor and stated that *'the roads are always falling apart; the workers only patch the roads, they don't fix them'.* This stakeholder expressed that any proper road maintenance along Italia Road, should the Project be approved, would be beneficial.

4.3.2 Safety at the Italia Road-Pacific Highway Intersection

Near neighbours were also concerned for community safety when traversing the Italia Road - Pacific Highway intersection (8) (refer to **Figure 4.3**). Visual access to the south is limited due to a rise in the road and near neighbours expressed their fears relating to oncoming traffic speeding up and over the hill. It was reported that in order to get across the intersection and join the flow of traffic toward Newcastle, trucks trying to exit Italia Road frequently have to pull into oncoming traffic to stop the flow. As mentioned by stakeholders and noted above (**Section 4.3.1**) a preference by road users in the area has been to travel south towards Maitland via Italia Road to avoid crossing the intersection onto the Pacific Highway.

> *It is safer for them to go to Maitland from Medowie.*
>
> *If you want to get onto the Highway, we need to leave very early to get across to go to Newcastle.*
>
> *The trucks can be up to 70 tonnes at the moment and that intersection is very dangerous.*
>
> *To get out onto the highway, you can't get across quick enough. A woman was killed on the Highway a few years ago.*
>
> *On a Thursday/Friday afternoon they come tearing down the hill, they flash their lights at you, but they continue to speed, and no one can get across.*

4.3.3 Traffic on Nine Mile Creek Road

Residents consulted along Nine Mile Creek Road (4) held concerns that the road would be utilised for truck movements and resource transport, however such concerns were alleviated when informed that all access for the proposed Project, would be via Italia Road, with travel towards the Pacific Highway to transport quarry materials. Such concerns appeared to be driven by the experience of a water cart accessing the Project site during exploration drilling in previous months.

> *What road will the trucks come down? Will there be trucks coming past?*
>
> *I don't want any trucks down this road. We have had water trucks coming in and out already.*

4.3.4 Property Access

Further to the congestion and safety issues raised above along Italia Road, two (2) near neighbours voiced concerns that the level of traffic currently experienced impedes their property access and that any further increases to traffic would exacerbate this issue. These near neighbours expressed a need for further clarification from both TfNSW and the Project team as to what intersection upgrades would occur and how these changes would affect their property access.

> *Trucks bank up in my driveway…*
>
> *Where will it [the proposed road for an intersection change] start to make an extra lane?*
>
> *I'm concerned about safety, my kid's safety, trying to get out of my driveway.*

Safety concerns relating to school bus pick up and drop off access was also a current issue experienced along Italia Road (1). Currently, the school bus sets children down in a driveway close to the Italia Road – Pacific Highway intersection, impeding access to one residential and business property during peak school times. The issue is further exacerbated by family members attempting to park and pick up their children in the same location. One (1) resident raised concerns that school bus stops located along Italia Road are inadequate as safe set down/pick up zones for school children, with the provision of sheltered bus stops and bus pull-in areas identified as a way of providing safer pick up and drop off areas for school aged children.

> *The nearest bus stop is opposite the motorbike entrance. The next one is near the wooden bridge, past the Wallaroo State Forest entrance where someone has made a park bench, but there's no pull off areas for the Bus. I have mums parking in my driveway as it's the only place to get off the road.*

4.4 Social Amenity

The second most frequently raised impacts of concern during the scoping phase, related to social amenity (17) as a result of concerns relating to operational noise (11); cumulative impacts of dust (4); and visual impacts associated with the proposed intersection upgrade of Italia Road and the Pacific Highway (2).

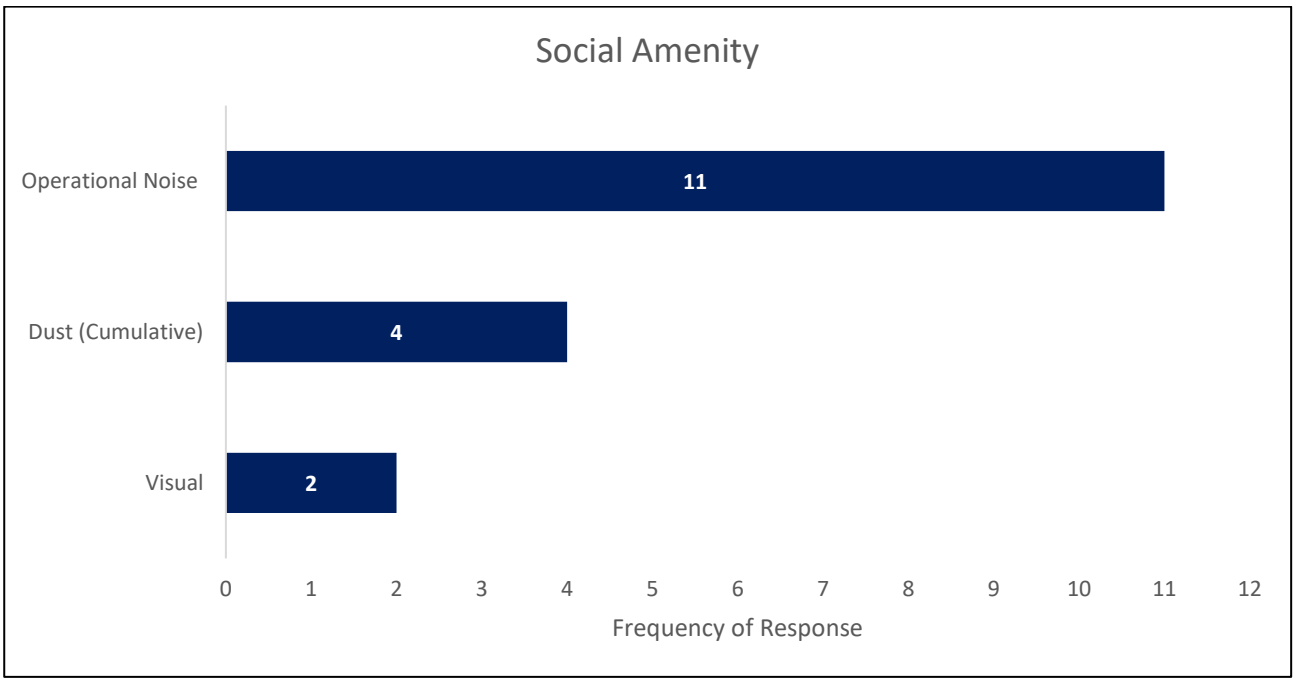


Figure 4.4 Perceived Social Impacts - Social Amenity

n=16; multiple responses allowed.

