



# APPENDIX S: SOCIAL IMPACT ASSESSMENT



# Social Impact Assessment Deep Creek Quarry

Client: Ironstone Developments Pty Ltd

23 September 2021



Mara Consulting

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## ACKNOWLEDGEMENT OF COUNTY

*We are in the Country of the Awabakal and Worimi peoples. We recognise their connection to the land and water of this beautiful and vibrant place. We pay our respects to the Traditional Owners of the land on which we work and pay our respects to Elders past, present and emerging.*

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#### Recent experience

- Newcastle Grammar School Park Campus Masterplan Redevelopment SIA
- Goulburn Mix Use Development SIA
- McDonalds Vincent Street SIA
- McDonalds Allendale Road SIA

The authors declare that this SIA report:

- Was completed on 23 September 2021
- has been prepared in accordance with the EIA process under the EP&A Act
- has been prepared in alignment with the DPIE's SIA Guideline
- contains all reasonably available project information relevant to the SIA
- as far as Mara Consulting is aware, contains information that is neither false nor misleading.

Tadd Andersen

6 October 2021



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## COMMONLY USED ACRONYMS AND TERMS

ACRONYMS/TERMS	DESCRIPTION
ABS	Australian Bureau of Statistics
ASGS	Australian Statistical Geography Standard
ASR	Age-standardised rate
DA	Development application
DPIE	NSW Department of Planning, Infrastructure and Environment
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979
FTE	Full-time equivalent
IAIA	International Association for Impact Assessment
MCC	MidCoast Council
Ha	Hectares
Km	Kilometres
LEP	Local Environment Plan
LGA	Local Government Area
NSW	New South Wales
Regional community	Residents from MidCoast Council
SEARs	Secretary's Environmental Assessment Requirements
SEIFA	Social-Economic Indexes for Areas
SIA	Social impact assessment
SIMP	Social Impact Management Plan
SCC	Suburb
SSD	State Significant Development
tpa	Tonnes per annum
UCL	Urban Centre/Locality (ABS ASGS)



## EXECUTIVE SUMMARY

Mara Consulting was engaged by Kleinfelder on behalf of Ironstone Developments Pty Ltd to conduct a social impact assessment (SIA). This report presents an assessment of potential social impacts associated with the proposed construction and operation of the Deep Creek Quarry project (Project) located near Allworth, New South Wales (NSW).

The Project is seeking to develop a hard rock quarry to extract and process hard rock aggregate products, primarily rhyolite with wider resources comprising trachyte, arenite and quartz trachyte using standard drill and blast methods with processing by mobile plant. The proposed annual production rate is up to 500,000 tonnes per annum (tpa).

The project is considered a State Significant Development (SSD) and an Environmental Impact Statement (EIS) is currently being prepared.

This SIA forms part of an Environmental Impact Statement (EIS) which has been prepared to accompany the Development Application for the Project. The SIA includes the methods and results, the initiatives built into the project design to avoid and minimise social impacts, and the additional mitigation and management measures proposed to address any residual impacts not able to be avoided.

The Secretary's Environmental Assessment Requirements (SEARs) state the following requirements regarding the SIA:

The EIS must address the following key issues:

*Social – including a detailed assessment of the potential social impacts of the development that builds on the findings of the Social Impact Assessment Scoping Report, in accordance with the Social impact assessment guideline for State significant mining, petroleum production and extractive industry development, paying particular consideration to:*

- how the development might affect people's 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, and fears and aspirations;*
- the principles in Section 1.3 of the guideline;*
- the review questions in Appendix D of the guideline.*

The *Social Impact Assessment Guideline for State Significant Projects* published by the NSW Department of Planning, Industry and Environment, July 2021, outlines the requirements for undertaking the SIA component of the EIS. This SIA has been undertaken in accordance with the SIA Guideline.



This SIA concluded that the negative social impacts are primarily associated with the potential change to way of life and not knowing how the potential impacts will be experienced. The associated key impacts include:

- Positive economic outcomes, providing business and job opportunities for the community through construction and operation
- How the project communicates and engages with the community
- Noise, dust and blasting resulting from the operation and from the access road
- Change to the peaceful way of life in a rural residential area
- Changes to the amenity and environmental values.

Key mitigation measures to reduce the social impact of the project include; proactive and regular communication and engagement with the community and neighbours, developing an effective inquiries and complaints process which is promoted through communication channels, developing a construction management plan that includes notification prior to works starting, and proactively communicating blast times to impacted residents.

Monitoring measures are included at **Table 9: Summary of identified impacts**. The monitoring measures will be reported on the project website. Compliance monitoring may be required as part of the conditions of approval. Findings of monitoring will be presented at community meetings such as a consultative committee and is an opportunity to review and improve operations. An inquiries and complaints process will be developed to manage and respond to community feedback.

Following the review of social impacts identified during this assessment, while the quarry presents a change to the community, social impacts can be managed. It is likely, if approved, the proponent may be required to submit a social impact management plan (SIMP) for approval as a consequence of the conditions of consent.



# 1. Introduction

## 1.1 Purpose of this report

Mara Consulting Pty Ltd (Mara) has been engaged to prepare and submit an SIA as part of an EIS to support an SSDA for the project under Section 4.1.1(8) (Division 4.3) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It has been prepared to the form and content requirements set out in clauses 6 and 7 of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation).

## 1.2 Project overview

Mara Consulting was engaged by Kleinfelder to conduct a social impact assessment (SIA) on behalf of the Project proponent Ironstone Developments Pty Ltd.

This report presents an assessment of potential social impacts associated with the proposed construction and operation of the Deep Creek Quarry project (project) located in Limeburners Creek, New South Wales (NSW).

The project location is off Deep Creek Road, in Limeburners Creek. The site is approximately 10km northeast of Clarence Town and 11km north-west of Karuah, within the MidCoast Local Government Area (LGA). Access to the site would be from The Bucketts Way via a new private access road with a new intersection on The Bucketts Way.

The Project site is located approximately 5 kilometres (km) west-southwest of the township of Allworth on Lot 48 in DP 753178 and Lot 472 in DP 1162208. The site sits within a property of 308 hectares. The quarry operations will cover approximately 30 hectares with 18 of these making up the extraction area. An indicative layout for the proposal has been provided (refer to Figure 1: Concept project layout showing locations of the proposed quarry elements (Source: Kleinfelder)).

The project includes excavation for the quarry using mobile machinery, construction of the weighbridge, office and workshop, stockpile pads, and construction of a new sealed private access /haul road from the quarry weighbridge to The Bucketts Way.

The ongoing operations will include excavation within the quarry and truck movements along the private access / haul road.

The proposed quarry will produce a range of quarried materials, including road base and high grip aggregate materials used in road construction and decorative landscaping products. The Project is seeking to develop a hard rock quarry to extract and process hard rock aggregate products, primarily rhyolite with wider resources comprising trachyte, arenite and quartz trachyte using standard drill and blast methods with processing with mobile plant. The proposed maximum annual production rate is 500,000 tonnes per annum (tpa).

## Indicative project layout

The quarry facility will consist of the following elements:

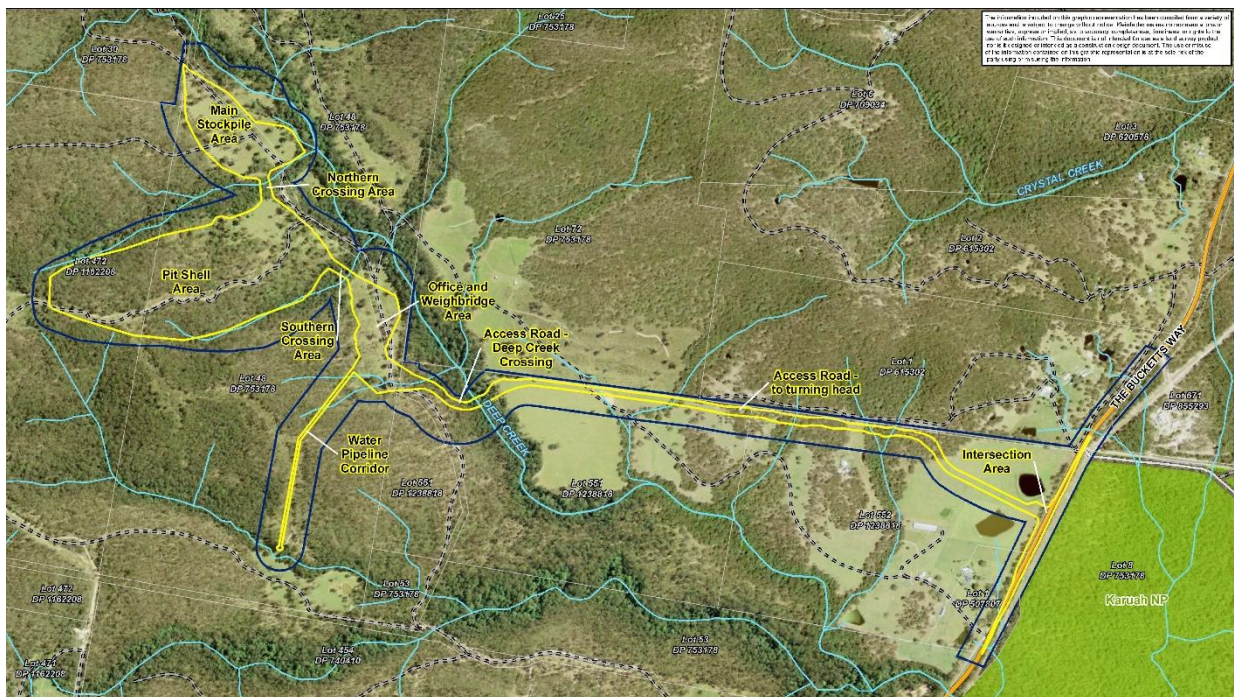
- extraction area up to 18 hectares over multiple stages, including a mobile crusher
- stockpile area
- electrical generation plant (diesel or solar)
- administration offices, workshop, and support structures
- new private access road connecting the quarry to The Bucketts Way.

During construction there is a potential for short-term visual impact that may include:

- road construction
- large vehicle movement to and from site
- laydown yards.

The project will progress logically from the initial establishment and construction works to a final rehabilitated site at the end of the project.

Figure 1: Concept project layout showing locations of the proposed quarry elements (Source: Kleinfelder)





## Project description

The project includes excavation for the quarry using mobile machinery, construction of the weighbridge, office and workshop, stockpile pads, and construction of a new sealed private access from the quarry weighbridge to The Bucketts Way.

The ongoing operations will include excavation within the quarry and truck movements along the private access.

The proposed quarry will produce a range of quarried materials, including road base and high grip aggregate materials used in road construction and decorative landscaping products. The Project is seeking to develop a hard rock quarry to extract and process hard rock aggregate products, primarily rhyolite with wider resources comprising trachyte, arenite and quartz trachyte using standard drill and blast methods with processing with mobile plant. The proposed maximum annual production rate is 500,000 tonnes per annum (tpa).

## Indicative project layout

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- stockpile area
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- large vehicle movement to and from site
- laydown yards.

The project will progress logically from the initial establishment and construction works to a final rehabilitated site at the end of the project.

## 1.3 Project phases

The work on the proposed quarry will occur over three main phases. These include the establishment or construction, operations, and rehabilitation phases of the proposal. The phases are described below in greater detail.



## Construction

The initial phase of the project will establish the infrastructure for the proposed quarry. Generally, the following works will take place.

- The private access /haul road leading from The Bucketts Way to the weighbridge and office
  - Earthworks and vegetation clearing for new road
  - Intersection construction
  - Base course and asphalt surfacing along the road
  - Culvert installation for access over Deep Creek.
- Office buildings, weighbridge and workshop
  - Earthworks to create usable space around buildings
  - Internal road and hardstand areas
  - Dam construction for water quality control.
- Stockpile areas
  - Internal roads with gully crossing
  - Earthworks and terracing to create level areas
  - Dam construction for water quality control.
- Extraction area
  - Internal road with gully crossing (from office area, and to stockpile area)
  - Clearing vegetation from initial extraction area
  - Earthworks to create initial work area and topsoil management areas
  - Dam construction for water quality control.

This will provide the infrastructure needed to begin extraction and production of quarry products.

## Operation

The ongoing operation of the project consists of extracting the rock material from the hillside, processing, stockpiling and hauling the material off site to markets. The project will use conventional drilling and blasting methods within the extraction pit. Processing, storing and hauling the material will also employ conventional methods.

The bulk of the extraction works will occur over four stages. However, since the type of work will remain relatively constant throughout the project, this report will treat the extraction as a single phase. Generally, extraction will begin at the foot of the slope and progress up and into the slope. This will follow a logical progression of quarrying into the hillside with wide benches for stability and safety.

The quarry plans indicate the extraction activity will remain below ridgelines to minimise noise and dust from the quarry on surrounding properties. The operation of the quarry is expected to continue for 30 years.



Table 1: Proposed hours of operation

Activity	Monday to Friday	Saturdays	Sundays and public holidays
Site establishment and construction	7:00am to 5:00pm	8:00am to 1:00pm	Nil
Extraction operations	7:00am to 5:00pm	8:00am to 1:00pm	Nil
Blasting operations	9:00am to 4:00pm	Nil	Nil
Processing operations	7:00am to 5:00pm	8:00am to 1:00pm	Nil
Product dispatch	6:00am to 6:00pm	6:00am to 1:00pm	Nil
Maintenance	24 hours / day	24 hours / day	Nil

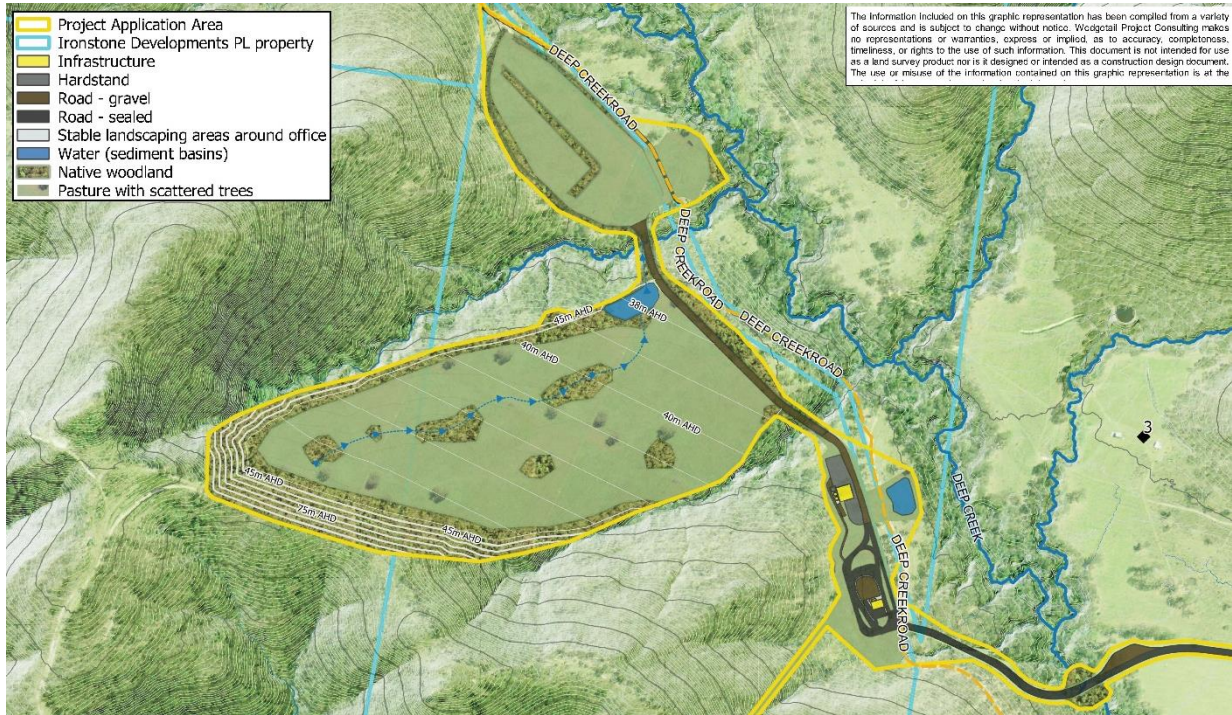
## Rehabilitation

While rehabilitation will occur progressively as extraction is completed within an area, rehabilitation in this report is treated as a single phase. As the extraction process in an area comes to an end, the land will be rehabilitated. There is a rehabilitation plan that will guide this process. The rehabilitation plan describes the final result as follows:

- The final landform for the quarry will consist of a broad gently sloping quarry floor that drains to the east into the former sediment basin located in the north-eastern corner of the quarry area. This basin will serve to provide some initial sediment control as the landform establishes and in the longer term serve as an agricultural dam and provide aquatic habitat (that is, similar to a wetland). The dam will overtop to the northeast into the existing ephemeral drainage line.
- The quarry floor and benches will have 100-200mm thick topsoil / friable growth media distributed across the service, utilising previously stripped topsoil and friable overburden. The need for additional roughening of the quarry floor rock will be considered prior to placement of topsoil to assist in the retention of water within the landscape.
- The toe of the highwall will include a wedge of soil to promote woody vegetation growth. Benches and patches across the quarry floor will be re-vegetated with native woodland vegetation generally consistent with adjacent vegetation communities.
- The remainder of the quarry floor will be vegetated with pasture species suitable for potential future agricultural grazing with paddock trees. Roads and infrastructure that supports future land use will be retained. The primary focus of the rehabilitation will be the creation of a safe, stable and non-polluting landform with a self-sustaining vegetation community.

Stage 4 represents the final stage of extraction and processing the material.

Figure 2: Final site condition after rehabilitation





## 1.4 SEARS

The proposal is declared State Significant Development (SSD) and as such, has been developed in accordance with the Secretary's Environmental Assessment Requirements (SEARS) for the project, which were issued on 19 February 2021. The SEARS state the following requirements regarding the SIA:

*The EIS must address the following key issues:*

**Social** – including a detailed assessment of the potential social impacts of the development that builds on the findings of the Social Impact Assessment Scoping Report, in accordance with the Social impact assessment guideline for State significant mining, petroleum production and extractive industry development, paying particular consideration to:

*- how the development might affect people's 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, and fears and aspirations;*

*- the principles in Section 1.3 of the guideline;*

*- the review questions in Appendix D of the guideline.*

Since the issuing of the SEARS, the Department of Planning, Industry and Environment (DPIE), has published a new guideline. As such this SIA has been written to meet the newly adopted *Social Impact Assessment Guideline for State Significant Development (2021)* (the SIA Guideline). Additionally, the *Social Impact Assessment Technical Supplement (2021)* has been used in the preparation of this document.