4.4.1 Operational Noise

Noise was raised as an issue of concern for 11 near neighbours, with one (1) consulted landholder recalling that they have heard drilling activities during the exploration stage over the past 18 months, with a further landholder (1) also noting that at times the machinery from a neighbouring quarry could be heard.

In this regard, near neighbours were interested to understand the Project's proposed hours of operation and levels of noise that they could expect to hear. One (1) landholder noted hearing neighbouring quarry operations until 10.00 pm and felt concerned that the proposed Project may operate in a similar manner.

> *Will there be noise? What are the hours of operation?*
>
> *Will there be much noise impacts where we are living?*
>
> *We did hear the drilling.*
>
> *We sometimes hear the crusher (or really, it's the conveyor).*
>
> *I can hear the crushing plant sometimes which is annoying to hear crushing until 10.00pm.*
>
> *I don't think you'll make too much noise; I worked in quarries.*

Near neighbours were advised that the current Project proposes to operate from 6.00 am to 6.00 pm only, with the processing facility also not operational after 6.00 pm. The more limited operational hours appeared to satisfy some residents - '*Ok, I'm happy with that'.*

4.4.2 Cumulative Dust

Cumulative dust exposure was raised as a concern by four (4) near neighbours in regard to existing and proposed quarry development in the area. One (1) near neighbour recounted their previous experience of living near coal mines in the Hunter Valley region and held concerns that further quarry developments would create cumulative impacts for landholders, including air and water quality concerns - health and wellbeing concerns associated with dust are further addressed in **Section 4.5**.

> *We cop a lot of dust as it is, and we are on tank water.*
>
> *We already have one quarry, and another is proposed also. I don't want to end up like in Singleton where I was in between Mt Thorley and Warkworth. I feel this would be similar.*
>
> *Have you been here on a still day? The air doesn't move, it [the dust] will come in and just sit.*

4.4.3 Visual Impact

Visual amenity was raised by one (1) near neighbour in relation to the potential intersection upgrade, outlining that their outlook would change dramatically with infrastructure works and that any raised intersection could pose privacy concerns if traffic were able to look into their property from above. In this regard, this stakeholder requested further information regarding visual impacts associated with the development of the intersection overpass.

> *We don't want to live, having to look at an overpass. What will it look like? Will it have pillars? Will it be a wall? If it's raised up, then people could be looking into our property?*

4.5 Health and Wellbeing

Project impacts relating to health and wellbeing (11) included potential exposure to dust (2) and blast fume (2) produced from quarrying activities and subsequent impacts on water quality (7) and respiratory health.

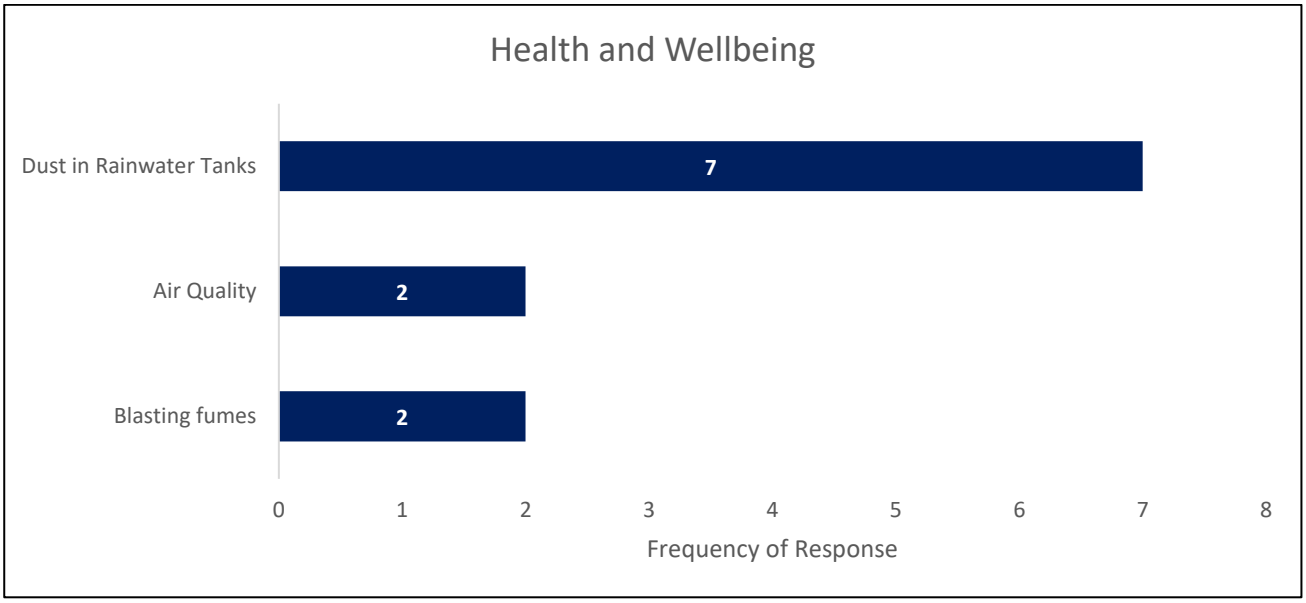


Figure 4.5 Perceived Social Impacts - Health and Wellbeing

n=16; multiple responses allowed.

The majority of these concerns (7) centred around dust being deposited in rainwater tanks and affecting water quality (**Figure 4.5**), as all consulted landholders rely on rainwater tanks for water supply. One (1) landholder was concerned that the health of their livestock would also be affected by water quality. Another (1) recalled coal dust accumulating in rainwater tanks when living near coal mine sites, leaving a thick residue in their tanks.

> *Dust is currently settling in tanks.*
>
> *We're on drinking water and we get south westerly winds.*
>
> *I used to live in Singleton and the amount of sludge you get out of your rainwater tank.*
>
> *With the wind direction and the proximity to us, we have concerns for dust in our rainwater. If we were on town water it wouldn't be a problem, but we have tanks.*
>
> *The livestock suffer.*

Air quality concerns centred around respiratory health (2), particularly for those suffering respiratory illnesses such as asthma and the potential inhalation of blasting fumes (2.

> *The air quality, asthma issues.*
>
> *The plume that is created from blasting can't be good for your health.*

4.6 Property Rights

Consulted near neighbours expressed several property-related social impacts, including property damage as a result of blasting (4), potential property acquisition (3) and decreased property value (2) (**Figure 4.6**).

Figure 4.6 Perceived Social Impacts - Property Rights

n=16; multiple responses allowed.

Potential blasting vibration impacts to the structural integrity of homes and out-buildings was discussed by some near neighbours located on Nine Mile Creek Road. One (1) near neighbour shared their experience of cracks developing throughout their ceiling when the Pacific Highway bypass was constructed twenty years ago. Near neighbours expressed a desire, should the Project be approved, to receive blasting notifications and asked questions regarding the blasting process and scheduling of blast events.

> *Impacts on houses (although we haven't had much vibration from Boral)?*
>
> *There are cracks in my house from when they put in the Bypass (20 years ago). I'm concerned because we're on a concrete slab here.*
>
> *So, there will be blasting? But it's not all the time is it? How much notice would we get?*
>
> *We're not receiving Boral notices about blasts.*
>
> *So, it wouldn't be an earthquake then?*

Three (3) near neighbours suggested acquisition of their property could be required if the Project is perceived to impact their lifestyle or property adversely.

> *There is a concern that they could want to acquire some/part of the land. These are issues we now need to think about. For us to move it would have to be of some benefit to us.*
>
> *Buy us out, that's the only way I will agree to it. Buy me out, then lease it back to me and I'll work for them.*

Two (2) near neighbours held concerns that the Project could impact their property value, should they wish to sell at any stage. One (1) of these near neighbours suggested that plans for renovations could be put on hold, with the Project creating uncertainty as to whether invested capital would be recovered in the future.

> *No one wants to buy near a quarry.*
>
> *What will a quarry mean for our resale value?*
>
> *We were going to start doing renovations (an extension), but hearing this maybe we shouldn't?*

4.7 Water

Water concerns were raised by eight (8) near neighbours (**Figure 4.7**), particularly in regard to flooding events and whether the Project would contribute to more water in the Nine Mile Creek catchment (6). Stakeholders noted a flood event that had occurred in 2015, inundating one property, with fears that similar events could occur if the Project injected excess run off into the catchment. Similar water management concerns were raised by the DPIE during the Response to Submissions (RTS) phase of the proposed Eagleton Quarry, as outlined in **Section 3.5.2.**

> *Seaham weir through to Balickera Channel – will that be impacted? There is a tunnel upgrade to allow more water, but will there be more water from the quarry as well?*
>
> *Worried about the water catchment area. Flooding is really bad. If we have rain, there's nothing to stop the water overflowing and anything that is washed into the creek from the quarry.*
>
> *Would it impact the water here? Would it affect the creek?*

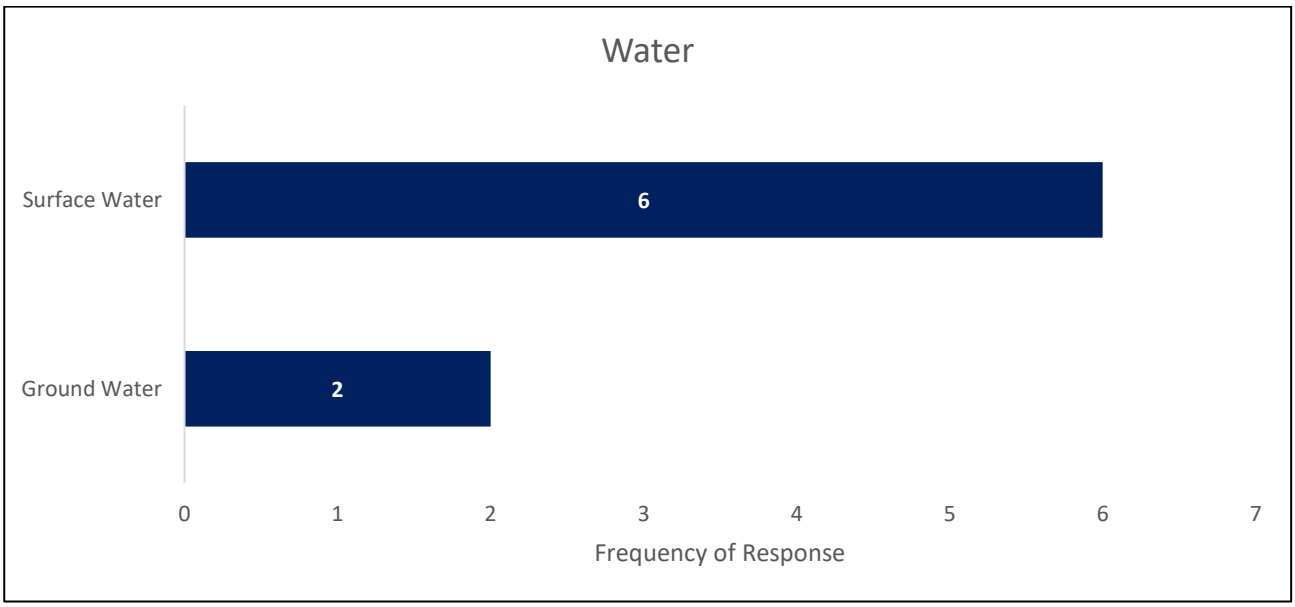


Figure 4.7 Perceived Social Impacts – Water

n=16; multiple responses allowed.

Two (2) near neighbours held concerns for their private bores and wanted to better understand how groundwater would be affected by the Project.

> *We have bore water on the property, how will that be affected?*

4.8 Ecological Impacts

Living in proximity to the Wallaroo State Forest, consulted near neighbours stressed the importance of wildlife and ecological health. Seven (7) near neighbours raised concern for the local fauna and fauna, including kangaroos, wallabies, koalas, snakes, birdlife, frogs and deer. Although a proposed mitigation strategy of offsetting a portion of the Wallaroo State Forest was discussed with landholders, some (2) remained dubious that these measures were enough to accommodate the loss of ecological values.