In particular, the social impact assessment looked at how the surrounding community would be impacted by the proposal, in terms of:

- way of life (how people live, work, play, and interact)
- community (including cohesion and sense of place)
- environment (including amenity, aesthetics, and access)
- economy (including effects on businesses and economic opportunity)
- wellbeing and health (physical and mental).

## 2 Project context

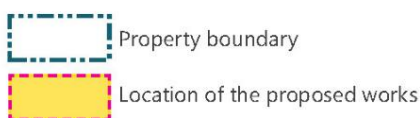
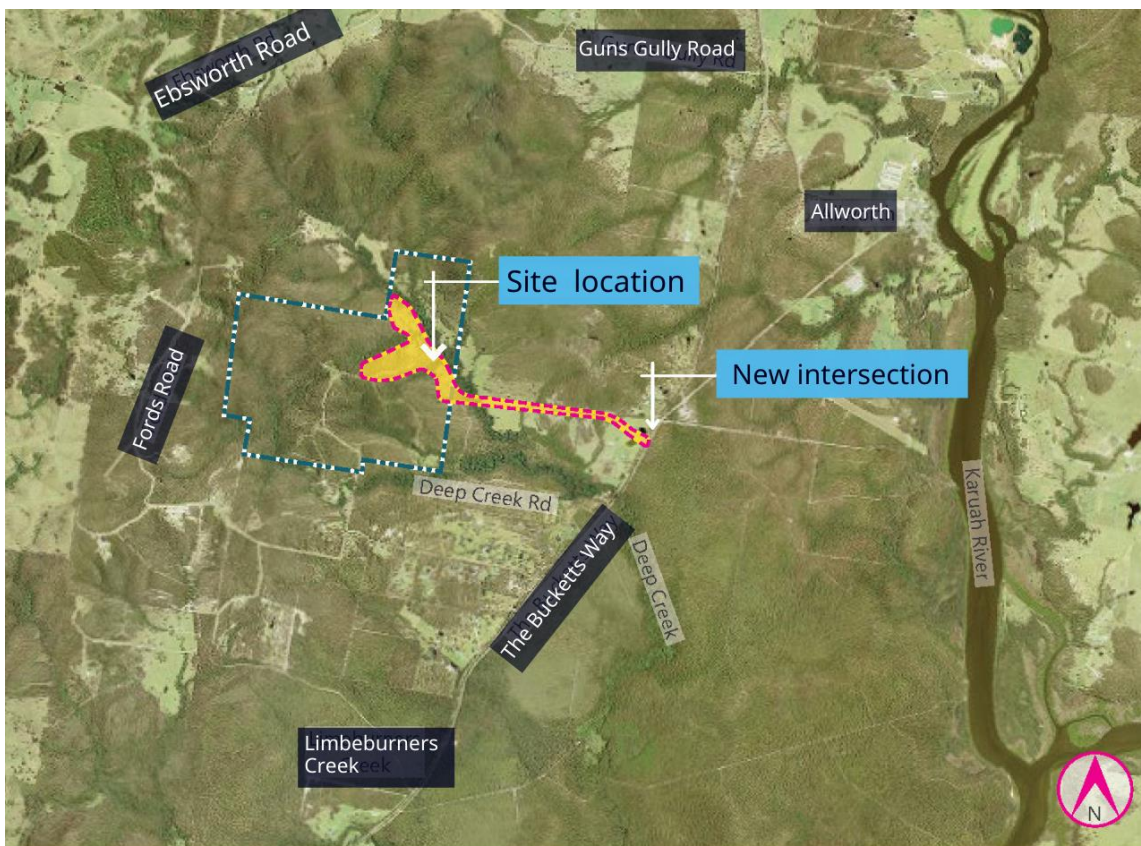
This section of the report sets out the geographical and policy context for the Project.

### 2.1 Location

The project location is off Deep Creek Road, in Limeburners Creek. The site is approximately 10km northeast of Clarence Town and 11km north-west of Karuah, within the MidCoast Local Government Area (LGA). Access to the site would be from The Bucketts Way via a new private access road with a new intersection on The Bucketts Way.

The Project site is located approximately 5 kilometres (km) west-southwest of the township of Allworth on Lot 48 in DP 753178 and Lot 472 in DP 1162208. The site sits within a property of 308 hectares. The quarry operations will cover approximately 30 hectares with 18 of these making up the extraction area.

Figure 3: Existing aerial view of the site (Mara Consulting Visual Impact Assessment 2021)





## Surrounding context

The proposed quarry site is located between the Limeburners Creek and Allworth communities on the western side of The Bucketts Way. Current legal access to the site from The Bucketts Way via Deep Creek Road or Forest Glen Road. The site sits within a valley that forms the watershed for Deep Creek. East of The Bucketts Way is the Karuah National Park and the Karuah River. The area surrounding the Project site is predominately comprised of dense bushland, large lot rural residential blocks and agricultural lands used for grazing livestock

## 2.2 Policy framework

The following review summarises key relevant state and local policy and strategic documents to illustrate the current policy context and the preferred direction for future use and development in the area. The Project falls within the MidCoast local government area (LGA).

### State policy and guidelines

The NSW Department of Planning, Industry and Environment (DPIE) is responsible for administering the *Environment Planning and Assessment Act 1979* (EP&A Act) and its subordinate legislation and policies. The EP&A Act is the primary land use planning statute in NSW. It governs matters such as planning administration, planning instruments, development assessments, building certification, infrastructure finance, appeals and enforcement.

The Act contains principles to guide planning authorities in making decisions. The objects are to:

- promote the social and economic welfare of the community and a better environment via the proper management, development, and conservation of the State's natural and other resources
- facilitate ecologically sustainable development by considering economic, environmental, and social factors in planning decisions
- promote the best use of land
- protect threatened and other species of plants and animals, and habitats
- allow better community participation in environmental planning and assessment.

### State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (Mining SEPP)

The aims of the Mining SEPP are, in recognition of the importance to New South Wales of mining, petroleum production and extractive industries, to:

- provide for the proper management and development of mineral, petroleum, and extractive material resources for the purpose of promoting the social and economic welfare of the State
- facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources
- promote the development of significant mineral resources



- to establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources.

The Mining SEPP also expressly requires the consideration of:

- the compatibility of a proposed mine with other existing and approved land uses
- impacts on water resources, threatened species and biodiversity
- the greenhouse gas emissions of a project.

### Hunter Regional Plan 2036

The Hunter Regional Plan is a NSW DPIE, 20-year strategic plan setting the guiding direction for the region. The project sits within the area covered by the plan. Specifically, Direction 6: Grow the economy of MidCoast and Port Stephens, states:

- 6.3 Enable economic diversity and new tourism opportunities that focus on reducing the impacts of the seasonal nature of tourism and its effect on local economies
- 6.4 Promote growth of industries that can leverage accessibility provided by the Pacific Highway.

### Local policy

The project is in the MidCoast LGA. Council and the communities it represents, are key stakeholders for the project. The plans and strategies supported by local government are representative of local communities and identify strategies and opportunities to further improve the liveability and resilience of these communities.

### Community Strategic Plan – MidCoast 2030

In 2018 Council released *MidCoast 2030 Shared Vision, Shared Responsibility: Community Strategic Plan (2018-2028)*, which sets out five strategic values, each supported by specific strategies. Those relevant to this SIA are:

- A connected community
  - It is safe and easy to get around our region
    - Plan for, provide and maintain a safe road network that meets current and future needs.
- Our environment
  - We protect maintain and restore our natural environment
    - Value, protect, monitor, and manage the health and diversity of our natural assets, wildlife and ecosystems
    - Protect, maintain and restore water quality within our estuaries, wetlands and waterways
    - Improve the capacity of industry and the community to achieve the best possible outcomes for the natural environment.
  - We balance the needs of our natural and built environments



- Ensure growth and new development complements our existing natural assets, cultural assets and heritage sites
- Optimise land use to meet our environmental, social, economic and development needs.
- Our thriving and growing community
  - Our region is a popular place to visit, live, work and invest
    - Provide an environment to grow and strengthen local businesses, and attract new business.
  - Our villages and business precincts are vibrant commercial, cultural and social hubs
    - Ensure strategies and processes recognise, maintain and support sustainable economic growth.



## 3 Methodology

The general approach used for the research and preparation of this SIA is listed below.

### 3.1 Project setting and context

The project context set out the preliminary information available about the project to determine the potential impacts. The approach included a review of available information, understanding the area of influence, potentially impacts stakeholders and local and state policies that may influence the project or be taken into consideration.

### 3.2 Consultation

The consultation was designed to meet the requirements of the SEARS. Community and stakeholder feedback was invited on the proposed development between September 2020 and August 2021. All feasible channels were used to reach as many people as possible to inform them of the project. When the consultation plan was developed with, COVID-19 measures in place.

### 3.3 Social baseline development

The social baseline sets the current environment of the community within the social locality prior to the project being introduced. It uses publicly available data to create a community profile for which the impact identification and assessment can be completed.

The social baseline study was prepared using:

- existing demographic, health, housing, and socio-economic data from the Australian Bureau of Statistics, government agencies, and local government
- published literature and social research
- government policies and plans
- documents relating to similar projects.

The social baseline provides the benchmark against which potential social impacts have been identified and assessed and informs subsequent stages.

## 4. Impact identification and assessment

The impact identification was determined as a result of the previous steps including review of technical studies, feedback provided during the consultation process and from the social baseline. This included:

- environmental constraints – review of specialist studies and similar projects in the area to identify potential impacts
- existing social environment – demographic and social analysis from the baseline study
- data analysis and consultation findings –to identify potential impacts and benefits
- local plans and policies –to understand local priorities and values.

The assessment of social impacts was conducted using the SIA Guidelines, which uses categories to identify social impacts. The categories are listed below.

*Table 2: Social impact categories*

IMPACT CATEGORIES	DESCRIPTION
<b>Way of life</b>	How people live, get around, work, play, and interact.
<b>Community</b>	Its composition, cohesion, character, how it operates and sense of place.
<b>Accessibility</b>	How people access and use infrastructure services and facilities whether provided by a public, private, or not-for-profit organisation.
<b>Culture</b>	Both Aboriginal and non-Aboriginal, shared beliefs, customs, values and stories, and connections to Country, land, waterways, places, and buildings.
<b>Health and Wellbeing</b>	Physical and mental health especially for people vulnerable to social exclusion or substantial change, psychological stress resulting from financial or other pressures, and changes to public health overall.
<b>Surroundings</b>	Ecosystem services such as shade, pollution control, and erosion control, public safety and security, access to and use of the natural and built environment, and aesthetic value and amenity.
<b>Livelihoods</b>	People’s capacity to sustain themselves through employment or business, whether they experience personal breach or disadvantage, and the distributive equity of impacts and benefits.
<b>Decision-making systems</b>	Particularly whether people experience procedural fairness, can make informed decisions, can meaningfully influence decisions, and can access complaint, remedy, and grievance mechanisms.

The social risk assessment considers each of the social impacts identified and predicts the nature and scale of potential social impacts during the life and closure of the project. A social risk approach is used to assess the consequences and likelihood of potential positive and negative social impacts with and without mitigation. The social risk assessment matrix used for the assessment was adapted from the SIA Guideline and the SIA Guideline Technical Supplement.



## Social impact tables

The following tables are sourced from the DPIE SIA Guideline Technical Supplement (2021) and used to evaluate the likely impacts (positive and negative) of the project.

Table 3: Defining likelihood levels of social impacts

Likelihood Level	Meaning
<b>Almost certain</b>	Definite or definitely expected (e.g. has happened on similar projects)
<b>Likely</b>	High probability
<b>Possible</b>	Medium probability
<b>Unlikely</b>	Low probability
<b>Very unlikely</b>	Improbable or remote possibility

Table 4: Characteristics of social impact magnitude

		Meaning
Magnitude	<b>Extent</b>	Who specifically is expected to be affected (directly, indirectly, and/or cumulatively), including any potential vulnerable people? Which location(s) and people are affected? (e.g. near neighbours, local, regional).
	<b>Duration</b>	When is the social impact expected to occur? Will it be time-limited (e.g. over particular project phases) or permanent?
	<b>Severity or scale</b>	What is the likely scale or degree of change? (e.g. mild, moderate, severe)
	<b>Sensitivity or importance</b>	How sensitive/vulnerable (or how adaptable/resilient) are affected people to the impact, or (for positive impacts) how important is it to them? This might depend on the value they attach to the matter; whether it is rare/unique or replaceable; the extent to which it is tied to their identity; and their capacity to cope with or adapt to change.
	<b>Level of concern / interest</b>	How concerned/interested are people? Sometimes, concerns may be disproportionate to findings from technical assessments of likelihood, duration and/or intensity.

Table 5: Defining magnitude levels for social impacts

Magnitude Level	Meaning and Examples
<b>Transformational</b>	Substantial change experienced in community wellbeing, livelihood, infrastructure, services, health, and/or heritage values; permanent displacement or addition of at least 20% of a community.
<b>Major</b>	Substantial deterioration/improvement to something that people value highly, either lasting for an indefinite time, or affecting many people in a widespread area.
<b>Moderate</b>	Noticeable deterioration/improvement to something that people value highly, either lasting for an extensive time, or affecting a group of people.
<b>Minor</b>	Mild deterioration/improvement, for a reasonably short time, for a small number of people who are generally adaptable and not vulnerable.
<b>Minimal</b>	Little noticeable change experienced by people in the locality.

Table 6: Social impact significance matrix

		Magnitude Level				
		1	2	3	4	5
Likelihood level		Minimal	Minor	Moderate	Major	Transformational
<b>A</b>	Almost certain	Low	Medium	High	Very High	Very High
<b>B</b>	Likely	Low	Medium	High	High	Very High
<b>C</b>	Possible	Low	Medium	Medium	High	High
<b>D</b>	Unlikely	Low	Low	Medium	Medium	High
<b>E</b>	Very unlikely	Low	Low	Low	Medium	Medium

## Impact management and monitoring

After identifying potential social impacts and their risks, a mitigation and management framework is developed to manage each risk. The framework identifies:

- impact mitigation measures for construction and operations
- measures to maximise the potential benefits from the project during construction and operations
- partnership opportunities.



## 5 Consultation

Consultation for the SIA were focused on the targeted engagement with key stakeholders to understand perceived impacts and benefits.

Consultation has provided opportunity for stakeholders and members of the community to learn about the project and for the proponent to capture and respond to the matters being raised.

### 5.1 Survey

A survey was open to the community between 10 May 2021 and 4 August 2021. A total of 21 responses were received during this time. Ironstone Community Action Group Inc (ICAG Inc) requested printed surveys to be sent to the group. A package of 20 printed surveys with a replied paid return envelopes in an express post envelope was sent to ICAG Inc. At the time of writing the report, no printed surveys had been received.

Survey responses identified the following:

- More than 50% relied on family, friends or neighbours, or 23% from a community group for information about the project. Only six had visited the project website
- Most believed they had a good understanding of the project
- Noise, dust, traffic and impacts on environment were most raised in the open-ended comments
- In general respondents were not supportive of quarrying in the area or the proposal
- Most believe the proposal would have a negative impact on their daily lives.

### 5.2 Stakeholder interviews

A series of in-depth interviews with key stakeholders were held to inform the SIA. The interviews aimed to understand what the perceived impacts and opportunities arising from the proposal. Stakeholder interviews were held with:

- MidCoast Council – Social Planner
- MidCoast Council – Senior Ecologist
- MidCoast Water – Water Planning and Assets
- Port Stephen – Environmental Planner
- Hunter Water – Water Quality Planning team, and Property Manager
- Transport for NSW – Development Services representatives
- Nearby residents – Five nearby residents
  - Marie-Jean Richmond
  - Amanda and Stephen Albury (also representatives of ICAG community group)
  - Jann Jeffries
  - Mark and Debbie Lancaster
  - Stephen Gibberd.

Interviews with the MidCoast Council Senior Ecologist revealed that Council and the community are concerned with environmental impacts in the area. Specifically, loss of biodiversity was raised and



suggestions were made to provide a vegetation buffer around the Project. The Senior Ecologist also recommended that offsets be provided locally to sustain the local biodiversity.

The Community Development Officer from MidCoast Council identified potential impacts to the community including: noise from blasting and trucks, traffic along The Bucketts Way, increases in dust and effects on health, and the condition of local roads. The suggestion was made to mitigate the concerns by providing contributions to the community for upgrades to community facilities and infrastructure.

The Environmental Planner at Port Stephens Council was interviewed to identify downstream impacts on roadways and waterways. The main concerns raised included the traffic delays at the intersection of The Bucketts Way with the Pacific Highway (upgrades to intersection are needed). Biodiversity was also raised as a concern, specifically protection of the Rusty Green Orchid that is found in the region.

The TfNSW representative identified the intersection of The Bucketts Way and Pacific Highway as the primary concern. There are existing traffic delays at the intersection and adding more traffic may cause drivers to perform dangerous actions to enter the highway.

### 5.3 Online community information sessions

Two online community information sessions were held on 4 August 2021. A mid-morning session from 10-11am, and an evening session from 6pm – 7pm. The event was structured to provide opportunities to ask questions and gather detailed information about the proposal. There were 12 participants across the two sessions. It included

- introduction of the project
- video presentation – 15minute overview of the proposed project
- questions raised prior to the meeting and answered in the online sessions
- facilitated Q&A

The sessions were initially to be held in-person at the community hall, however, with the quick escalation of COVID-19, the sessions were held online to ensure the safety of participants and the project team. While there were concerns over internet connection for some participants, all efforts were made to provide opportunities to participate in the session or access the presentation after the sessions. Measures included:

- accessing the video presentation via the project website
- a factsheet with questions and answers available on the project website. This was available for download
- the feedback period was extended by a week to provide extra time to submit questions or request for further information.

As at the 13 August 2021, two emails had been received and responded to by the project team.

## 5.4 Key themes that emerged

### Traffic and truck movements

Stakeholders representing the broader community and nearby residents, raised concerns with traffic, the state of The Bucketts Way and truck movements via the proposed access road. Residents feel that an increase in vehicles would create a bigger risk to road users. Other comments related to the lack of maintenance of the road with greater degradation of the road surface with the increase in heavy vehicles. Comments relating to what respondent's value least in Limeburners Creek, about 40 per cent related to the current traffic and condition of The Bucketts Way.

Transport for NSW (TfNSW) raised issues with the intersection of the Bucketts Way with the Pacific Highway which causes a line-up of traffic in peak times. Additional vehicles using the intersection could put more pressure on the intersection. Drivers are more likely to take risky decisions in these circumstances. This sentiment was also raised by stakeholders. Council is responsible for the Bucketts Way Council. TfNSW noted the road had recently been resurfaced in the proximity of the potential access road.

The traffic assessment specifies at peak operation there will be an average of 55 laden trucks per day leaving the site. There will be a further 10 light vehicles and 6 other vehicles for deliveries, visitors, and services that access and leave the site each day.

### Access road including landscaping

Stakeholders highlighted concerns about using Forest Glen Road and Deep Creek Road as the access road. Based on this feedback, the project team investigated alternatives and secured an agreement to create a new private access road, directly from The Bucketts Way to the quarry. The access road will be approximately 1.6km north of the Forest Glen Road intersection. The plan is for a two-lane sealed road, with a new intersection to be constructed on The Bucketts Way which will include acceleration and deceleration lanes.

Stakeholders living in close proximity to the access road asked about visual screening of the access road. There will be a mix of native trees and shrubs along portions of the access road. Vegetation will be planted into an earthen bund intended to reduce noise and increase the visual screening effect.

### Compensation and property value

There was a perception from some stakeholders that a quarry in the vicinity would devalue property prices. Compensation was also asked about in relation to potential property damage and acquisition. This project will be subject to the requirements of the Voluntary Land Acquisition Policy. This includes compensation through to voluntary property acquisition where criteria are exceeded.

### Noise management, vibration, and blasting

Noise, vibration and blasting were the overwhelmingly the most common concerns raised by stakeholders. People value the quiet way of life in Limeburners Creek. A high proportion of comments



showed that it was quiet and a peaceful way of life in Limeburners Creek. Substantial and enforceable noise mitigation would be needed to reduce the impacts on residents. Additionally, the noise assessment should consider the nearby residents. A request for detailed information about how blasting is to be managed was detailed in feedback received.

### Air quality and dust management

Stakeholders considered air quality as a major concern for the project. Some noted health concerns of a nearby resident. Stakeholders said that substantial and enforceable dust mitigation would be required to reduce the impacts on the local community. There was a request for automated dust monitors as part of the project.

### Impact on flora and fauna

Respondents noted environmental impacts as an issue and are concerned wildlife habitat would be removed. Some stakeholders wanted more information about the impacts on koala habitat and raised concerns about impacts on koalas in the area. Comments also related to vegetation, particularly as it provides a corridor for native fauna. One suggestion submitted calls for relocating wildlife from the proposal footprint prior to any work occurring. There was also a request to protect trees, particularly on the ridgeline as well as offsets for bushland that will be impacted.

### Visual amenity impacts

Some respondents and local residents were concerned that having a quarry nearby would spoil the rural, bushland landscape. Similarly, stakeholders did not believe the quarry could be shielded from sight.

### Impact on livelihood and ability to use land for tourism

The potential change to the way people work and use their land in the Limeburners Creek area were seen as negatives. Stakeholders value the rural setting for living and recreating in a peaceful setting. One stakeholder was concerned about the impact to future business or tourism opportunities.

### Broad concerns about other projects in the area

Local government stakeholders and community members were concerned about cumulative impacts from other similar projects in the Port Stephens and MidCoast LGAs.

### Water management

Multiple stakeholders noted concerns about potential discharge into waterways. Port Stephens Council stated any water discharge from the site would need to meet NORBY or higher water quality targets and a maintenance of the current water quality and quantity discharging to the Karuah River system. It was also expected that all discharge water would be treated and discharged from site in accordance with EPA requirements. Stakeholders also referenced Deep Creek and the proximity to the proposal and were concerned with spills and runoff.



## Effective sharing of project information

Community members and nearby residents indicated they relied on “word of mouth” information to find out about the project. Many noted they had a high or extremely high level of knowledge about the detailed proposal. Many stated they had never visited the project website and wanted more information about the proposal.

Feedback from stakeholders show there is a confusion about the EIS process stages, how and when to provide feedback. Concerns were raised about the ability to access project information or attend online information sessions due to the limited internet access in the area. Additionally, stakeholders questioned how inquiries and complaints would be managed if the project was approved.

## Return and benefit for the community

Respondents said there would be little value or return for the local community. Few indicated they supported the project. The estimate of ten jobs was seen as not enough to balance the change in the community resulting from the proposal.



## 6 Social baseline

A social baseline study is a requirement of the New South Wales (NSW) Department of Planning, Industry, and Environment's (DPIE 2021) Social Impact Assessment Guideline, 2021. The baseline study describes the existing population and social conditions of potentially affected communities within the social impact assessment (SIA) area of social influence which form the benchmark against which the social impacts are assessed.

The Guideline states that a social baseline is crucial to understand the relevant pre-existing social pressures (DPIE 2020). A social baseline analysis provides a background into the existing environment, associated cultural and social values of the study area and area of social influence. It also provides a benchmark against which direct, indirect and cumulative impacts can be analysed and change can be measured.

### 6.1 Social locality (Study area)

The area of social influence of the Project is limited to the communities of Limeburners Creek and Allworth in the MidCoast Council Local Government Area (LGA). This area of social influence was based on an assessment of the communities likely to be impacted by the proposal and of the geographic proximity of residents and businesses to the project site.

The project is located within the northern portion of the state suburb (SSC) of Limeburners Creek and may directly impact landowners, residents and businesses within the vicinity of the project site. Even though the project is contained within a defined area, impacts (direct and indirect) may be farther reaching. This SIA therefore, considers two scales of study areas: a local study area and a regional study area.

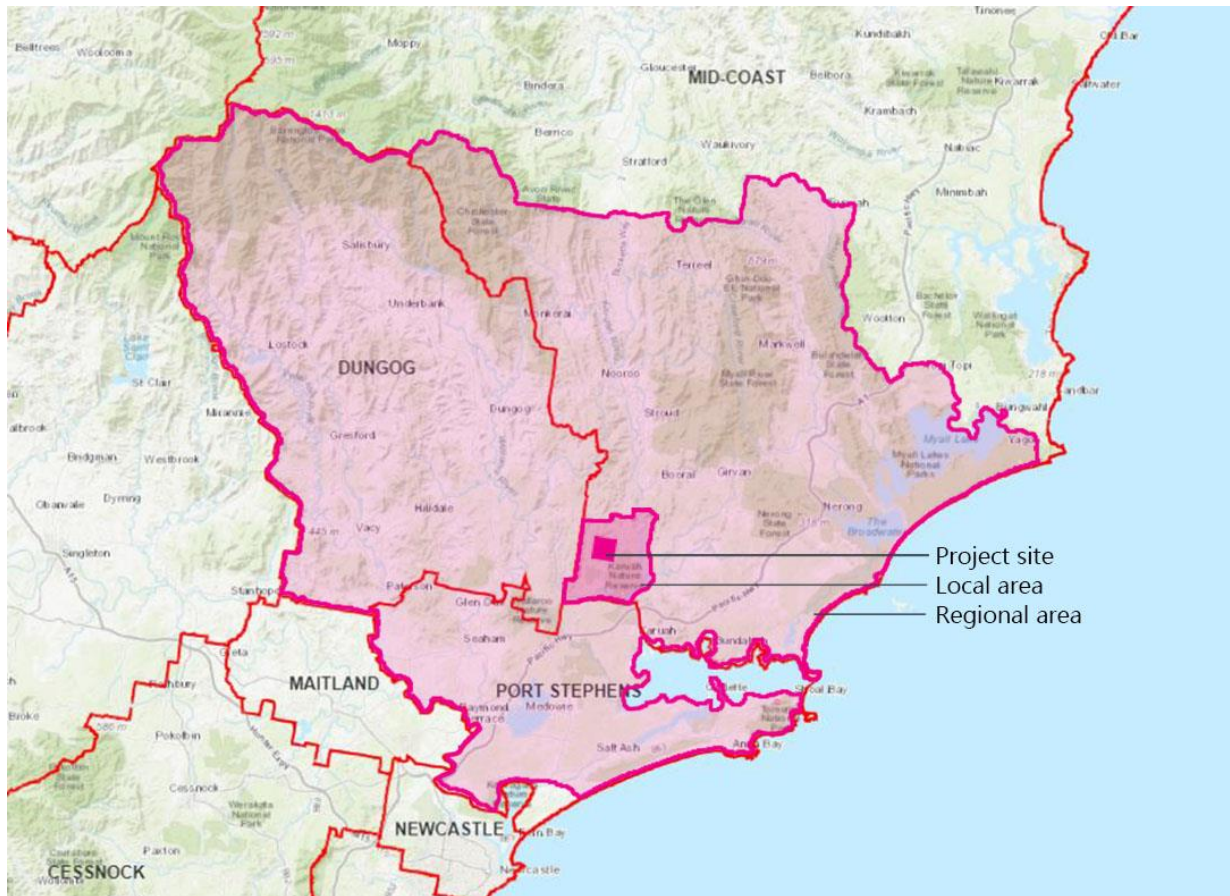
The local study area is defined as the area covered by the Limeburners Creek SSC and Allworth SSC. This is the area most likely face impacts to local social infrastructure and services, local workforce, local business, local housing and accommodation, and community health and wellbeing.

Broader impacts due to use of infrastructure, supply chains, haulage routes, transportation of materials and equipment and workforce may affect a larger regional area. These factors require the area of social influence to extend and include portions of the MidCoast Council LGA, Port Stephens LGA and Dungog LGA. These areas have been mapped to the Australian Bureau of Statistics (ABS) Statistical Area Level 2 (SA2) and Level 3 (SA3). The study areas are identified in Table 7: Study areas and Figure 4: Study locality with the local area outlined in pink

Table 7: Study areas

Study Area	Geographic area	ABS data category	Referred to as:
Local study area	Limeburners Creek Allworth	SSC SSC	Local area
Regional study area	Bulahdelah – Stroud Port Stephens Dungog	SA2 SA3 SA2	Regional area
State of New South Wales	NSW state	NSW STE	NSW

Figure 4: Study locality with the local area outlined in pink





## 6.2 Community

### Demographics

According to the 2016 Census of Population and Housing, the local area had a total population of 502 people (ABS 2016). These residents are the Project's immediate neighbours and are most likely to be directly impacted by the proposed works.

The regional area had a 2016 population of 85,079. Analysis of ABS data shows that the population of the regional area has been increasing at a lower rate than NSW from 2006-2016. The local area population has grown at a higher rate than the regional area, and more in line with NSW.

In the local area, the largest age group is persons aged 60-64 years (19.9%), followed by 5-9 years (18%) and 50-54 years (16.7%). This indicates a large portion of the population is 50 years and older, or less than 9 years old. This differs from the major age groups in NSW, which are 30-34 years (7.2%) and 25-29 years (7.0%). The regional area has its largest age groups between 50-64 years, which is consistent with the local area. Overall, the study area has an older population than NSW with much larger proportions of elderly persons (aged 60 years and older) in the local area and 37.2% in the regional area, compared to 21.8% in NSW. This is also reflected in the median ages of the local area (45) and regional area (52), which is significantly higher than the median age across NSW (38).

## 6.3 Social baseline and impact categories

### Way of life

#### Household composition

Household compositions in 2016 were mostly family households in Limeburners Creek (80.7%), the regional area (71.6-74.3%) and NSW (72.0%). Allworth has a higher proportion of lone person households (48.6%) than family households (47.2%). Lone person households were much lower in Limeburners Creek (16.5%) with the regional area and NSW ranging between 23.8-25.3%.

There were fewer group households in Limeburners Creek (2.8%) than in Allworth (4.2%). The Limeburners Creek proportion of group households is similar to the regional area, while the Allworth proportion is the same as NSW. The fewer number of group households may indicate a lower proportion of young adults in the local and regional areas while the higher proportions of lone households may reflect higher proportions of older persons.

#### Housing

The most common type of house within the study area in 2016 was almost exclusively separate houses (97.1 and 100%). This was similar to Bulahdelah – Stroud (95.4%) and Dungog (96.0%). Port Stephens was much lower at 79.6% with NSW at 66.4%.

The local area had no other types of housing available, and the regional area had very few, with Port Stephens having semi-detached, row, terrace or townhouse (13.7%) as the next highest housing type. In



NSW, separate houses was the most common at 66.4% followed by flat or apartment at 19.9% and semi-detached, row, terrace or townhouse at 12.2%.

At the time of the 2016 census, 40.7-43.6% of the dwellings in the local area were owned outright. This is similar to the regional area (38.7-46.0%) but higher than NSW (32.2%). A higher percentage of houses were owned with a mortgage in Limeburners Creek (50.0%) than other areas. The Allworth proportion (37.2%) was similar to the regional area (30.5-37.1%) with NSW at 32.3%.

Residents in the local area paid less for mortgage repayments (\$1,430) each month in 2016 than Port Stephens (\$1,690) and Dungog (\$1,662). Bulahdelah – Stroud had lower mortgage payments at \$1,365, and NSW had much higher payments at \$1,986.

The proportion of rented houses in the local area was very low (6.5 and 14.1%) compared to 17.6-26.4% in the regional area and 31.8% in NSW. Rents in the local area (\$200-230) were slightly lower than the regional area (\$230-300) and significantly lower than NSW (\$380)

## Travel

The predominant mode of travel to work within the local area is by car. Rates of persons driving to work in the local area (81.5 and 75.8%) is higher than the regional area (62.4-70.3%) and significantly higher than NSW rates (61.5%). This is true for travelling to work as a driver and as a passenger as well.

## Culture

The traditional owners of the land on which Deep Creek Quarry is located are the Worimi People. There is a long history of rich culture with indications of people living around the Great Lakes and Port Stephens area.

In 2016, 9.8-10.1% of the local population and 4.8-5.4% of the regional area population identified as Aboriginal and/or Torres Strait Islander (ABS 2016). The proportion is greater than the proportion of the population who identify as Aboriginal and/or Torres Strait Islander in NSW (2.9%).

## Cultural diversity

Cultural diversity in the local and regional areas is much lower than across NSW. In NSW, the proportion of the population born in Australia is 65.5%, as compared to 79.7-86.3% of the population in the local area born in Australia. The population of the regional area is similar to the local area, with rates of 80.7-86.7% born in Australia. The local area and regional area also have a greater proportion of intergenerational Australians, with 67.8-74.1% persons with both parents born in Australia.

A significantly smaller proportion of households in the local area (3.3%) and regional area (1.9-5.1%) speak a non-English language at home compared to 26.5% in NSW. This may indicate a lower number of migrants in the local and regional area, which is consistent with the preference of migrants in Australia to settle in major cities.



## Accessibility

### Public transport

Public transport as a mode of travel is negligible in the local area with no persons travelling to work by public transport. This compares to 0.7-1.5% in the regional area and 11.5% in NSW.

Public transport services are available in the local area with bus and coach services operating locally and regionally along The Bucketts Way.

Scheduled routes and school bus services are both available within the local area. All buses use The Bucketts Way, which is the main road through the local area. The school buses enter the community of Allworth and then return to The Bucketts Way.

### Road network

The local area is reliant upon The Bucketts Way to connect to the wider region. It runs north to Booral and Stroud, and south to Pacific Highway. The intersection of The Bucketts Way and Pacific Highway is at grade and has been identified as an area that develops significant waiting times to enter the highway.

## Health and wellbeing

According to PHIDU (2021) 15.8-18.5% of persons aged 15 years and over within the regional area self-assessed their health as fair or poor. This compares to 14.1% for persons within NSW. Looking at smoking, alcohol, obesity, asthma, and disability indicators also show that the local and regional areas have significantly poorer health when compared to NSW.

Key health and wellbeing indicators for the local area include:

- There are higher rates of obesity than in NSW
- The rate of smoking is higher than in NSW
- Alcohol rates are higher than in NSW
- Asthma rates are slightly higher than NSW rates
- Psychological stress is similar to NSW rates.

The need for assistance relates to one or more of three core activity areas of self-care, mobility, and communication due to a disability, long-term health condition (lasting six months or more) or old age (ABS 2016). The local area has a smaller proportion of persons who require assistance (3.1-4.7%) when compared to the regional area (5.7-8.4%) and NSW (5.4%).

## Surroundings

### Local environment and built form

The local area is characterised by rolling hills that are covered with bushland. The areas along The Bucketts Way and peripheral roads are typically cleared rural lots with grassed grazing lands and residential structures. The nearest township is Booral, some 10.5km north of the Project site.



The larger region has access to shoreline and beaches from Fullerton Cove and Nelson Bay to Seal Rocks to the south and east. To the north is mountainous with the Barrington Tops and connected areas. Tourists are attracted to both the shoreline and the mountains, with The Bucketts Way as a main route to both destinations.

## Livelihoods

### Income

The median income of all residents over 15 years of age in the local area was similar to the regional area with values ranging from \$475 to \$606. Limeburners Creek was lower on the range at \$514, with Bulahdelah – Stroud (\$475) the only area with a lower median income. Allworth was at the higher end of the range (\$606), and well above the regional area median incomes. NSW median income was much higher (\$664) than the other areas.

Median household incomes followed a different trend with Limeburners Creek (\$1279) having the highest median income in the local and regional areas. Allworth (\$1050) had the second lowest median income with Bulahdelah – Stroud (\$990) the lowest. NSW was significantly higher, with a household median income of \$1486.

### Employment

At the time of the 2016 census, the unemployment rate in the local area was lower than the LGA (7.4%) and NSW rates (6.3%) with Cooks Hill at a rate of 6.1% and The Junction at 5.0%. The rate of full-time work in the local area (61.3% and 58.6%) was slightly higher than the LGA (55.0%) and on par with NSW (59.2%) rates. The rate of part time work was similar across all areas with Cooks Hill (28.8%) and The Junction (31.7%) to the LGA (32.7%) and NSW (29.7%).

The top three occupations in the local area were professionals (41.7 and 37.9%), managers (10.7 and 12.5%) and community and personal service workers (12.4 and 9.9%). The LGA and NSW also list professionals as the top occupation, with clerical and administrative workers as the second occupation.

### Socioeconomic advantage and disadvantage

The level of disadvantage or advantage in the population is indicated in the ABS (2016) Socio-Economic Indexes for Areas (SEIFA) which assesses the economic and social conditions of households. Variables considered in the assessment of SEIFA include household income, number of dependents, occupation, housing costs and overcrowding/under-occupancy (ABS 2018). Areas have been considered by state ranking on a scale of 1 to 10, with the lowest 10% of areas deemed most disadvantaged and highest 10% least disadvantaged.

According to the 2016 SEIFA, the local area (Limeburners Creek and Allworth) is in the lower 50% of communities in NSW in terms of disadvantage. The regional area ranks in higher deciles than the local area, except for the Bulahdelah – Stroud area.