One (1) near neighbour suggested traffic increases would contribute to more roadkill, whilst another (1) was concerned blasting vibrations and operational noise would increase snake activity near homes.

Another near neighbour (1) held concerns that the Project would deplete water resources in the Nine Mile Creek, affecting the wildlife.

> *Impacts to wildlife, e.g. snakes. We get a lot of brown snakes here and there's the risk of snakes entering our houses due to vibrations.*
>
> *The impact on the wildlife is not just from the site clearing, it's the noise and vibration when operating too.*
>
> *I'm not a greenie, but I am a true bushie. I don't want impacts to the wildlife or our lifestyle.*
>
> *There are black cockatoos and koalas here. There is a pygmy possum (which was denied as being here, but I have seen it many years ago). We also have lyre birds and frogs.*

Have the Umwelt team spotted a pure black deer and a white deer here? It is very unusual to have both in one place.

There is lots of wildlife over there (In the Wallaroo State Forest), we get Koala's there, there will be more roadkill.

We've got kangaroos, koalas and wallabies. What about the animals and the environment? The animals are already starving, and we hardly have any water for them.

Will all the trees be gone?

How will it impact the animals? I don't believe in the process of off-setting. People will/do clear the forest even when they are not allowed to.

I don't believe in offsets. I'm not a fan of killing koalas.

4.9 Decision Making and Engagement

Three (3) near neighbours expressed concerns in relation to the approvals process and uncertainty associated with Project planning, including potential road changes and lifestyle change. One (1) near neighbour recalled a similar feeling of uncertainty when a development was proposed in 2016 for a motor-racing speedway. Another near neighbour (1) recounted their previous experience of the development approvals process, labelling it as '*not transparent*' and believing that near neighbour engagement rarely influences the approvals outcome.

We've been through this before with the Drag Strip they wanted to put in. We sat and waited while they made their decisions.

In a few years we will have our house paid off; Boral will be finished in a few more years and we will just have our place, but now this proposal, we just don't want it to impact us.

Previous experience it is not transparent, and people just do what they want to do.

One (1) near neighbour referred to the perceived importance of the Project and ARDG being Australian owned and operated, with another (1) neighbour stressing the importance of respectful communications between ARDG staff and contractors and near neighbours – referencing an event that was perceived as discourteous, when asking contractors during drilling explorations to supply further Project information.

Is the company Australian owned?

When you were completing your core sampling, I was very disappointed when I tried to get some information from the drillers, and they were so rude.

4.9.1 Engagement Preferences

In order for the Project team to provide Project plans and updates, relay outcomes of impact assessment studies and to build relationships with stakeholders, confirmation was sought from near neighbours as to their preferences in relation to engagement and communication with the company and the Project team. All near neighbours (16) provided their engagement preferences with email communications the most frequently identified, specifically in relation to the provision of Community Information Sheets and community updates. Personal telephone calls were the second most preferred method of engagement, followed by personal meetings, text messages and information sheets through the mail/in the post box (refer to **Figure 4.8**).

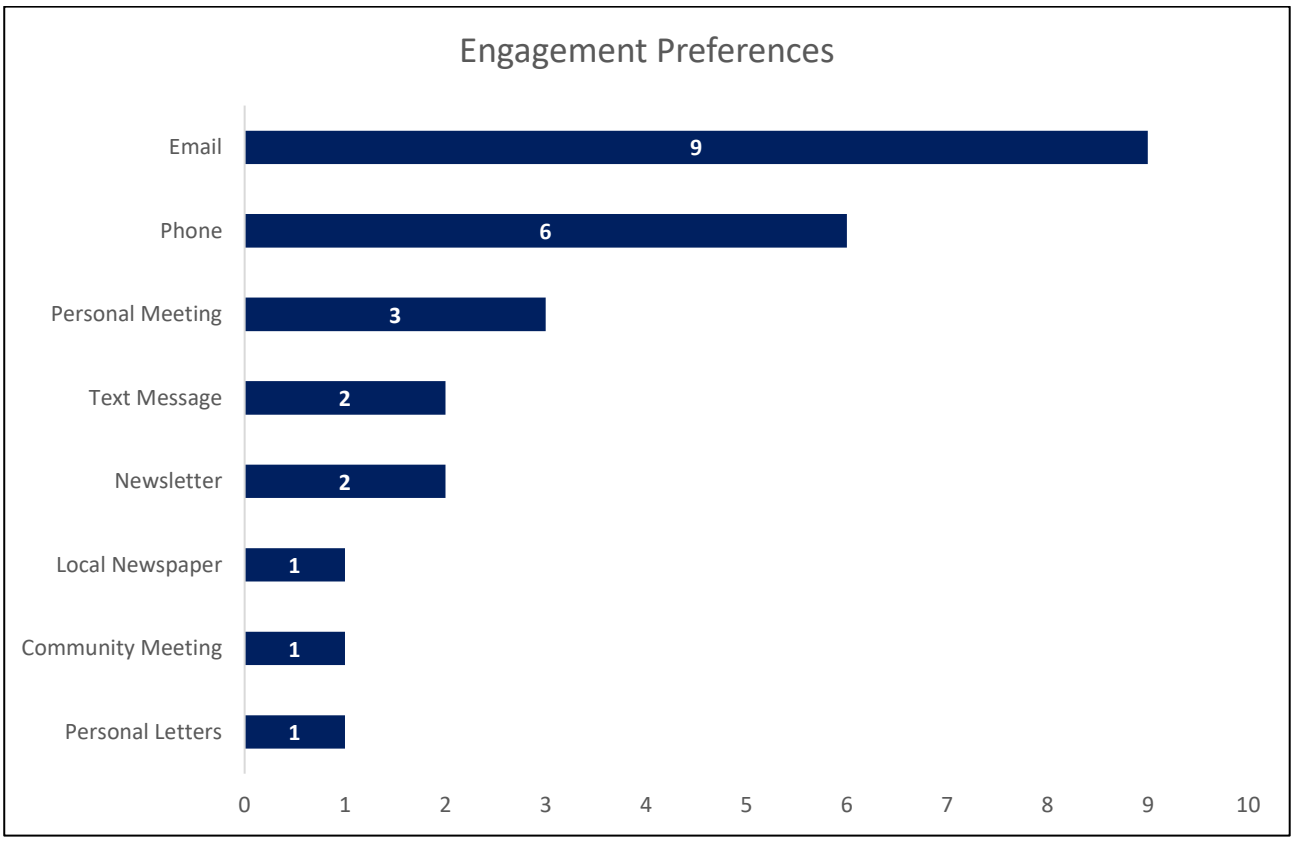


Figure 4.8 Preferred Engagement Mechanisms

n=16, multiple response allowed.