In terms of the local area, rankings of 2 and 3 for IRSD and IRSAD means that compared to other suburbs across NSW, there is likely a higher proportion of households with low income, people without



qualifications, and people in low skill occupations. This also suggests that the local area has a smaller proportion of households with higher incomes, or a smaller proportion of people in skilled occupations.

Ranking in the third decile for IER (Allworth) suggest that compared to other suburbs across NSW, there is a greater proportion of households in the local area with low income or households paying low rent. It also suggests that a smaller proportion of households with high income occur in Allworth. Ranking in the second and third decile for IEO suggest that there may be more people without qualifications, more people in low skilled occupations, or higher unemployment. Conversely it may indicate fewer people with high level qualifications or in highly skilled occupations.

## Education

Education levels achieved within the local area are lower when compared against the regional area and NSW. The local area has a higher proportion of certificate III holders (16.1 and 26.8%) compared to 18.1-18.7% for the regional area and 12.8% for NSW. Certificate IV level of attainment is fairly similar across all areas, ranging from 2.2-4.0%. There is a significantly lower proportion of tertiary education (bachelor degree level and above) within the local area (5.4 and 3.9%) than the regional area (8.7-12.1%) and NSW (23.4%).

## Decision making systems

This SIA has engaged with stakeholders to inform the assessment of impacts from the Project. Community members will have the opportunity to engage in the decision-making process via submissions during public exhibition of the EIS after submission to DPIE.



## 7 Impact identification and assessment

Social impacts are the way people experience change. The aim of this SIA is therefore, to assess changes to the current social conditions within the community that may be caused by the proposed development.

This section of the SIA identifies and assesses the magnitude and likelihood of potential impacts (positive and negative) relating to the construction and operation of the project. Impacts have been identified using data collected for the social baseline, stakeholder engagement findings, academic research, previous school upgrade SIAs and relevant government and agency reports.

### 7.1 Summary of project technical reports

The following section outlines key outputs from project technical assessments that require consideration in the SIA.

#### **Noise impact assessment**

The Noise and vibration impact assessment (NVIA) (Spectrum Acoustics, 2021) considered impacts from site establishment, construction, and operations (extraction, blasting, processing, product dispatch and maintenance). It includes all stages (1 to 4) of the extraction area, the quarry infrastructure and stockpile areas, the mobile processing plant and internal and quarry access roads.

Privately-owned residential properties within approximately 3 km of the site were assessed as receivers. Each receiver was assigned a number (i.e., R3, R33) for reference in the report. The locations are illustrated in the NVIA. Existing noise levels were established at R33, which was used as a reference for all receivers.

The NVIA report:

- Concludes that the development would be able to operate in compliance with the appropriate criteria for operational and road traffic noise emissions and for potential blast overpressure and vibration impacts.
- Recommends that noise monitoring is conducted on commencement of construction and on a quarterly basis for at least the first year of operation (including for on-site heavy vehicle movements) to determine compliance with the noise criteria and to inform any further noise mitigation works, should the need arise
- Recommends that each blast event be monitored, with monitoring protocols established in an approved Blast Management Plan.

The NVIA report notes that:

- Predicted operational noise exceedances were minor and limited to specific weather conditions at three properties, two of which are currently unhabitated with no approved dwelling. Ironstone Developments Pty has a negotiated agreement with these properties.:



- Receiver R25: 2dB exceedance under ESE winds during Stage 2, and at, but not exceeding noise criteria during ESE winds in other Stage 1 and 3.
- Receiver R3 (associated property): 4-8 dB exceedance under WNW winds from Stage 2 onwards.
- Receiver R4a (associated property): 4 dB exceedance under WNW winds from Stage 3 onwards.
- Ground vibration and overpressure levels from blasting for all assessed residential receivers are predicted to be significantly below the 5% exceedance criteria (a maximum of 5% of blasts per year can exceed the criteria)
- The off-site traffic noise criterion for arterial roads would be achieved for all receivers.

The report states in terms of construction noise and management:

- Receiver R4A: <2dB exceedance during construction

Given that receiver 3, 4, and 4a have agreements in place with Ironstone Developments Pty Ltd accounting for potential noise impacts due to quarrying activity, and R25 has no dwelling, there are no instances where predicted noise levels exceed criteria (construction or operational) at any dwellings.

The criteria for noise levels are derived from:

- Interim Construction Noise Guideline (DECC, 2009)
- NSW Noise Policy for Industry (NPI).

## Traffic and transport

The Traffic impact assessment (TIA) (Intersect Traffic, 2020) concludes that the proposed development will not have an adverse impact on the local and state road network in the vicinity of the site and that the network is suitably safe for use by quarry traffic, meeting all the minimum requirements of MidCoast Council, Austroads and NSW Roads and Maritime Services (RMS).

The TIA notes the matters outlined below regarding the traffic impact of the development's operations.

### Traffic efficiency

Currently the local road network around the site operates at good levels of efficiency, with motorists on the local road network experiencing a good level of service with little or no delays due to the combination of low traffic volumes and a suitable standard of road construction.

Traffic efficiency is satisfactory even at peak operations of the development and remains within relevant standards for capacity and levels of services, in particular:

- The proposal results in an increase of up to 252 vtpd or 52 vtph during peak sales days on the road network. While the increase has an impact on traffic efficiency, it will not cause the road network to reach its technical capacity, such that motorists would experience satisfactory Levels of Service (LoS) on the road network during the quarry's operation.
- The intersection will operate satisfactorily post development during the quarry's peak trading periods with the average delay, levels of service and queue lengths for all movements remaining within the TfNSW criteria for satisfactory operation.

- The modelling of peak hour traffic at the private access to the Deep Creek Quarry development at its 2030 maximum on the Bucketts Way and on the new access road indicates that peak traffic volumes fall well below the thresholds for uninterrupted flow conditions per the Austroads Guide to Traffic Management (2009) relating to intersections, interchanges and crossings.

### Amenity

- As the complete haulage route is proposed to be sealed, dust generated from the haulage traffic will be insignificant provided all loads are covered as required by law in NSW.
- A Traffic Management Plan and Driver Code of Conduct for the quarry would enable much of the road noise and residential amenity issues associated with heavy vehicle traffic to be controlled and would be expected to form part of the development's approval.
- Traffic volumes on the local road network are within the environmental road noise threshold levels for local and collector roads (per RMS' RTA's *Guide to Traffic Generating Developments*). However, road noise the operation of large haulage trucks can generate significant noise particularly when returning to the quarry empty and this impact is addressed in a separate report.

### Road safety

- The main road safety issues for this proposal are traffic type, road geometry and intersection safety, with the quarry generating a high proportion of heavy vehicles particularly rigid truck and trailer combinations.
- The road alignment within the Bucketts Way and the Pacific Motorway are considered suitable for the speed zoning currently regulated. As a regional road The Bucketts Way already carries significant heavy vehicle traffic and is assessed as suitable for traffic generated by the quarry, as is the Pacific Motorway.
- Intersection safety, specifically the Pacific Motorway / the Bucketts Way intersection and the Bucketts Way / Private Quarry Access intersection, is most relevant to road safety for this proposal.
- Intersection safety is generally dependant on traffic volume, sight distance and geometry and the following is noted in this regard:
  - The Pacific Motorway / the Bucketts Way intersection exceeds the required desirable sight distance.
  - The proposed Bucketts Way / Private Quarry Access intersection has suitable road geometry, and the available sight distance exceeds requirements. A crest may interfere with the sight distance to the south however this can be easily redesigned to ensure the standards are met.
- The proposed quarry access will operate with uninterrupted flow conditions and suitable acceleration and deceleration lanes are to be included in the access design in accordance with Austroads guidelines to facilitate a safe operating intersection complying to the standards.
- It is considered that the road pavements on the existing haulage route from the quarry to the arterial road network are satisfactory. The haulage route appears to be constructed of a suitable pavement for use by heavy vehicles given the existing condition of the road network and its current use by heavy vehicles.

The TIA notes further that alternative transport modes available to the site are non-existent and would not provide any benefit to the proposal. The proposal does not increase the demand for alternate transport modes. It states no additional infrastructure for alternative transport modes is required.

The TIA notes the following matters regarding the development's traffic impact during construction:



- Construction traffic generated by the development is minor and unlikely to exceed 20 vtp. Construction works would not be expected to last for longer than 6 months. This level of construction traffic is considered minor and as a short-term impact would not adversely impact on the local road network.
- Construction traffic management plans prepared for the construction works would alleviate any concerns relating to the impacts of construction traffic including safety issues. The plan would include traffic control plans where required.

## Aboriginal cultural heritage assessment

The Aboriginal cultural heritage assessment (ACHA) report (Insite Heritage, 2021) notes that:

- While the consultation process did not identify any specific cultural values associated with the study area, the cultural significance of the study area is moderate as an area containing evidence of visitation in the course of resource gathering.
- The scientific significance of the study area is low, due to low density, non-complex sites resulting from peripheral occupation.

The AHCRA report accordingly recommends that:

- As the access road and the detention basins will impact on the low- density sites found by test pits, artefacts located in the test pits are retrieved and reburied on site in an area that can be protected in perpetuity, in order to minimise the impact of the harm. These recommendations were developed based on consultations and the reburial area would be selected in consultation with the community.
- Aboriginal Heritage Information Management System is updated with an impact recording and new location details once the artefacts have been retrieved and reburied.
- The protocol outlined in the report is observed in the event of discovery of a previously unknown object in the course of construction works:
- in the event that any potentially human skeletal remains are uncovered during works all work in the immediate area of the remains halts and the reporting and related protocols outlined in the report are followed prior to the resumption of works.
- Contractors undertaking earthworks are provided with a documented Aboriginal Cultural Heritage Awareness induction as part of site induction procedures, which outlines protocols for discovery of previously identified Aboriginal objects and information to aid in the identification of Aboriginal objects.

## Historic heritage

The Historic heritage assessment report (Insite Heritage, 2021) concludes that, based on the historic record of the study area and its immediate surrounds, along with a physical inspection, the study area has been assessed as being of no heritage significance, noting that:

- No historic non-Indigenous heritage items or structures or potential deposits were located during the field inspection and no evidence of any other activity other than historical grazing was found during the onsite inspection.



- The dam associated with 'The Mill Paddock' remains within the study area however it will not be impacted by the proposed quarry activity.

## Air quality

The Air quality impact assessment (Todoroski Air Sciences, 2021):

- Notes that the modelling predictions do not indicate any exceedance of the relevant pollutant impact assessment criteria at the residential receptors and therefore makes no recommendation for specific ambient air quality monitoring at the residential receptors.
- Concludes that the quarry's proposed operations have the potential to generate dust emissions.
- Recommends that all reasonable and practicable dust mitigation measures are utilised to ensure that operational activities have a minimal effect on the surrounding environment and at residential receptor locations.
- Identifies a range of reasonable and practicable dust mitigation measures that address exposed areas/ stockpiles, material handling, hauling activities and a range of general mitigations (for example fitting vehicles and plant are fitted with pollution reduction devices where practicable).
- Anticipates that a suitable Operational Environmental Management Plan would be developed for the quarry site that would expressly outline the measures to manage dust emissions at the site and include aspects such as key performance indicators, response mechanisms and complaints management.

## Biodiversity assessment

The Biodiversity Development Assessment (BDA) Report (Kleinfelder biodiversity report, 2020) assessed the biodiversity impact and offsetting obligation of the project under the under the Biodiversity Conservation Act 2016 (BC Act) and identified:

- Four Plant Community Types impacted by the project.
- Seventeen threatened species listed under the BC Act within the study area, of which four species, including the Koala, are listed as vulnerable species under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).
- The New Holland Mouse, which is listed as vulnerable under the EPBC Act, as detected within the development site in terrestrial trapping surveys.
- No Serious and Irreversible Impacts were identified within the development site.

An EPBC Referral has been prepared for the project. The BDA Report notes that a range of mitigation and management measures have been incorporated into the Project to reduce impacts on biodiversity during construction and operation and identifies the following required offsets for the residual impacts of the project:

- 539 ecosystem credits and
- 1,762 species credits required, including 736 for koalas.

Existing roads, non-native vegetation and existing infrastructure areas within the development site were identified as areas of impact that did not require further assessment under applicable legislation.



## Ground water

The Groundwater Assessment (Hydrominex Geoscience Consulting, 2021) identifies and assesses as 'Low' the following risks to groundwater and surface water associated with the proposed quarry development:

- change in groundwater levels and base flow conditions to Groundwater Dependent Ecosystems (GDEs)
- acid mine drainage or iron contamination
- changing physical and chemical conditions of the water source
- changing the beneficial use of the water source
- causing impacts to other groundwater users
- impacting cultural sites.

The Groundwater Assessment notes that:

- Groundwater at the site consists of moderate quality water that is acceptable for some agricultural uses but is not potable.
- Quarrying operations in similar volcanic units in the same Water Sharing Plan area are recorded to be essentially dry. The predicted low inflow of groundwater into the quarry will allow groundwater to accumulate in the base of the pit, where it will evaporate and be available for site activities, such as dust suppression and on-site infrastructure.
- Identified terrestrial Groundwater Dependent Ecosystems GDE's are located throughout the area around and including the site, however quarry operations are not expected to have any significant impact on GDE's in the area.
- Groundwater discharge into the quarry is not envisaged to be a significant impact on the surface water in Deep Creek or on any adjacent riparian land.
- Registered groundwater bores are located 2 km or more from the site, with only 3 within 6 km. The assessment concludes that quarrying operations and incidental groundwater discharge into the proposed quarry pit will not cause any impact to the known registered bores in the area around the site.
- There are no known cultural sites which could be affected by changes to the groundwater environment during or post mining.
- Potential contamination sources during quarry operations would be associated with:
  - hydrocarbon leaks from refuelling equipment or mobile earthmoving equipment, and spills in fuel (and limited chemical) storage facilities and the proposed mechanical workshop and
  - site toilet and wastewater facilities

In relation to contamination risk the Groundwater Assessment notes that:

- Extraction operations would require some fuel storage on site in adequately bunded areas to retain any spilled fuel and prevent infiltration into fractures in the rock.
- Any septic tanks for on-site toilet facilities will require installation to NSW and national standards, to minimise any risk of effluent infiltration into groundwater.
- Appropriate plans for the workshop and fuel storage and transportation areas and an effective water management plan and control measures would significantly reduce the risk of environmental impacts.



The Groundwater Assessment makes a range of recommendations to identify and address risks, including that:

- The storm water retentions at the site should be designed to minimise risk of discharge to Deep Creek,
- A Water Management Plan is required to cover the details of regular groundwater monitoring at site and the reporting of results and analysis of data.
- A groundwater management plan should be developed for the site when it is operating.
- Continued monitoring of the current groundwater network is recommended prior to and during quarry operations, with a period of post-closure monitoring.
- Water levels and water quality should be measured at least on a monthly basis.
- Data loggers should be installed in wells at least during the first year of quarry operations to better understand the drawdown cone developing due to quarrying.
- A rain gauge should be installed on site and rainfall measurements made throughout the life of the quarry operation for comparison with surface and groundwater data.
- Ongoing monitoring is recommended to better understand the response to rainfall of the groundwater level and inflows into the quarry pit.
- Monitoring of groundwater levels would continue in parallel with development and operation of the proposed quarry, building on the groundwater monitoring from 2014 to the present.
- Water quality will continue to be monitored at the existing groundwater monitoring sites and surface water sites, to establish whether changes in groundwater quality occur during the life of the quarry operation.
- As wells within the quarry are likely to be destroyed during quarry operations it is recommended that additional existing wells are added to the monitoring network and new wells are added to compensate for loss of wells within the quarry. These wells should be constructed as purpose-built monitoring wells,

## Surface water assessment

The following surface water aspects were reviewed as part of the Surface water impact assessment (SWIA) (Engeny Water Management, 2020):

- Catchment area and flow changes
- Flooding, including flow rates, velocities, and depths in Deep Creek
- Water quality.

The SWIA notes that:

- The quarry design's consideration of the detailed environmental studies and other key factors minimise the potential for the proposed development to impact on surface water resources. These other factors include:
  - Management of water take and discharge of water within regimes established by NSW water and pollution control legislation.
  - Development of a suitable water management system (WMS) to meet legislative requirements and relevant guidelines (e.g. guidelines for treatment of runoff from disturbed areas).
  - Maximised water recycling within the WMS to minimise the total volume of water harvested from, and discharged to, the environment.

- Notwithstanding the measures to minimise impacts, the following aspects of the project have the potential to impact on surface water resources:
  - Landform changes as a result of the quarry operations.
  - Infrastructure, including creek crossings, associated with the access road.
- During operations the proposed quarry is predicted to result in a small reduction in the catchment area of Deep Creek however the final catchment areas are expected to be comparable to the existing conditions.
- The proposed quarry will have minor impacts on the annual flow volumes in Deep Creek, due to the reduced catchment associated with the quarry operations. There are no known licensed water users on Deep Creek downstream of DCQ.
- The greatest changes to the local Deep Creek catchment area occurs when the pit is at the maximum operational area. Once the site is rehabilitated however, the final quarry pit will be free draining, thereby returning catchment area to Deep Creek.
- The proposed quarry has the potential to influence flooding and watercourse stability in Deep Creek as a result of changes to local catchment areas associated with diversion drains, loss of catchment to the quarry pit and concentration of flows within bridges and culverts associated with the access road. However, it will have negligible impact on flood flows or extents during the Probable Maximum Flood and as such is not expected to impact on the extent of flood prone land in the wider Deep Creek catchment.
- The modelling shows localised increases in flood depths and velocities within the vicinity of the access track culvert crossings, however these structures will be designed and constructed to incorporate suitable erosion and scour protection.
- Potential impacts on geomorphological stability and changes to potential erodibility and scour as a result of the proposed quarry have been assessed and indicate that there is minimal risk of increased erosion or scour.
- The predicted changes to flow regimes within Deep Creek, both during and following the quarry operations, are expected to be negligible (Section 5.2). Therefore, the potential to impact downstream riparian and ecological values is considered minor.
- Through management of dirty water within the WMS over the life of the operations, it is not anticipated that water quality in downstream waterways will be adversely impacted as a result of the proposed quarry. As such the cumulative potential impacts on water quality in downstream watercourses is considered to be low

The SWIA notes in relation to proposed mitigation measures that:

- The principal measures proposed to mitigate the potential surface water impacts of the proposed project are:
  - A WMS intended to limit the potential impacts on downstream water quality by managing water that has the potential to cause environmental harm, that includes a clean water management system to minimise water take.
  - A dirty water management system to minimise uncontrolled releases of dirty water.
  - Scour protection measures for the proposed watercourse crossing points associated with the proposed access route
- All water management infrastructure and scour protection measures are to be designed, constructed, maintained, removed, and rehabilitated to fulfil the statutory conditions of the project approval and meet industry standards and best practice



- Prior to commencing operations, a site WMP will be prepared that will include details of erosion and sediment controls, surface water and groundwater monitoring programs, as well as a surface and groundwater response plan and specific monitoring requirements for:
  - Erosion and sediment control measures.
  - Surface water quality monitoring.
  - Stream health and channel stability monitoring.
- At a minimum, the current water quality testing schedule (section 2.4.1) is expected to be maintained.

## Visual impact

The Visual Impact Assessment (VIA) (Mara Consulting, 2021) concludes that visual impacts for this project are limited, as:

- the proposed quarry itself is not visible from any residences and is shielded by ridge lines and bushland that surround it.
- This bushland will remain in place and therefore maintain the existing natural screening.

The VIA assesses impact at six representative 'views' based on visual sensitivity of the development on the viewer and visual effect of the development on the landscape, as follows:

*Table 8: Viewpoint Visual Impact Summary*

Viewpoint	Description	Visual sensitivity	Visual effect	Visual impact rating
VP 1	View from The Bucketts Way at the location of the proposed intersection and access road	Moderate	Low	<b>Moderate</b>
VP 2	View from north of the intersection along The Bucketts Way looking southward toward the proposed intersection	Moderate	Low	<b>Moderate</b>
VP 3	Residences along access road	Moderate	Low	<b>Moderate</b>
VP 4	Deep Creek Road	Low	Low	<b>Low</b>
VP 5	140 & 160 Forest Glen Road	Low	Low	<b>Low</b>
VP 6	Ebsworth Road	Low	Low	<b>Low</b>

Viewpoints 1 and 2 represent moderate visual impacts because a new road intersection will be installed in this location. It will only be visible when driving The Bucketts Way as a momentary glimpse. Even though the ratings for viewpoints 1, 2 and 3 are moderate, the impact is from a roadway and will be greatest during construction. After the roadway is established and in use, the visual impact will begin to diminish as the road becomes a part of the landscape. The VIA recommends that the following mitigation measures should be considered in the design and assessment of the proposed development:

- Trees and shrubs can be planted along the proposed access road near The Bucketts Way to screen views of the proposed road where it can be seen from nearby residences.
- Bushland around the quarry site should be maintained to keep the existing visual screen intact.



- Materials, textures, and colour selection should relate to the palette of the surrounding environment to minimise visibility and potential for visual impact
- Reflective surfaces and bright, contrasting colours should be avoided.

## Capital investment value report

The Capital investment value report (Goeldner Consulting Capital Investment Value Report 2021) concludes that the total Capital Investment Value (CIV) for the project is \$5,837,812 (Australian Dollars, with base date of December 2020). Included in this investment are the direct and indirect costs of goods and services required for the construction of quarry infrastructure (access and internal roads, office and maintenance area, stockpile area) but no capital investment in mining or quarry equipment, as mining is to be undertaken on a contract mining basis.

## Economic assessment

The Economic assessment (AEC, May 2021) states that the Project will contribute to economic growth during construction, operations, and decommissioning-rehabilitation phases. Approximately \$8.5 million annually to the economy flowing from both direct and flow-on impacts. It also comments that over 91% will remain in the local catchment. Approximately 17 jobs will be created in 2023-24 increasing to 31 jobs in 2043-44 through to 2050-51 and then falling to 26 as production slows and decommissioning and rehabilitation starts.

The construction phase is estimated to support business revenues for local businesses within the Catchment of approximately \$5.8 million through direct construction activity. Flow-on supply chain impacts during construction are estimated to support an additional \$3.3 million in business revenue in the Catchment. An additional \$0.9 million in business revenues are estimated to be supported in the rest of NSW through direct and flow-on activity.

During operations, the Project is estimated to support approximately \$15.7 million in business revenues per annum on average in the Catchment through direct and flow-on activity, with a further \$1.3 million in revenues supported for businesses in the rest of NSW. The Project will contribute to State and Australian government taxes and duties, including:

- \$23.8 million in additional revenue to the Australian Government, through personal income tax, fringe benefits tax, company tax and GST, compared to what would occur without the Project.
- \$12.6 million in additional revenue to the NSW Government compared to what would occur without the Project, primarily through royalty payments.

The assessment concludes the Project's economic impacts to be overwhelmingly positive with minimal adverse impacts identified.

## 7.2 Categorisation of impacts

Potential impacts, both positive and negative have been categorised using the themes outlined by the DPIE Social Impact Assessment Guideline and discussed below. The unmitigated impacts are assessed in **Table 9: Summary of identified impacts**. The categorisations are *way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods, and decision-making systems*.

### Way of life

#### Amenity impacts related to construction

**WL-1: Construction activity will have a negative impact on the amenity of the area.**

Amenity impacts can occur in different forms. One of the most noticeable forms is noise and accompanying vibration. Noise can interfere with daily life and can disturb sleep patterns. The noise from construction has the potential to impact the local amenity for the neighbouring residents.

For the purposes of this assessment, there are two elements to the construction phase. The first is the construction around the proposed quarry and the preparations to begin extracting the resource material. This will involve earthworks to prepare the quarry and stockpile sites, installation of the weighbridge, office, maintenance sheds and the construction of internal roads and water management ponds.

Noise modelling indicates the shape of the valley and elevated ridgelines contain much of the noise. There is noise that travel across Deep Creek to a neighbouring property. However, there is an agreement in place to purchase this property should the quarry be approved.

The second element of construction noise is the installation of the private access road. The new road will connect the quarry site directly to The Bucketts Way. Associated with the road construction are earth works, compacting and laying of the bitumen surfacing. Noise is sometimes accompanied by vibration, especially when constructing new roads that need tamping and compaction of soil. The noise and vibration could impact the local amenity for the duration of the construction period. This specifically relates to three properties potentially impacted by road construction noise.

Recent research from the ABS indicates that there is an increased number of people working from home because of Covid-19 (ABS 2021). With this increase in the number of people working from home, there is an increased potential for noise to impact people during the day.

The noise impacts on the local amenity are expected to continue for the duration of the construction phases of the project. The construction period is expected to last for 12 weeks. Even though these impacts are temporary, they will occur daily until construction is completed.

Rating, WL-1: The likelihood of impacts from noise during the construction period is almost certain. The magnitude of the impacts would be minor with noticeable deterioration to a valued amenity. The unmitigated impact on three properties related to noise through construction of the access road has been assessed as **Medium A2**.



## Amenity impacts related to ongoing operation

### **WL-2: Ongoing operation activity will have a negative impact on the amenity of the area.**

After the initial construction period, there will be ongoing operations for the duration of the quarry's life. The ongoing impacts to the way of life would primarily be noise from the quarry activities which include traffic and quarry works.

The most significant impact would be the daily traffic along the roads leading into the quarry. This will occur daily (Monday-Saturday) with up to 20 truck movements during the busiest hours. The NVIA has concluded that the traffic would not exceed noise criteria. Even though the amount of noise generated from the quarry traffic does not exceed criteria, it will increase daily traffic and the existing sound levels experienced by neighbours. This increase in noise will have a limited affect and impact three residences adjacent to the private access road. There may be residual impacts along The Bucketts Way as traffic increases due to the quarry operations.

The ongoing quarry works that impact the way of life include blasting, drilling, and crushing material. The drilling and blasting could occur approximately twice per month but has the potential to impact residents located farther away than other quarry workings. The crushing of quarried material generates the most noise on a daily occurrence. The NVIA has modelled the noise and concluded that noise from ongoing operations will not exceed criteria related to noise at any of the residences. As stated earlier, even though the noise does not exceed triggers for amenity or intrusiveness criteria (as described in the NVIA), there may be a change in noise levels, especially around blasting.

It should be noted that the amenity and intrusiveness criteria were determined from the existing acoustic environment. Noise levels were measured, and 5 dB(A) added to the value. In this case the baseline reading was taken from a residence near The Bucketts Way (R33), which gave a baseline reading of 35 dB(A). Therefore, the trigger values used were 40 dB(A). This method is in accordance with NSW guidelines and indicates compliance. However, with no baseline measurements taken from other locations, the change in noise levels for receptors located away from The Bucketts Way is unknown. While noise for residents along Forest Glen Road, for example, is below criteria, still represents a change and therefore a potential impact.

Rating, WL-2: The likelihood of impacts from noise during the operation is possible. The magnitude of the impacts would be minor with mild deterioration to a valued amenity. The unmitigated impact related to traffic and operational noise has been assessed as **Medium C2**.



## Community

### Character of the community and sense of place

**COM-1:** The introduction of a quarry into the local area will impact on the community character and cohesion.

Community character refers to aspects of place, people and areas that are unique to a town with distinguishing characteristics differing from surrounding locations. The introduction of a new industry, infrastructure growth and traffic can potentially impact such characteristics. These can lead to the loss of community character, which can lead to residents feeling alienated from their local surroundings.

Social cohesion refers to the degree of solidarity and connectedness within a group or community. This is reliant upon the relationships among the members of the community to create a sense of belonging to the group or area. Building social cohesion within a community requires engagement with the local community to develop long-term partnerships. Although difficult to quantify, interviews with local residents indicate there is some community cohesion through helping each other in times of difficulty and knowing each other as neighbours. Rates of volunteering is often used as a measure of social cohesion within a community. In the local area, the rate of volunteering was 16.5%. This rate is lower than the regional area (20.7%) and NSW (18.1%), providing an indication of social cohesion and willingness to help each other in the local community.

Rating, Com-1: The likelihood of impacts on the community character due to the introduction of a quarry is unlikely. The magnitude of impacts would be minor. Therefore, the unmitigated risk of impacts on character of the community has been assessed as **Low – D2**.

**COM-2:** The proposed quarry will impact on the community's sense of place.

Consultation conducted for the SIA found that people within the local area valued the rural character and bushland landscape of the area. A major factor in defining sense of place by respondents was the visual character of the landscape and the quietness of the area. In this instance the perceived visual character plays a large part in impacts to sense of place. Even though the quarry is situated in a place where it will have no visual impacts to the adjacent community members, there was concern over degrading the visual landscape by some community members.

Sense of place is not just impacted by the visibility of the activity itself or the physical change in land use, but also the visibility of workers and trucks travelling to and from the quarry site. Any impact from workers and trucks entering and leaving the site should be limited to vehicles travelling along the private access road. While these vehicles are on The Bucketts Way, the noise and movement will merge with the existing traffic.

It is apparent that the knowledge of the existence of a quarry is a main driver of community concern. Even though specialist studies show that there will be very little change to the visible and audible landscape from the surrounding residents and community, there is concern over the quarry ruining the rural landscape and diminishing the value of place.



Rating, Com-2: The likelihood of impacts on the sense of place due to the quarry is unlikely. The magnitude of impacts would be minimal. Therefore, the unmitigated risk of impacts on character of the community has been assessed as **Low – D1**.

## Accessibility

### Access impacts from construction of new road and intersection

**ACC-1:** Construction works for the new private road and intersection will impact on access to the local area.

Vehicles are used as the main mode of transport for residents and commuters in the local and regional areas. The Bucketts Way is the main road through the area, carrying all of the traffic heading north and south.

The construction activity for the new intersection onto The Bucketts Way will have a temporary impact on local traffic and access. The construction is anticipated to last for 12-week. Because this road is the main road serving the area, the construction has the potential to cause disruption and delays for travellers.

The construction of the intersection also has the potential to impact the access for four residences located nearby. One of these residences is adjacent to the proposed intersection. Construction traffic is a short-term impact usually lasting for the duration of the construction period. The impact is best mitigated through the preparation and implementation of a Construction Traffic Management Plan.

Rating, Acc-1: The likelihood of impacts on traffic from construction is almost certain. The magnitude of impacts is moderate. The risk of impacts on traffic from construction is rated as **High – A3**.

### Access impacts due to increased traffic in the local area due to the proposed quarry activity

**ACC-2:** Ongoing quarry activity will increase local traffic and impact on access.

After the construction of the intersection is complete, the traffic caused by the Project is not anticipated to impact on accessibility. The TIA states that the existing road network has the capacity to absorb the amount of traffic generated by the proposed quarry.

The TIA indicates there will be an increase in the number of vehicles on The Bucketts Way that may impact on traffic efficiency. However, the road network will not reach its technical capacity and the intersection with the Pacific Highway will only have average delays (as currently experienced). The intersection of the private access road and The Bucketts Way

Rating, Acc-2: The likelihood of ongoing traffic impacts after construction is finished is unlikely. The magnitude of impacts is minor. The risk of ongoing impacts on traffic is rated as **Low – D2**.



## Culture

### Cultural impacts from construction activities (disturbance to sites)

#### **CUL-1:** The Proposal will impact on the cultural heritage of the site.

The ACHA indicates a potential importance to the site due to its location near a watercourse. It further recommends that any artefacts found during the construction process be collected and buried in an area that can be protected in perpetuity. The reburial location(s) would be selected in consultation with the community.

The Historic Heritage Assessment that was conducted concludes that based on the historic record and a physical inspection of the Project site, there is no heritage of significance.

Rating Cul-1: The likelihood of impacts on culture is unlikely. The magnitude of impact would be minor. As such, the impact on culture is rated as **Low – D2**.

## Health and wellbeing

### Health and wellbeing impacts from construction noise

#### **HWB-1:** Noise from construction activities will negatively impact the health and wellbeing of surrounding residents.

A Noise and Vibration Impact Assessment has been conducted for the Project. Given the proximity of the new private access road and intersection, some impacts related to noise during construction are anticipated.

The construction is expected to occur during normal construction hours (7:00am – 6:00pm Monday - Friday, and 8:00am – 1:00pm Saturday). Even though the noise is anticipated to occur during daylight hours, exposure can cause stress and anxiety which could lead to longer term health impacts.

Prolonged exposure to noise can also disturb sleep rhythms and cause irritation, cognitive impairment and decreased mental wellbeing. This is especially true for those who are vulnerable to health impacts, such as the younger and older demographic. The local area population is made up of approximately 6.2-9.3% children four years and younger, and 5.0-6.7% of people 75 years and older. This indicates that a portion of the population is susceptible to noise impacts. The local area also has a higher proportion of people with profound or severe disability in the community, and people with psychological stress than in NSW. These groups of individuals are also susceptible to noise impacts.

Given the population susceptible to impacts in the local area, construction noise will most likely result in health and wellbeing impacts.

Rating HWB-1: The likelihood of these impacts is possible, and the magnitude would be minor. Therefore, the health and wellbeing impacts from construction noise are assessed as **Medium – C2**.



## Health and wellbeing impacts from air quality during construction

### HWB-2: Dust and emissions will negatively impact health of nearby residents.

During construction phases, there is the possibility of increased dust and emissions levels from construction activities and vehicles.

The population at most risk to particulate pollution include children, older adults and those who suffer from asthma, heart, or lung disease. Asthma is also used as an indicator of a community's respiratory health. In the local area there is a higher proportion of people who suffer from asthma than in NSW.

A small number of neighbours may be impacted by dust and diesel emissions during construction of the access road. The emissions and dust due to the construction of the access road and intersection are not included in the assessment. Even though these are a temporary potential impact, construction emissions still have the potential to exacerbate health and wellbeing of nearby neighbours due to changes in air quality during construction.

Rating HWB-2: Health impacts from air quality associated by construction activities are likely. The magnitude of the impact would be minor. The impact of construction dust and emissions from construction is assessed at **Medium – B2**.

## Health and wellbeing impacts from air quality during operations

### HWB-3: Dust and emissions related to the ongoing operation resulting in health impacts of nearby residents.

Air pollution made up of particles can impact respiratory and cardiovascular health. Dust and emissions from internal combustion engines contribute to the airborne particulate.

The population at most risk to particulate pollution include children, older adults and those who suffer from asthma, heart or lung disease. Asthma is also used as an indicator of a community's respiratory health. In the local area there is a higher proportion of people who suffer from asthma than in NSW.

Some respondents to the consultation identified dust and diesel emissions as a main health concern. As indicated earlier, the air quality modelling for the project does not predict an exceedance of the relevant pollutant impact assessment criteria at the residential receptors. There is one resident next to the private access road alignment who has reported a sensitivity to diesel fumes. Because of the resident's concern, the Project has realigned the access road 190m further away from this resident's boundary to minimise potential impact to this residence.

It should be noted that the dust and vehicle emissions modelled in the Air Quality Impact Assessment (AQIA) are for the operation stage of the project. The AQIA only states that the "report has assessed the potential air quality impacts associated with the proposed construction and operation of the Deep Creek Quarry" (Todoroski, 2021, p34). Based on the AQIA, the project would not exceed health-based criteria for air quality. The modelling predicts that all the assessed air pollutants generated by the operation of the project would comply with the applicable assessment criteria at the assessed receptors



and therefore would not lead to any unacceptable level of environmental harm or impact in the surrounding area.

Nevertheless, the site would apply appropriate dust management measures to ensure it minimises the potential occurrence of excessive air emissions from the site. Overall, the assessment demonstrates that the proposed quarry can operate without causing any significant air quality impact at residential receptors in the surrounding environment, noting one stakeholder will be significantly impacted.

Rating HWB-2: Health impacts from air quality caused by operations activities are likely. The magnitude of the impact would last for an extended period but for a small group of people therefore would be moderate. The impact of operational dust and emissions is assessed at **High – B3**.

## Surroundings

### Impacts on visual amenity

**SUR-1: The proposed quarry will negatively impact on the aesthetic value and amenity.**

The visual amenity of the local area was identified as an important element of the local character during the consultation process. Residents spoke of the proposed quarry as ruining the bushland character and presenting an eye sore within the landscape.

A Visual Impact Assessment (VIA) was undertaken by Mara Consulting to identify any impacts on the visual character of the landscape that might be caused by the proposed quarry. The VIA findings were that the quarry site would not be visible from any of the residences or public viewpoints (except a short section at the end of Deep Creek Road). The landform was such that the workings of the quarry would only be visible from the portion of Deep Creek Road that is adjacent to the quarry pit.

Rating Sur-1: The likelihood of impacts to visual amenity from the quarry would be very unlikely. The magnitude of the impact would be minimal because of the surrounding landform and bushland. The impact of the quarry on visual amenity is assessed at **Low – E1**.

**SUR-2: The proposed access road will negatively impact on the aesthetic value and amenity.**

According to the VIA, the most significant visual impact was determined to be the new quarry access road, especially where it meets The Bucketts Way. The findings of the VIA were that the impact would be moderate where the new road will be installed. The rest of the project's visual impact would be low. To reduce the visibility of the roadway, a landscape buffer was recommended to screen it from a private dwelling to the north

The visual amenity is not just impacted by the visibility of the activity itself or the physical change in land use, but also the visibility of workers and trucks travelling to and from the quarry site. The TIA estimates there would be 55 trucks leaving the quarry on an average day (110 during peak demand), with the peak hour volume of 20 trucks leaving the quarry.