4.10 Land Management

During engagement, there was a strong sentiment expressed by two (2) near neighbours regarding the lack of land management and maintenance provided by NSW National Parks and Wildlife Services to fire trails, access roads and in relation to pest and weed management within the Wallaroo State Forest. Should the Project be approved, near neighbours suggested that the Project could contribute to land management issues, particularly fire risk at the proposed Project site and in offset areas. Community suggestions regarding mitigation and/or enhancement strategies related to land management are identified in **Section 5.0**.

> *Risk of fire from the quarry machines, it's a small risk but it is there.*
>
> *I am worried that the offset area would not be managed, e.g. poses a fire risk*

5.0 Social Impact Monitoring and Management

The scoping phase has identified key issues of relevance to near neighbours in relation to the Project. The following key impacts will be considered as part of the broader SIA/EIS assessment. Potential issues/impacts associated with the Project include:

- Traffic congestion, safety and access, particularly relating to the Italia Road and Pacific Highway intersection
- Social Amenity and health concerns relating to dust and blast fume
- Social Amenity relating to noise from quarry operations
- Water disturbance and/or runoff from operations to Nine Mile Creek
- Impacts on flora and fauna, including management of offset areas
- Blasting vibration and potential property damage
- Property rights relating to acquisition and property value
- Economic benefits and supply of quarry products to industry
- Trust in the assessment and government approvals process.

As detailed, further SIA and technical environmental impact studies relating to the above will be undertaken as part of the EIS and will address perceptions of impact raised by key stakeholders in the scoping phase. Subsequent phases of the SIA program will involve the following key activities:

- A detailed update of the baseline social profile to ensure that baseline data relevant to the impacts identified is obtained.
- Further validation of the area of social influence utilising updated operational profile data.
- Provision of feedback to near neighbours and key stakeholders on the outcomes of the issues raised in the scoping phase and communication of the Project Secretary's Environmental Assessment Requirements (SEARs) (once issued) and the next steps in the assessment process.
- Further engagement with near neighbours and other key stakeholders on key impact areas as noted above. This will involve feedback on the outcomes of assessment studies and will provide opportunities for input to the development of appropriate mitigation and enhancement measures
- Assessment and prediction of social impacts – against existing baseline conditions.
- Identification of appropriate management and enhancement measures to address significant social impacts and any residual effects.

During engagement, a number of suggested strategies for addressing project impacts were proposed by near neighbours and are summarised in **Table 5.1.** These will be further explored in subsequent phases of the SIA and EIS.

Table 5.1 Strategies Identified by Near Neighbours During the Scoping Phase to Address Key Project Impacts

Impact/Opportunity Area	Strategies
Blasting	• SMS Blasting notifications • Signs notifying day and time of blasts • Blocking road access during blast to reduce risk of fly-rock to cars

Traffic	• Development of an Overpass (Pacific Highway/Italia Rd Intersection) to reduce traffic congestion and improve traffic safety
	• No trucks/transport of quarry materials on Nine Mile Creek Road
	• Enforce Trucks/transport of materials on Italia Road and turning towards Pacific Highway only
	• Enforce speed limits for trucks/contractors (e.g. toolbox talks and truck monitoring)
	  ○ Community monitoring program – identification of local community monitors
	  ○ Establish camera monitors along Italia Road
	  ○ Publicise community line to report trucks not applying to transport rules and regulations
	• Appointment of traffic directors (e.g. lollipop people) during busy times/weekends/holiday traffic
	• Apply School zone speed limits
	• Construct School pick up/drop off areas
	• Erect bus stops with shelters at school pick up points
	• Undertake appropriate road maintenance on Italia Road
	• Provide direct contact to RMS

Dust	• Conduct baseline sampling of water tanks for proximal residents • Supply covers for rainwater tanks • Supply water filters for rainwater tanks • Undertake dust mitigations on site to reduce airborne dust e.g. water sprays
Noise	• Provide noise attenuation to windows for proximal residents • No night-time operations e.g. crushing/machinery (after 6pm)
Ground Water	• Conduct baseline sampling of private bores
Pest, Weed and Land Management	• Deer Control • Assist in the maintenance of fire trails and main access roads e.g. grading/earthmoving Maintain local driveways e.g. grading
Community Initiatives	• Provision of a Community bus service for elderly residents to drop off/pickup in Raymond Terrace e.g. once a week. • Clean up illegal dumping • Develop more camp sites in the area • Construct drop box toilets at camp sites e.g. Lone Pine Rest Area • Provision of support for local recreational clubs e.g. 4WD
Community Engagement	• Notification to near neighbours of Scoping Report submission • Further engagement once assessment studies are complete
Acquisition	• Further details of the acquisition process (if relevant) • Opportunity to rent back acquired property
Economic Impacts	• Employ locally, including local contractors

6.0 References

Australian Bureau of Statistic 2016 Census.

Burdge, R. J. 2004. A Community Guide to Social Impact Assessment: 3rd Edition (Social Ecology Press, PO Box 620863, Middleton WI 53562) ISBN 0-941042-17-0. www.dog-eared.com/sociolecology press

Boral. 2020. https://www.boral.com.au/locations/boral-quarries-seaham-balickera

Coakes, S. & Sadler, A. 2011. Utilizing a Sustainable Livelihoods Approach to Inform a Social Impact Assessment Practice. In Vanclay, F. & Esteves, A. M. (Eds.) New Directions in Social Impact Assessment. Edward Elgar, UK.

DPIE. 2020. https://www.planningportal.nsw.gov.au/major-projects/project/10056

Kleinfelder. 2017. Eagleton Quarry Social Values Review. Prepared for Eagleton Rock Syndicates Pty Ltd.