Rating Sur-2: The likelihood of impacts to visual amenity due to the access road would be almost certain. The magnitude of the impact would be minor. The impact of the access road on visual amenity is assessed at **Medium – A2**.

### Impacts on habitat

**SUR-3: The proposed quarry will impact on habitat areas and reduce biodiversity of the site.**

The impacts to the local ecology has been assessed in the *Biodiversity Development Assessment Report* by Kleinfelder (2020). The report identifies potential impacts on native flora and fauna.

Members of the community have expressed concern over the potential loss of Koala habitat due to the proposed quarry location.

The assessment determined that the quarry would impact on 29.02 Ha of Koala habitat within the 308 Ha property. A Koala Plan of Management will be developed for the project area. Management measures will be in place during the construction and operation of the proposed quarry to minimise the impacts. Measures are likely to include preclearing surveys, supervised clearing, vehicle speed management and inductions for all staff, truck drivers and contractors. Offsets will include both long term protection of adjacent quarry-owned land and purchase of offset credits from the local area.

Rating Sur-3: The likelihood of impacts to habitat would be almost certain. The magnitude of the impact would be minor. The impact of the access road on habitat is assessed at **Medium – A2**.

### Impacts on water quality

**SUR-4: The proposed quarry will impact negatively on water quality.**

According to the representative from MidCoast Water, the residents of Limeburners Creek and Allworth suburbs rely on rainwater as their water source. Some properties have bores for groundwater as well. This reliance on rain and groundwater means the community is susceptible to impacts due to water contamination.

A Groundwater Assessment was undertaken to identify and assess the water quality impact that the quarry might have on the groundwater. It assessed the risk as 'low' with no significant impact to the groundwater systems.

In addition to the groundwater assessment, a Surface Water Impact Assessment (SWIA) was conducted. It found that the Project would have minor impacts on the annual flow volumes in Deep Creek, but this would have a negligible impact on the flow regimes. The results would have a minor potential to impact downstream riparian ecology.

Impacts on water quality, bodies and hydrological processes that sustain the ecological communities have also been identified. With the management systems in place, the surface water quality due to sediment and contaminant run-off will be contained.



Rating Sur-4: The likelihood of impacts to water quality would be unlikely. The magnitude of the impact would be minor. The positive impact of the project on water quality is assessed at **Low – D2**.

## Livelihood

### Economic outcomes related to construction

**LIV-1: Construction will provide a number of direct and indirect jobs and benefit a range of individuals and businesses.**

The capital investment report by Goeldner Consulting indicate an investment of \$5.84 million into the proposed quarry development. Within the local area 11.4% of the population work in the construction industry. Approximately 20 full-time equivalent (FTE) workers are estimated to support the project in the first year of construction (AEC Economic Assessment). Additionally, workers on site may frequent local businesses and therefore increase local income and employment opportunities in the local area.

Aside from employment and benefits to local supply chain businesses, there is no planned investment into the community, however, the proponent has expressed a willingness to consider requests for support where they are made. And during the consultation process, community members indicated that local community groups, emergency services and athletic clubs could be supported to offset the impacts to the community.

Rating Liv-1: The likelihood of positive economic outcomes would be almost certain. The magnitude of the impact would be minor. As such, the economic outcome related to the project is assessed as **Medium – A2** benefit.

### Economic outcomes related to operations

**LIV-2: The operation will provide a long-term economic injection into the community through direct and indirect jobs and opportunities for businesses.**

Ongoing financial benefits to the region are estimated at \$2 million in wages and salaries (this includes direct and flow-on activity). The economic assessment by AEC states there will be approximately \$8.5 million annually to the economy flowing from both direct and flow-on impacts. It also comments that over 91% will remain in the local catchment. Approximately 17 jobs will be created in 2023-24 increasing to 31 jobs in 2043-44 through to 2050-51 and then falling to 26 as production slows and decommissioning and rehabilitation starts.

During operations, the Project is estimated to support approximately \$15.7 million in business revenues per annum on average in the Catchment through direct and flow-on activity, with a further \$1.3 million in revenues supported for businesses in the rest of NSW. The lifecycle for this project is approximately 30 years.

Rating Liv-1: The likelihood of positive economic outcomes would be almost certain. The magnitude of the impact would be moderate. As such, the economic outcome related to the project is assessed as **High – A3** benefit



## Decision-making systems

### DEC-1: Ineffective engagement with surrounding community resulting in misinformation and alienation.

During the engagement process, it was clear there was a disconnect between the Project and some community members. As noted in the consultation themes, stakeholders rely on word-of-mouth information from neighbours and community groups. Additionally, there were concerns about the level of broader consultation, that opportunities for feedback had been rush and the only chance to participate. Including these stakeholders in ongoing communication will help to allay concerns.

COVID-19 added complexity to the engagement activities. As cases were rising in the community, it was decided face-to-face activities would be limited. Subsequently, in-depth interviews were via video or telephone and the information session was online, with the video and materials provided after on the project website. Many community members felt the lack of adequate internet access were limiting effective engagement. Using a range of proactive communication tools is important for effective relationship building through the life of the project.

There was a sense that stakeholders may have felt marginalised as they are not the ultimate decision maker. Part of the operational engagement plan should be to regularly communicate with those affected and interested in the project. Developing proactive communication and engagement activities that includes opportunities for neighbouring properties and other key stakeholders to participate in the project and providing feedback mechanisms, should be considered. For example, consultative committee or reference group that includes representatives and neighbours. By including neighbours and community representative, it should reduce the number of people who feel disengaged. Additionally, given the high levels of engagement with the project engagement platform (website), which had received approximately 3000 visits to the page at the time writing this report, a project website is recommended as an ongoing communication channel for notifications and updates about the project.

Rating DEC-1: The likelihood that stakeholders feel disengaged and unsupportive of the project is likely, however with ongoing communication and engagement, the impact would be moderate. As such, the impact is assessed as **High – A3**.

## 8 Mitigation and enhancement

This section proposes a range of mitigation, management and enhancement measures based on the impacts associated with the project. These are intended to reduce the negative impacts and enhance the positive ones.

### 8.1 Pre-construction

- Proactive communication and engagement with neighbours, the community and Council around the Project prior to site establishment. Measures could include newsletter and construction updates on the scope of the project, likely high impact activities (noise, vibration, traffic and changes to the landscape), and contact details for inquiries and complaints.
- Meetings/presentations with neighbouring properties and community groups prior to construction should also be considered
- Develop an inquiry and complaint process for the construction period
- Engage with the local community and neighbours to develop a working relationship to disseminate information during and after construction.

### 8.2 Construction phase

A Construction Management Plan (CMP) should be prepared that incorporates the findings of the various project technical studies in relation to communication and notifications. The CMP should detail proposed management and mitigation measures for the identified impacts including:

- Amenity impacts including noise monitoring, buffers for visual impacts
- Traffic management
- Site safety and management
- Health impacts – noise, dust, and emissions
- Heritage management including unexpected finds procedure
- Complaints management process
- Ongoing communications with the community around the project to keep residents updated on construction scheduling. This may include signage, notifications, and other appropriate communication channels.
- Investigate opportunities to use local contractors, suppliers, and service providers.



### 8.3 Operational phase

- Develop Community Engagement Plan (CEP) identifying proactive and ongoing engagement and communication strategy to build positive relationships with surrounding stakeholders
- Establish consultative committee or reference group
- Ongoing communication with neighbouring community including creating a project website with regular updates and blasting notifications
- Landscape works along the access road installed early in the project, potentially using mature vegetation
- Monitor particulate and emissions levels
- Proactively manage issues, with nearby residents to avoid escalation to complaints
- Investigate opportunities for inviting community members to participate on consultative committee or reference group
- Ongoing engagement with the community, hosting events and open days
- Inquiries and complaints management process.

### 8.4 Residual impact and monitoring

Table 9: Summary of identified impacts provides an assessment of residual impact post mitigation and monitoring mechanisms to support the successful delivery of the project.

Table 9: Summary of identified impacts

Potential impact on people	Significance rating +/- Likelihood level A-E; Magnitude level 1-5	Mitigation and management measures	Responsibility for mitigation measure and management	Residual impact significance rating +/- Likelihood level A-E; Magnitude level 1-5	Monitoring
<b>WL-1:</b> Construction activity will have a negative impact on the amenity of the area.	<b>(-) Medium A2</b>	<ul style="list-style-type: none"> <li>Implement Construction Management Plan (CMP) prior to the start of construction</li> <li>Work within standard construction hours</li> <li>Proactively communicate with directly impacted residents about construction and noisy works in particular               <ul style="list-style-type: none"> <li>Prior to site establishment</li> <li>Prior to high impact works</li> </ul> </li> <li>Use toolbox talks and similar tool to communicate and educate contractors what expectations are when managing noise and vibration on the project site</li> <li>Notify directly impacted stakeholders that there is a potential for noise and vibration from construction activities</li> <li>Proactively manage issues, with nearby residents to avoid escalation to complaints</li> <li>Maintain a complaint process during construction</li> </ul>	Construction contractors	<b>(-) Medium A2</b>	<ul style="list-style-type: none"> <li>Measures to be included in CMP including complaints and issues management</li> </ul>
<b>WL-2:</b> Ongoing operation activity will have a negative impact on the amenity of the area.	<b>(-) Medium C2</b>	<ul style="list-style-type: none"> <li>Ongoing communication with neighbouring community</li> <li>Proactively manage issues, with nearby residents to avoid escalation to complaints</li> <li>Establish a complaints procedure</li> </ul>	Project management	<b>(-) Medium C2</b>	<ul style="list-style-type: none"> <li>Monitor noise levels regularly, as per the NVIA</li> <li>Monitor and record complaints line</li> </ul>
<b>COM-1:</b> The introduction of a quarry into the local area will impact on the community character and cohesion.	<b>(-) Low D2</b>	<ul style="list-style-type: none"> <li>Develop Community Engagement Plan (CEP) identifying proactive and ongoing engagement and communication strategy to build positive relationships with surrounding stakeholders</li> <li>Establish consultative committee or reference group</li> <li>Ongoing communication with neighbouring community including creating a project website with regular updates</li> <li>Proactively manage issues, with nearby residents to avoid escalation to complaints</li> <li>Investigate opportunities for inviting community members to participate on consultative committee or reference group</li> </ul>	Project management	<b>(-) Low D2</b>	<ul style="list-style-type: none"> <li>Implement community engagement plan</li> <li>Consultative committee established with regular meetings</li> <li>Website built with regular updates</li> <li>Reduced number of complaints</li> <li>Number of community members participating in committees or reference groups</li> </ul>
<b>COM-2:</b> The proposed quarry will impact on the community's sense of place.	<b>(-) Low D1</b>	<ul style="list-style-type: none"> <li>Maintain bushland around the Project site</li> <li>Install visual screening (planting) along access road</li> <li>Maintain a clean site by removing rubbish from the roadway and minimising dust</li> </ul>	Project management	<b>(-) Low D1</b>	<ul style="list-style-type: none"> <li>Biodiversity offsets secured</li> <li>Ongoing conflict resolution via complaints procedure</li> </ul>
<b>ACC-1:</b> Increase in traffic during construction. Construction works for the new private road and intersection will impact on access to the local area.	<b>(-) High A3</b>	<ul style="list-style-type: none"> <li>Develop a traffic control plan in consultation with relevant authorities, to minimise road and traffic disruptions for residents and business</li> <li>Provide advance communication (i.e. signage, notification materials) about changes to local access, potential road hazards (if required)</li> <li>Post traffic complaints number for the project</li> </ul>	Construction contractor	<b>(-) High B3</b>	<ul style="list-style-type: none"> <li>Measures to be included in CMP including complaints and issues management</li> <li>Follow the traffic control plans</li> </ul>
<b>ACC-2:</b> Increase in traffic due to quarry activity. Ongoing quarry activity will increase local traffic and impact on access.	<b>(-) Low D2</b>	<ul style="list-style-type: none"> <li>Ongoing communication with neighbouring community</li> <li>Proactively manage issues, with nearby residents to avoid escalation to complaints</li> <li>Establish a complaints procedure</li> </ul>	Project management	<b>(-) Low D1</b>	<ul style="list-style-type: none"> <li>Implement traffic management strategy</li> <li>Ongoing conflict resolution via complaints procedure</li> </ul>
<b>CUL-1:</b> Cultural and heritage appreciation. The Proposal will impact on the cultural heritage of the site.	<b>(-) Low D2</b>	<ul style="list-style-type: none"> <li>Engage with local Indigenous community to locate and handle potential cultural artefacts appropriately</li> </ul>	Project management	<b>(-) Low E2</b>	<ul style="list-style-type: none"> <li>Maintain an artefact register</li> </ul>
<b>HWB-1:</b> Noise from construction activities will negatively impact the health and wellbeing of surrounding residents.	<b>(-) Medium C2</b>	<ul style="list-style-type: none"> <li>Implement CMP</li> <li>Notify directly impacted stakeholders that there is a potential for noise and vibration from construction activities</li> <li>Proactively communicate with residents, and surrounding community about construction and noisy works in particular               <ul style="list-style-type: none"> <li>Prior to site establishment</li> <li>Prior to high impact works</li> </ul> </li> <li>Use toolbox talks and similar tool to communicate and educate contractors what expectations are when managing noise and vibration on the project site</li> <li>Notify directly impacted stakeholders that there is a potential for noise and vibration from construction activities</li> <li>Maintain a complaint process during construction</li> <li>Noise monitoring and reporting</li> </ul>	Construction contractor	<b>(-) Medium C2</b>	<ul style="list-style-type: none"> <li>Measures to be included in CMP including complaints and issues management</li> <li>Follow CMP recommendations</li> <li>Monitor noise levels</li> <li>Monitor and record complaints line</li> </ul>

Potential impact on people	Significance rating +/- Likelihood level A-E; Magnitude level 1-5	Mitigation and management measures	Responsibility for mitigation measure and management	Residual impact significance rating +/- Likelihood level A-E; Magnitude level 1-5	Monitoring
<b>HWB-2:</b> Dust and emissions related to construction resulting in health impacts of nearby residents.	<b>(-) Medium B2</b>	<ul style="list-style-type: none"> <li>Implement CMP</li> <li>Notify directly impacted stakeholders when there is a potential for emissions from construction activities</li> <li>Monitor particulate and emissions levels</li> <li>Complaint line during construction</li> </ul>	Construction contractor	<b>(-) Medium B2</b>	<ul style="list-style-type: none"> <li>Measures to be included in CMP including complaints and issues management</li> <li>Follow CMP recommendations</li> <li>Monitor particulate and emissions levels</li> <li>Monitor and record complaints line</li> </ul>
<b>HWB-3:</b> Dust and emissions related to the ongoing operation resulting in health impacts of nearby residents.	<b>(-) High B3</b>	<ul style="list-style-type: none"> <li>Notify and liaise directly impacted stakeholders</li> <li>Landscape works along the access road installed early in the project, potentially using mature vegetation</li> <li>Monitor particulate and emissions levels</li> <li>Proactively manage issues, with nearby residents to avoid escalation to complaints</li> </ul>	Project management	<b>(-) Medium B2</b>	<ul style="list-style-type: none"> <li>Monitor particulate and emissions levels regularly</li> <li>Monitor and record complaints line</li> </ul>
<b>SUR-1:</b> Visual impact of quarry: The proposed quarry will negatively impact on the aesthetic value and amenity.	<b>(-) Low E1</b>	<ul style="list-style-type: none"> <li>Where possible maintain bushland around the quarry area</li> <li>Keep quarry workings below ridgelines</li> </ul>	Project management	<b>(-) Low E1</b>	<ul style="list-style-type: none"> <li>Follow project plans</li> <li>Monitor rehabilitation of disturbed areas</li> </ul>
<b>SUR-2:</b> Visual impact of access road: The proposed access road will negatively impact on the aesthetic value and amenity	<b>(-) Medium A2</b>	<ul style="list-style-type: none"> <li>Establish landscape screening as soon as possible</li> <li>Maintain landscape along access road</li> <li>Manage the timing and number of trucks entering and leaving the quarry site</li> </ul>	Construction contractor and Project management	<b>(-) Medium B2</b>	<ul style="list-style-type: none"> <li>Monitor and replace screening plants along roadway</li> </ul>
<b>SUR-3:</b> Impacts on habitat: The proposed quarry will impact on habitat areas and reduce biodiversity of the site.	<b>(-) Medium A2</b>	<ul style="list-style-type: none"> <li>Follow Koala Plan of Management during construction and operations phases</li> <li>Biodiversity offsets where required</li> <li>Moving wildlife prior to works</li> <li>Minimise impacts to trees, particularly hollow bearing trees and habitat where possible</li> <li>Develop a vegetation management plan to ensure native vegetation outside the quarry footprint are protected</li> </ul>	Construction contractor and Project management	<b>(-) Medium B2</b>	<ul style="list-style-type: none"> <li>Monitor per Koala Plan of Management</li> <li>Monitor per vegetation management plan</li> </ul>
<b>SUR-4:</b> Water quality: The proposed quarry will impact negatively on water quality	<b>(-) Low D2</b>	<ul style="list-style-type: none"> <li>Implement water quality management plan</li> </ul>	Construction contractor and Project management	<b>(-) Low D2</b>	<ul style="list-style-type: none"> <li>Monitor per water quality plans</li> <li>Monitor complaints and record number of complaints</li> </ul>
<b>LIV-1:</b> Economic outcomes: Construction will provide a number of direct and indirect jobs and benefit a range of individuals and businesses.	<b>(+) Medium A2</b>	<ul style="list-style-type: none"> <li>Investigate opportunities to use local contractors and suppliers of material and services</li> <li>Proactively employ local personnel where possible</li> </ul>	Construction contractor and Project management	<b>(+) High A3</b>	<ul style="list-style-type: none"> <li>Monitor the number of local contractors / businesses engaged in the construction process</li> </ul>
<b>LIV-2:</b> Economic outcomes: The operation will provide a long-term economic injection into the community through direct and indirect jobs and opportunities for businesses.	<b>(+) High A3</b>	<ul style="list-style-type: none"> <li>Investigate opportunities to use local contractors and suppliers of material and services</li> <li>Proactively employ local personnel where possible</li> <li>Investigate opportunities to invest in local community (for example: local groups, emergency services and athletic clubs)</li> </ul>	Construction contractor and Project management	<b>(+) High A3</b>	<ul style="list-style-type: none"> <li>Monitor the number of local contractors / businesses engaged in the construction process</li> </ul>
<b>DEC-1:</b> Ineffective engagement with surrounding community will result in alienating stakeholders who may become unsupportive	<b>(-) High A3</b>	<ul style="list-style-type: none"> <li>Proactive and ongoing engagement and communication strategy to build positive relationships with surrounding stakeholders</li> <li>Establish consultative committee or reference group</li> <li>Ongoing communication with neighbouring community including creating a project website with regular updates</li> <li>Proactively manage issues, with nearby residents to avoid escalation to complaints</li> <li>Investigate opportunities for inviting community members to participate on consultative committee or reference group</li> </ul>	Construction contractor and Project management	<b>(-) High B3</b>	<ul style="list-style-type: none"> <li>Implement community engagement plan</li> <li>Consultative committee established with regular meetings</li> <li>Website built with regular updates</li> <li>Reduced number of complaints</li> <li>Number of community members participating in committees or reference groups</li> </ul>



## 9 Summary of findings

The SIA developed for the Deep Creek Quarry project, if approved, will have a range of social impacts, included both positive and negative impacts. The report has identified and addressed key social impacts and includes a set of measures for ongoing management, mitigation and monitoring.