National Native Title Tribunal, 2020. http://www.nntt.gov.au/Pages/Home-Page.aspx

NSW Government Department of Planning and Environment. 2017. Social Impact Assessment Guideline. State of NSW; Sydney.

NSW Government Transport for NSW. (2020). Crash and casualty statistics - NSW general view - Interactive crash statistics - Statistics - NSW Centre for Road Safety. Retrieved from https://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats/nsw.html?tabnsw=8

NSW National Parks and Wildlife Services. 2020. https://www.nationalparks.nsw.gov.au/visit-a-park/parks/wallaroo-national-park

Office of Environment and Heritage. 2012. https://www.environment.nsw.gov.au/resources/planmanagement/draft/120028KaruahMedowieWallarooGroupNRMgmtPlan.pdf

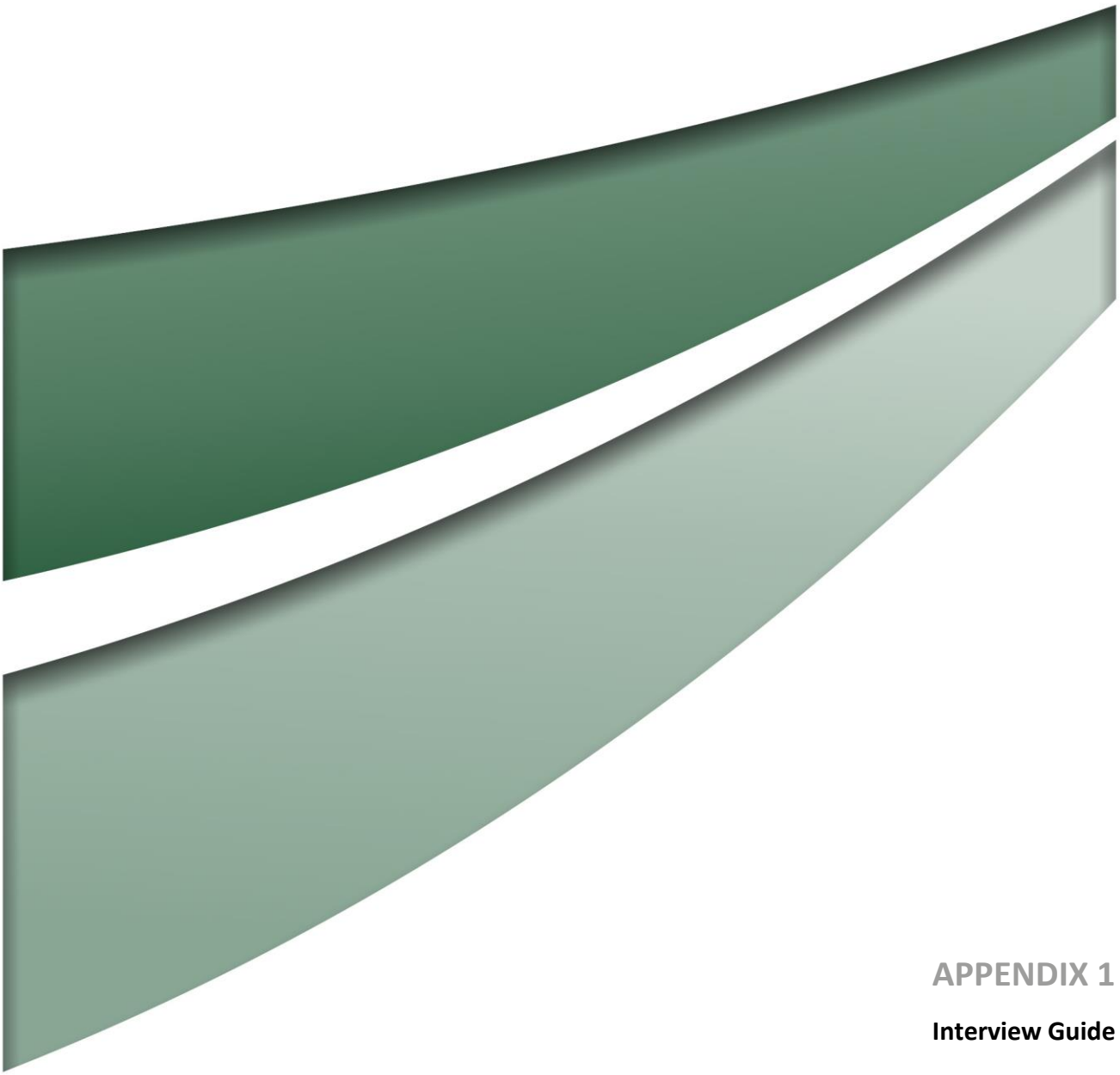
PHIDU Social Health Atlas of Australia. 2017. Data by Population Area, The University of Adelaide: http://www.publicheath.gov.au/phidu/maps-data/data/

Port Stephens Council. 2019. Annual Report 2018-2019 Volume One. https://www.portstephens.nsw.gov.au/your-council/policies-forms-publications/publications-and-information/annual-reports

Port Stephens Council. 2020a. Advocacy Document file:///C:/Users/sansen/Downloads/PSC%20Advocacy%20Document%202020%20Web.PDF

Port Stephens Council. 2020b. History, https://www.portstephens.org.au/about-port-stephens/history/.

Port Stephens Council. 2020c. Community Strategic Plan 2018-2028. https://www.olg.nsw.gov.au/councils/integrated-planning-and-reporting/framework/community-strategic-plan



APPENDIX 1

Interview Guide

STONE RIDGE QUARRY INTERVIEW GUIDE 2020

Thanks for taking the time to meet and speak with us.

Australian Resource Development Group (ARDG) is seeking approval for a development application for a quarry operation in the Wallaroo State Forest, within the Port Stephens LGA.

As part of the Environmental Impact Statement being prepared for the Project, a Social Impact Assessment is being prepared. As part of this process we would like to hear from nearby residents and key stakeholders about their attitudes towards the project and your experiences of living in the area.

Early engagement with nearby landholders and other key stakeholders is a requirement of the NSW Department of Planning and Environment's SIA guideline for State Significant Developments (SSD) for extractive industry.