The SIA, satisfies the newly adopted *Social Impact Assessment Guideline for State Significant Projects* was used as the guide and the SEARS for the proposal.

This SIA concludes that the negative social impacts are primarily associated with the potential change to way of life and not knowing how the potential impacts will be experienced. The associated key impacts include:

- Positive economic outcomes, providing business and job opportunities for the community through construction and operation
- How the project communicates and engages with the community
- Noise, dust and blasting resulting from the operation and from the access road
- Change to the peaceful way of life in a rural residential area
- Changes to the amenity and environmental values.

Key mitigation measures to reduce the social impact of the project include proactive and regular communication and engagement with the community and neighbours, developing an effective inquiries and complaints process which is promoted through communication channels, developing a construction management plan that includes notification prior to works starting, and proactively communicating blast times to impacted residents.

The monitoring measures will be reported on the project website. Compliance monitoring may be required as part of the conditions of approval. Findings of monitoring will be presented at community meetings such as a consultative committee and is an opportunity to review and improve operations. An inquiries and complaints process will be developed to manage and respond to community feedback.

Following the review of social impacts identified during this assessment, while the quarry presents a change to the community, social impacts can be managed.



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## Appendix A: Social baseline data

### Demographic profile

According to the 2016 Census of Population and Housing, the local area had a total population of 502 people (ABS 2016). The regional area had a 2016 population of 85,079. Analysis of ABS data shows that the population of the regional area has been increasing at a lower rate than NSW from 2006-2016. The local area population has grown at a higher rate than the regional area, and more in line with NSW. The population trends are presented in **Table A: Population trends, 2006-2016** below.

Table A: Population trends, 2006-2016

Location	2006	2011	2016	Total % change 2006-2011	Total % change 2011-2016
Limeburners Creek	-	313	336	-	6.85
Allworth	-	196	166	-	-18.07
Bulahdelah – Stroud	4105	4728	4723	15.18	-0.11
Port Stephens	62712	67501	71381	7.64	5.44
Dungog	8060	8317	8975	3.19	7.33
NSW	6,549,174	6,917,656	7,480,228	5.63	7.52

Source: ABS 2006, ABS2016, Census of Population and Housing: General Community Profiles.

Note: The 2006 data for Limeburners Creek and Allworth is unavailable, and therefore the demographic information has not been included.

### Population by age and sex

In the local area, the largest age group is persons aged 60-64 years (19.9%), followed by 5-9 years (18%) and 50-54 years (16.7%). This indicates a large portion of the population is 50 years and older, or less than 9 years old. This differs from the major age groups in NSW, which are 30-34 years (7.2%) and 25-29 years (7.0%). The regional area has its largest age groups between 50-64 years, which is consistent with the local area. Overall, the study area has an older population than NSW with much larger proportions of elderly persons (aged 60 years and older) in the local area and 37.2% in the regional area, compared to 21.8% in NSW. This is also reflected in the median ages of the local area (45) and regional area (52), which is significantly higher than the median age across NSW (38). The older population in the study area is likely reflective of trends in older population choosing to move to coastal areas for lifestyle reasons, as well as comparatively lower cost of living in non-metropolitan areas, attracting and retaining higher proportions of elderly people (ABS 2002). The age group distribution and median age for the study area is presented in **Table B: Population by age, 2016**.



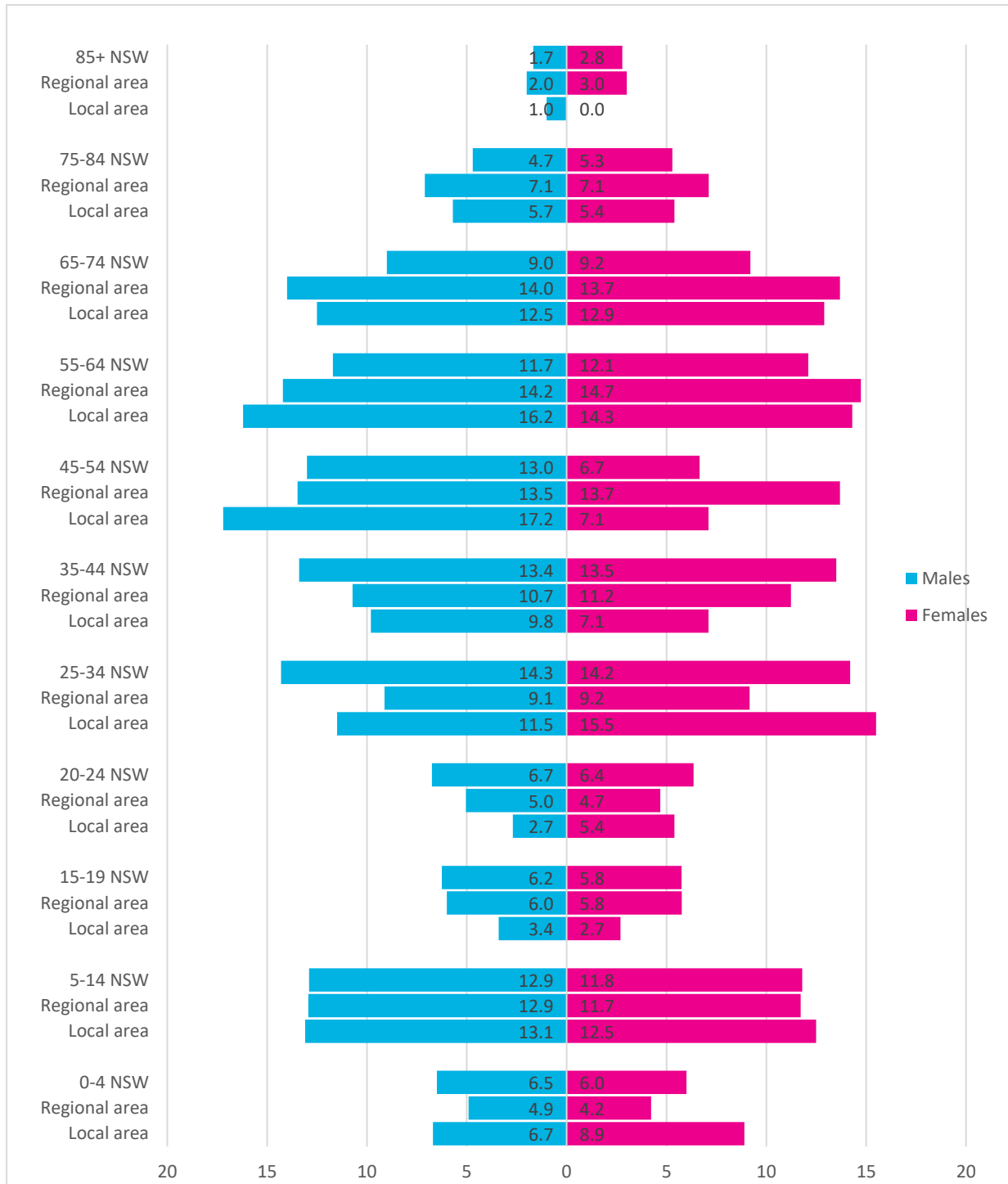
Table B: Population by age, 2016

Age groups	Limeburners Creek %	Allworth %	Bulhadelah – Stroud %	Port Stephens %	Dungog %	NSW %
0-4	9.3	6.2	4.6	5.3	5.4	6.2%
5-9	9.9	8.1	5.7	6.2	6.8	6.4%
10-14	1.7	7.5	5.9	6.1	6.4	5.9%
15-19	2.9	1.9	5.2	5.9	6.2	6.0%
20-24	3.5	1.9	4.0	5.0	4.2	6.5%
25-29	8.2	3.8	4.2	4.6	4.0	7.0%
30-34	6.1	6.9	3.5	4.7	5.0	7.2%
35-39	2.6	5.6	4.1	5.0	5.3	6.7%
40-44	6.1	5.0	5.7	6.1	5.8	6.7%
45-49	5.5	6.9	7.8	6.2	6.9	6.6%
50-54	10.5	6.2	8.8	7.0	7.8	6.5%
55-59	6.1	10.6	8.1	7.0	8.3	6.3%
60-64	9.9	10.0	8.5	7.1	7.9	5.6%
65-69	6.4	10.6	7.7	7.7	6.9	5.1%
70-74	4.4	3.8	6.1	6.4	4.8	3.9%
75-79	2.9	5.0	4.6	4.4	4.0	2.9%
80-84	2.3	0	2.8	2.8	2.3	2.1%
85+	1.5	0	2.6	2.6	2.0	2.2%
Median age	43	47	49	45	45	38

The distribution of males and females in the local area is 56.9% male and 43.1% female (ABS 2016). This differs from the regional area which has a more even a distribution of 49.6% males and 50.4% females. The regional area is more aligned with the NSW distribution of 49.3% males and 50.7% females.

The largest demographic in the local area is males aged 45-54 (17.2%). As illustrated in the population distribution in Figure 1, there is a higher ratio of males to females between the ages of 35-64 years. This is in contrast to a higher ratio of females to males in the younger 20-34 year old group. The regional and NSW areas have a fairly even ratio of males to females across all ages except the 45-54 year old group, which has a slightly higher male population.

Figure A: Population distribution by age and gender, 2016



## Health and wellbeing

Health indicators for the regional study area generally indicate poorer health within the local and regional areas compared to NSW. This would suggest the population within the study area is more vulnerable to health impacts.

### Community health

According to PHIDU (2021) 15.8-18.5% of persons aged 15 years and over within the regional area self-assessed their health as fair or poor. This compares to 14.1% for persons within NSW. Looking at smoking, alcohol, obesity, asthma and disability indicators also show that the local and regional areas have significantly poorer health when compared to NSW.

Table C: Health indicators

Health indicators	Source Date	Bulahdelah – Stroud	Port Stephens	Dungog	NSW
Barrier to accessing health care (ASR per 100)	2014	2.7	3.8	1.9	2.5
Smoking (%)	2012-2014	20.8	20.8	19.5	9.8
Alcohol (ASR per 100)	2017-2018	20.2	27.5	21.0	15.5
Obesity (ASR per 100)	2017-2018	33.4	36.3	37.6	30.7
Asthma (ASR per 100)	2017-2018	12.7	12.8	13.6	10.6
Admissions to all hospitals – respiratory disease (ASR per 100,000)	2018-2019	1605.4	1626.4	1534.7	1877.8
Fair to poor self-assessed health (ASR per 100)	2017-2018	18.5	15.8	17.0	14.1
Psychological stress (ASR per 100)	2017-2018	12.5	11.9	10.4	10.8
Children developmentally vulnerable in one or more domains (%)	2018	21.8	19.1	19.8	19.9
Proportion of the population over 65 years receiving a pension (%)	2020	63.2	68.2	56.2	63.2
Persons with a profound or severe disability and living in the community, all ages (%)	2016	7.1	6.1	5.4	4.9

Source: PHIDU 2020.

Note: The local area is not discretely represented by a PHA, and no data is available for that area.

## Respiratory health

Asthma is used as an indicator of respiratory health of the community and people’s vulnerability to dust and other air impacts. A person suffering from asthma in the local area may be more vulnerable to impacts resulting from the project. These impacts can include traffic, construction related dust and emissions and ongoing operations.

Data from NSW health concerning the prevalence of asthma is only available at the Local Health District (LHD) level. The local area and regional area fall within the Hunter New England LHD. The prevalence of asthma in the Hunter New England LHD is higher than NSW with the linear trend lines fairly steady from 2002-2019 (Hunter New England at 12.4% and NSW at 10.9%). During 2015, the Hunter New England LHD prevalence of asthma spiked to 14.7%, but has since fallen to 11.0% in 2018-2019.

The prevalence of asthma in children 2-15 years is higher than adults. In Hunter New England LHD, the prevalence of asthma is trending upward reaching 16.4% in 2017-2019. In contrast, the NSW trend is decreasing to 13.1% in 2017-2019.

The data for the Hunter New England LHD should only be used as indicative for the local area as the LHD covers a very large area including urban areas like Newcastle as well as other regional rural areas. Current PHIDU estimates indicate 12.7-13.6% of the population of the regional area suffer from asthma.

Figure B: Current asthma proportion of persons 16 years and older, 2002 – 2019

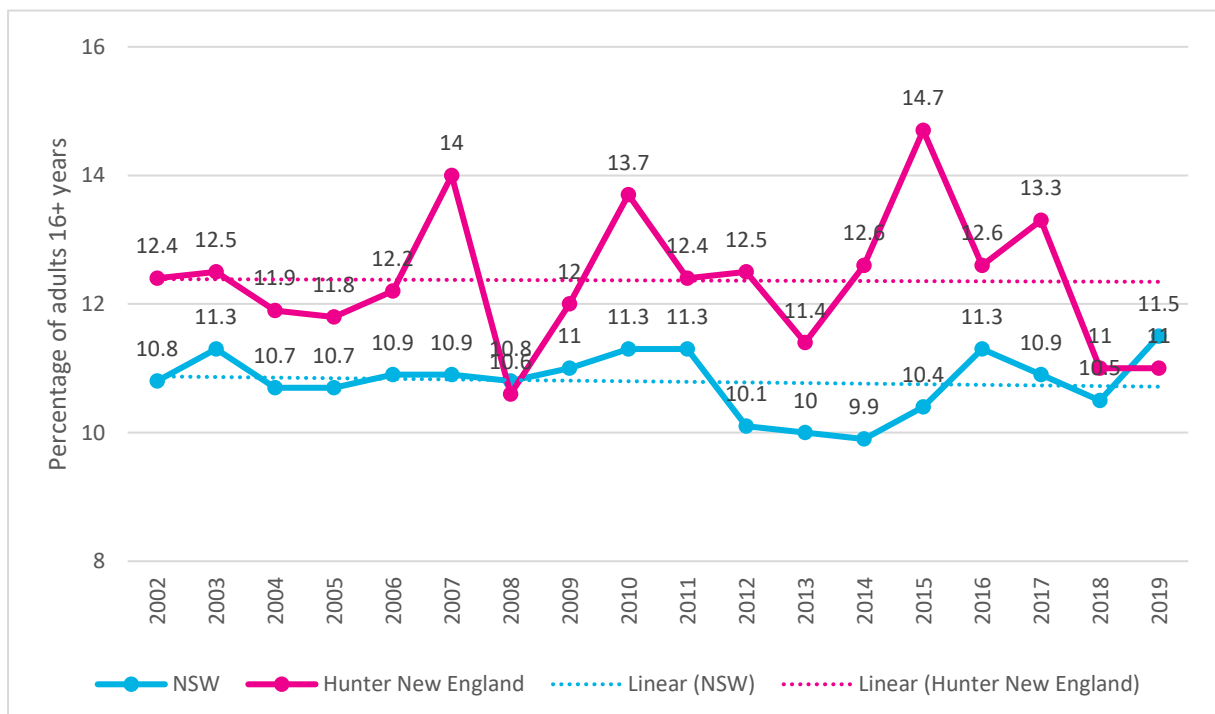
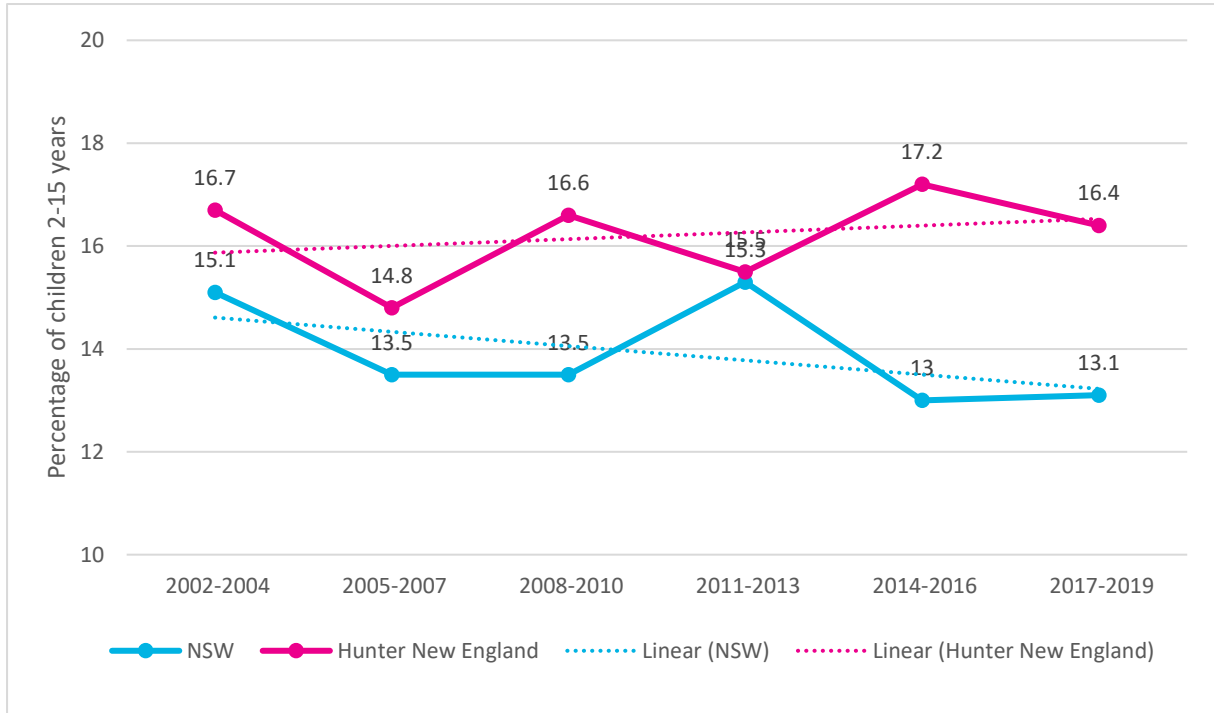


Figure C: Current asthma proportion of persons 2-15 years, 2002 – 2019



## Social infrastructure

Within the local area, there are no high schools or primary schools or preschools. The closest schools are located in Booral, approximately 10km north of the local area, and Stroud (17km north). This would suggest a reliance on buses and private vehicles to travel to and from school.