All information you provide is confidential and will only be reported in aggregate form. Are you comfortable to proceed? We greatly appreciate your input.

Interview details:

Date / Time	/
Phone / In person	
Interviewer(s)	

Respondent contact details:

Stakeholder group	
Landholder ID	
Full name	
Address	
Business Name	
Role	
Landline telephone number	
Mobile number	
Email address	

Respondent socio-demographics:

*(Approximate age)**	
*(Gender)**	
Land use – own/rent	
If commercial - type of business	
If residential - number of occupants	
Length of time living in the property	
Length of time living in the area	
Membership of community groups	

Awareness of Australian Resource Development Group and Project Knowledge

1) **Have you received the Project Information Newsletter No. 1 in your mailbox?**

Yes	No	Unsure/Don't Know

2) **If you were to score your level of knowledge about Australian Resource Development Group (ARDG) from zero (0) to ten (10), with zero (0) being no knowledge at all and ten (10) being all possible knowledge a person could have, what score would you provide?**

0 1 2 3 4 5 6 7 8 9 10

No knowledge at all *All possible knowledge*

[Provide participant with Project Information Newsletter No.1]

[Provide a brief overview of ARDG]

3) **Do you have any knowledge of quarrying and/or other development operations in your area? If yes, could you please outline your experience?**

Quarry / Development Operation	Experience

4) **How would you rate your current attitude towards quarrying development in the area, on a scale from zero (0) to ten (10), with zero (0) being extremely negative and ten (10) being extremely positive?**

0 1 2 3 4 5 6 7 8 9 10

Extremely negative *Extremely positive*

Potential Project Impacts

[Provide a description of the Project)

5) **Are there any issues of concern to you in relation to the proposed Stone Ridge Project? How might these issues be addressed?**

Impact (+ve and/or -ve)	Impact Description	Suggested Mitigation

6) **Do you see any benefits of the Project? (Please outline)**

7) **At this early stage of the Project assessment, on a scale of zero (0) to ten (10), how accepting are you of the proposed Project, with zero (0) being not at all and ten (10) being high acceptance?**

0 1 2 3 4 5 6 7 8 9 10

No acceptance *High acceptance*

8) **Do you think that the disadvantages of the Project would outweigh the advantages of the Project?**

Yes	No	Unsure/Don't Know

Community Values and Investment

9) **How would you describe your community? What do you like most about living in the area?**

10) **What do you see as the key strengths / assets of the community? What do you value most in the area?**

11) **Where (most often) do you access services in your area?**

Service	Suburb
Health / GP Services	
Groceries / Food Shopping	
Retail Shopping	
Education	

12) **What do you see as the key needs of the community? Do you have any suggestions that would help improve the community/address identified needs?**
    - *Historical aspects*
    - *Greening and beautification*
    - *Local Business / employment*
    - *Community Services*
    - *Education – local school*
    - *Voluntary groups/organisations e.g. RFS*

Needs	Community of interest	Proposed Strategy

Engagement Preferences

13) Australian Resource Development Group would like to build effective relationships and communicate effectively with key stakeholders and community members. Can you please indicate what types of methods you would prefer to see used to receive information about the Project and be engaged by the company? (*Multiple responses allowed*)

☐	Newsletter	☐	Community meeting	☐	Local newspaper	☐	Local radio
☐	Website	☐	Personal meeting	☐	CCC minutes	☐	Email
☐	Personal Letters	☐	Phone	☐	Environmental monitoring report	☐	Open Day

14) Are there any other ways you would prefer to engage with and/or be consulted that we can consider?

_____

_____

_____

_____

15) Is there any specific information that you would like to receive on the project at this stage?

_____

_____

_____

Final Thoughts

16) Are there any other comments you would like to make?

_____

_____

_____

17) Is there anyone else you could suggest we need to speak to?

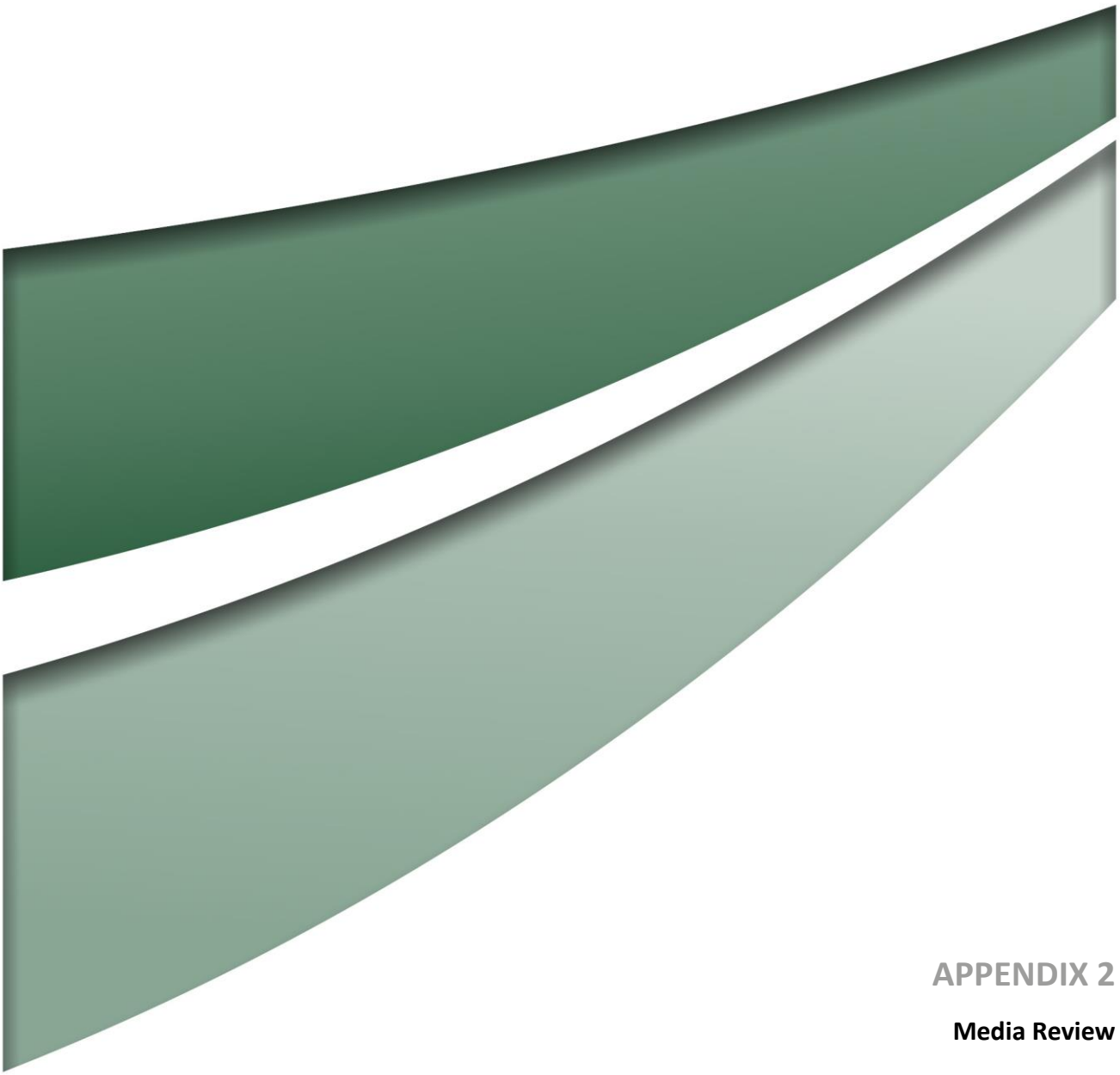
_____

_____

_____

Thank you for taking the time to meet with us.

Your responses are highly valued and please do not hesitate to get in contact with us at any time if you need any further information. We will be back in touch as the project progresses.



APPENDIX 2

Media Review

Article No.	Date	Headline	Brief Description/Summary of Article	Source	Link
1	01/02/2017	Eagleton Rock Syndicate revived plans for hard rock quarry within Grahamstown Dam drinking water catchment	The NSW Environment Protection Authority (EPA) warned the plans must outline how the dam would be protected from discharges of polluted water. "We've been in contact with Hunter Water and we're mindful of all of those things and so are the planning authorities," Mr Sneddon said. The land is owned Laurie Bowtell and also accommodates his compost and landscape supplies business Gardenland, which the *Newcastle Herald* previously revealed had operated illegally for over 10 years and had leaked polluted run-off into Grahamstown Dam "The syndicate is providing the financial backing for the hard rock quarry and has an option to purchase the land. The current owner of the site will not be the operator of the site."	Newcastle Herald	https://www.newcastleherald.com.au/story/4441484/plans-for-rock-quarry-resurrected/
2	11/04/2017	Hunter Water, RMS and Eagleton Residents Action Group lodge objections to rock quarry proposed by Eagleton Rock Syndicate; poll.	HUNTER WATER and the Roads and Maritime Service have come out in opposition to plans for a hard rock quarry in the catchment for Newcastle's main drinking water source. Boral Resources – which operates the nearby Seaham Quarry – has also launched an attack on the proposal, warning it contains "deficiencies, incorrect conclusions and inadequate mitigation measures". Hunter Water found the syndicate had failed to show water discharged from the quarry would be of equal or better quality than what is currently leaving the site. Its management plan had been designed for a "typical catchment" rather than a sensitive drinking water source, it argued. In its objection, the Road and Maritime Service warned extra truck movements would put pressure on the intersection of the Pacific Highway and Italia Road, "exacerbating the potential safety risk".	Newcastle Herald	https://www.newcastleherald.com.au/story/4583522/fears-over-drinking-water/
3	13/02/2019	Brandy Hill battle: quarrel of quarry's expansion plans	But residents, who were alerted to the proposal through a 'have-a-chat' session on February 6 at Seaham, have expressed road safety, health, noise and dust emission concerns if production levels are increased from 700,000 tonnes to 1.5 million tonnes a year. "Some of the key measures Hanson has committed to include enclosing all fixed processing equipment from Stage 1 of operations – industry best practice. In addition, Hanson will continue to suppress dust through use of a water cart and will construct an amenity bund to shield the quarry." The spokesperson said that Hanson had also proposed a number of measures to improve road safety and traffic noise generation. "These include a trial reduction in speed for trucks travelling along Brandy Hill Drive and limiting night-time deliveries to Hanson-owned trucks."	Port Stephens Examiner	https://www.portstephensexaminer.com.au/story/5900180/brandy-hill-battle-quarrel-of-quarrys-expansion-plans/

Article No.	Date	Headline	Brief Description/Summary of Article	Source	Link
4	18/09/2019	Department of Planning asks Hanson's Brandy Hill Quarry for answers to questions about expansion	The badly injured koala was found by the road on the boundary of Hanson's Brandy Hill Quarry, which has proposed lifting production from 700,000 tonnes to 1.5 million tonnes of material for roadworks. The proposal requires the destruction of 46 hectares of designated koala habitat which Hanson proposes to offset with koala habitat outside the Hunter.	Newcastle Herald	https://www.newcastleherald.com.au/story/6383536/quarrys-30-year-expansion-plan-leaves-koalas-flat-footed-and-residents-fuming/
5	27/02/2020	Port Stephens quarry quandary: New rock quarry proposal for Italia Road in Balickera	Australian Resource Development Group (ARDG) is seeking state planning approval for a hard rock quarry, known as 'Stone Ridge' and located within the Wallaroo state forest at Italia Road, Balickera. The applicant is seeking to extract, process and transport 1.5 million tonnes of rock per annum over 30 years. Questioned about the number of daily truck movements, Mr Meleo said a detailed Traffic Impact Assessment would be prepared to assess the changes in traffic volumes on the surrounding road network. "This will include consideration of intersection capacity, traffic safety, accessibility and assessment of potential cumulative impacts on the road network. No trucks will be dispatched from the site until a suitable and safe access arrangement is in place for the Italia Road-Pacific Highway intersection," he said. Cr Giacomo Arnott said that the cumulative impact of truck movements on local roads proposed by ARDG needed to be considered, and any impact on koala habitat and state forest needed to be addressed and that he would be ensuring these quarries are having as minimal an impact on people's lives as possible.	Port Stephens Examiner	https://www.portstephensexaminer.com.au/story/6647506/quarries-line-up-for-the-rock-of-balickera/?cs=762

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