Other schools in the regional area include:

- Clarence Town Public School (22km)
- Bulahdelah Central School (42km)
- Dungog Public School (44km)
- Hunter River High School (34km)
- Wirreanda Public School, Medowie (26km).

## Education

Education levels within the local area do not compare favourably against the regional area and NSW. The local area has a higher proportion of certificate III holders (16.1 and 26.8%) compared to 18.1-18.7% for the regional area and 12.8% for NSW. Certificate IV level of attainment is fairly similar across all areas, ranging from 2.2-4.0%. There is a significantly lower proportion of tertiary education (bachelor degree level and above) within the local area (5.4 and 3.9%) than the regional area (8.7-12.1%) and NSW (23.4%).

*Table D: Highest levels of education*

Level of highest educational attainment	Lime-burners Creek	Allworth	Bulah-delah – Stroud	Port Stephens	Dungog	NSW
Bachelor degree level and above. (%)	5.4	3.9	8.7	11.0	12.1	23.4
Advanced diploma and diploma level. (%)	9.7	3.9	7.5	9.0	9.1	8.9
Certificate level IV. (%)	3.6	2.4	2.2	4.0	3.6	2.9
Certificate level III. (%)	16.1	26.8	18.1	18.7	18.3	12.8
Year 12. (%)	10.0	9.4	9.8	10.6	8.7	15.7
Year 11. (%)	3.9	2.4	3.4	3.8	3.3	4.9
Year 10. (%)	15.4	17.3	19.1	16.6	17.3	10.8
Certificate level II. (%)	0.0	0.0	0.2	0.1	0.0	0.1
Certificate level I. (%)	0.0	0.0	0.0	0.0	0.0	0.0
Year 9 or below. (%)	12.2	11.8	14.7	10.4	12.2	8.0
No educational attainment. (%)	1.1	0.0	0.3	0.3	0.2	0.8
Not stated. (%)	18.3	12.6	12.9	12.1	12.4	10.4



## Transport infrastructure

### Modes of travel.

The predominant mode of travel to work within the local area is by car. Rates of persons driving to work in the local area (81.5 and 75.8%) is higher than the regional area (62.4-70.3%) and significantly higher than NSW rates (61.5%). This is true for travelling to work as a driver and as a passenger as well.

Public transport as a mode of travel is negligible in the local area with no persons travelling to work by public transport. This compares to 0.7-1.5% in the regional area and 11.5% in NSW.

Table E: Travel to work, top responses

Travel to work, top responses	Lime-burners Creek	Allworth	Bulahdelah – Stroud	Port Stephens	Dungog	NSW
Car, as driver. (%)	81.5	75.8	62.4	70.3	67.0	61.5
Worked at home. (%)	6.5	9.1	10.7	4.9	8.9	4.7
Car, as passenger. (%)	2.4	4.5	4.9	4.6	3.6	4.6
Walked only. (%)	-	4.5	4.5	2.6	3.6	3.5
Truck. (%)	-	-	2.2	1.2	2.0	0.8
Travelled to work by public transport. (%)	-	-	1.0	1.5	0.7	11.5
Travelled to work by car as driver or passenger. (%)	84.4	81.4	67.7	75.9	71.0	68.4

### Public transport

Public transport services are available in the local area with bus and coach services operating locally and regionally along The Bucketts Way.

Scheduled routes and school bus services are both available within the local area. All buses use The Bucketts Way, which is the main road through the local area. The school buses enter the community of Allworth and then return to The Bucketts Way.

### Road network

The local area is reliant upon The Bucketts Way to connect to the wider region. It runs north to Booral and Stroud, and south to Pacific Highway. The intersection of The Bucketts Way and Pacific Highway is at grade, and has been identified as an area that develops significant waiting times to enter the highway.

## Local workforce skill and capacity

At the time of the 2016 census, the unemployment rate in the local area (6.4 and 6.8%) was lower than Bulahdelah - Stroud (7.1%) and Port Stephens (7.3%) but higher than Dungog (5.5%). The local area was more in line with NSW rates (6.9%).

The rate of full-time work in Limeburners Creek was similar to the regional area and NSW, all of which range from 54.7-57.7%. Allworth had a higher rate of full-time work at 74.3%. However, part-time work in Allworth was significantly lower (14.9%) compared to the other areas which ranged from 30.4-35.7%.

Table F: Employment

Employment (15 years and older)	Limeburners Creek	Allworth	Bulahdelah – Stroud	Port Stephens	Dungog	NSW
Worked full-time. (%)	55.7	74.3	53.2	53.0	54.7	57.7
Worked part-time. (%)	35.7	14.9	34.5	34.1	34.1	30.4
Away from work. (%)	2.1	4.1	5.2	5.6	5.7	5.0
Unemployed. (%)	6.4	6.8	7.1	7.3	5.5	6.9

The top occupations in the local area are technicians and trades workers (18.5 and 25%), managers (11.5 and 30.0%) and machinery operators (17.7 and 13.3%). The regional area has two of the top three occupations with managers and technicians and trades workers as the top occupations. This suggests the skill base of the local area is likely to be well suited to servicing the project.

Table G: Occupation

Occupation	Limeburners Creek	Allworth	Bulahdelah – Stroud	Port Stephens	Dungog	NSW
Technicians and trades workers. (%)	18.5	25.0	16.3	17.7	18.0	12.7
Machinery operators and drivers. (%)	17.7	13.3	10.7	8.1	9.4	6.1
Clerical and administrative workers. (%)	12.3	11.7	10.8	12.9	12.6	13.8
Managers. (%)	11.5	30.0	17.2	10.8	15.7	13.5
Sales workers. (%)	11.5	-	8.5	10.4	7.2	9.2
Labourers. (%)	10.8	15.0	13.4	11.3	12.1	8.8
Professionals. (%)	10.0	-	11.3	14.4	14.2	23.6
Community and personal service workers. (%)	7.7	5.0	10.2	12.7	9.2	10.4



## Income

The median income of all residents over 15 years of age in the local area was similar to the regional area with values ranging from \$475 to \$606. Limeburners Creek was lower on the range at \$514, with Bulahdelah – Stroud (\$475) the only area with a lower median income. Allworth was at the higher end of the range (\$606), and well above the regional area median incomes. NSW median income was much higher (\$664) than the other areas.

Median household incomes followed a different trend with Limeburners Creek (\$1279) having the highest median income in the local and regional areas. Allworth (\$1050) had the second lowest median income with Bulahdelah – Stroud (\$990) the lowest. NSW was significantly higher, with a household median income of \$1486.

Table H: Median weekly incomes

Median weekly income	Limeburners Creek	Allworth	Bulahdelah – Stroud	Port Stephens	Dungog	NSW
Personal. (\$)	514	606	475	563	578	664
Family. (\$)	1318	1375	1183	1402	1474	1780
Household. (\$)	1279	1050	990	1158	1226	1486

## Housing

### Housing type

The most common type of house within the study area in 2016 was almost exclusively separate houses (97.1 and 100%). This was similar to Bulahdelah – Stroud (95.4%) and Dungog (96.0%). Port Stephens was much lower at 79.6% with NSW at 66.4%.

The local area had no other types of housing available and the regional area had very few, with Port Stephens having semi-detached, row, terrace or townhouse (13.7%) as the next highest housing type. In NSW, separate houses was the most common at 66.4% followed by flat or apartment at 19.9% and semi-detached, row, terrace or townhouse at 12.2%.

Table I: Housing types and structure

Housing type and structure	Limeburners Creek	Allworth	Bulahdelah – Stroud	Port Stephens	Dungog	NSW
Separate house. (%)	97.1	100.0	95.4	79.6	96.0	66.4
Semi-detached, row, terrace or townhouse. (%)	0.0	0.0	0.8	13.7	0.7	12.2
Flat or apartment. (%)	0.0	0.0	0.6	3.8	1.2	19.9
Other dwelling. (%)	0.0	0.0	2.4	2.4	1.4	0.9
Total private dwellings. (no.)	113	88	2,217	33,236	3,790	2,889,061
Total occupied dwellings. (%)	92.9	79.5	80.7	79.1	86.1	90.1

Household compositions in 2016 were mostly family households in Limeburners Creek (80.7%), the regional area (71.6-74.3%) and NSW (72.0%). Allworth has a higher proportion of lone person households (48.6%) than family households (47.2%). Lone person households were much lower in Limeburners Creek (16.5%) with the regional area and NSW ranging between 23.8-25.3%.

There were fewer group households in Limeburners Creek (2.8%) than in Allworth (4.2%). The Limeburners Creek proportion of group households is similar to the regional area, while the Allworth proportion is the same as NSW. The fewer number of group households may indicate a lower proportion of young adults in the local and regional areas while the higher proportions of lone households may reflect higher proportions of older persons.

Table J: Household composition

Household composition	Limeburners Creek	Allworth	Bulahdelah – Stroud	Port Stephens	Dungog	NSW
Family households. (%)	80.7	47.2	71.6	72.3	74.3	72.0
Lone person household. (%)	16.5	48.6	24.8	25.3	23.9	23.8
Group household. (%)	2.8	4.2	3.5	2.5	1.8	4.2

## Tenure

At the time of the 2016 census, 40.7-43.6% of the dwellings in the local area were owned outright. This is similar to the regional area (38.7-46.0%) but higher than NSW (32.2%). A higher percentage of houses were owned with a mortgage in Limeburners Creek (50.0%) than other areas. The Allworth proportion (37.2%) was similar to the regional area (30.5-37.1%) with NSW at 32.3%.

The proportion of rented houses in the local area was very low (6.5 and 14.1%) compared to 17.6-26.4% in the regional area and 31.8% in NSW.

Table K: Home ownership and tenure

	Lime-burners Creek	Allworth	Bulahdelah – Stroud	Port Stephens	Dungog	NSW
Owned outright. (%)	40.7	43.6	46.0	38.7	42.4	32.2
Owned with a mortgage. (%)	50.0	37.2	31.5	30.5	37.1	32.3
Rented. (%)	6.5	14.1	17.8	26.4	17.6	31.8
Other tenure type. (%)	0.0	0.0	0.8	1.3	0.6	0.9

Residents in the local area paid less for mortgage repayments (\$1,430) each month in 2016 than Port Stephens (\$1,690) and Dungog (\$1,662). Bulahdelah – Stroud had lower mortgage payments at \$1,365, and NSW had much higher payments at \$1,986.

Rents in the local area (\$200-230) were slightly lower than the regional area (\$230-300) and significantly lower than NSW (\$380).

Table L: Mortgage repayments, 2016

	Lime-burners Creek	Allworth	Bulahdelah – Stroud	Port Stephens	Dungog	NSW
Mortgage repayments – median mortgage repayments \$ monthly	1,430	1,430	1,365	1,690	1,662	1,986
Rent payments – median rent \$ weekly	200	230	230	300	245	380

Housing stress is considered to occur when households in the lower 40% of income distribution spend more than 30% of their income in housing costs (rents or mortgage repayments). This can mean local people who are not employed in high paying jobs may be unable to afford rents and mortgages.

In the local area, there was a disparity between the Limeburners Creek and Allworth communities in terms of mortgage and rental costs. Allworth had a lower proportion of persons with mortgage payments greater than or equal to 30% of household income (4.6%) than the regional area (6.3-8.1%) and NSW (7.4%). Limeburners Creek had a much higher proportion at 14.9%. This high proportion in Limeburners Creek may indicate a greater susceptibility to housing stress than Allworth and the regional area.

A much smaller proportion of persons in the local area had rent payments greater than or equal to 30% of household income with Limeburners Creek at 2.8% and Allworth at 4.8%. This proportion is significantly lower than the regional area (6.1-11.1.0%) and NSW (12.9%). These lower proportions in the local area may be due to the low proportion of rented dwellings in the area.

Table M: Housing affordability, 2016

	Lime-burners Creek	Allworth	Bulahdelah – Stroud	Port Stephens	Dungog	NSW
Households where mortgage payments are greater than or equal to 30% of household income (%)	14.9	4.6	6.5	6.3	8.1	7.4
Households where rent payments are greater than or equal to 30% of household income (%)	2.8	4.8	7.2	11.1	6.1	12.9

## Socioeconomic advantage and disadvantage

The level of disadvantage or advantage in the population is indicated in the ABS (2016b) Socio-Economic Indexes for Areas (SEIFA) which focuses on low-income earners, relatively lower education attainment, high unemployment, and dwellings without motor vehicles. SEIFA is a suite of four summary measures created from Census data, including:

- the Index of Relative Socio-Economic Disadvantage (IRSD);
- the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD);
- the Index of Education and Occupation (IEO); and
- the Index of Economic Resources (IER).

Each index is a summary of a different subset of Census variables and focuses on a different aspect of socioeconomic advantage and disadvantage. Low rankings are deemed most disadvantaged and high rankings least disadvantaged within a decile ranking system where the lowest 10% of areas within Australia are given a decile number of 1 and the highest 10% of areas are given a decile number of 10.

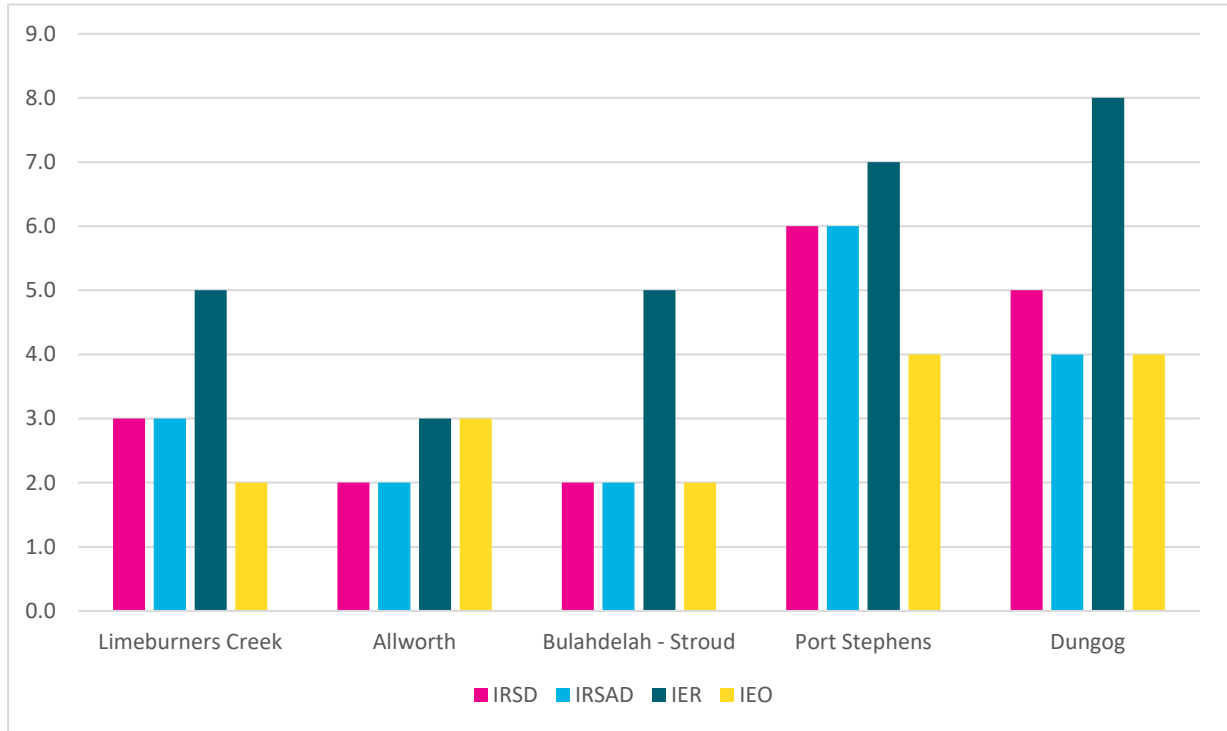
According to the 2016 SEIFA, the local area (Limeburners Creek and Allworth) is in the lower 50% of communities in NSW in terms of disadvantage. The regional area ranks in higher deciles than the local area, except for the Bulahdelah – Stroud area.

In terms of the local area, rankings of 2 and 3 for IRSD and IRSAD means that compared to other suburbs across NSW, there is likely a higher proportion of households with low income, people without qualifications, and people in low skill occupations. This also suggests that the local area has a smaller proportion of households with higher incomes, or a smaller proportion of people in skilled occupations.

Ranking in the third decile for IER (Allworth) suggest that compared to other suburbs across NSW, there is a greater proportion of households in the local area with low income or households paying low rent. It also suggests that a smaller proportion of households with high income occur in Allworth. Ranking in the second and third decile for IEO suggest that there may be more people without qualifications, more people in low skilled occupations, or higher unemployment. Conversely it may indicate fewer people

with high level qualifications or in highly skilled occupations. The rankings and the four summary measures are illustrated in Figure 4.

Figure D: SEIFA deciles in the study area, 2016



## Cultural diversity

Cultural diversity in the local and regional areas is much lower than across NSW. In NSW, the proportion of the population born in Australia is 65.5%, as compared to 79.7-86.3% of the population in the local area born in Australia. The population of the regional area is similar to the local area, with rates of 80.7-86.7% born in Australia. The local area and regional area also have a greater proportion of intergenerational Australians, with 67.8-74.1% persons with both parents born in Australia.

A significantly smaller proportion of households in the local area (3.3%) and regional area (1.9-5.1%) speak a non-English language at home compared to 26.5% in NSW. This may indicate a lower number of migrants in the local and regional area, which is consistent with the preference of migrants in Australia to settle in major cities.

Table N: Country of birth, 2016

	Lime-burners Creek	Allworth	Bulah-delah – Stroud	Port Stephens	Dungog	NSW
Born in Australia. (%)	79.3	86.3	83.5	80.7	86.7	65.5
Both parents born in Australia. (%)	70.6	73.1	74.1	67.8	78.1	45.4
English only spoken at home. (%)	88.1	90.1	92.0	89.5	92.4	68.5
Non-English language spoken. (%)	3.3	-	3.2	5.1	1.9	26.5

## Vulnerable groups

### Disability

The need for assistance relates to one or more of three core activity areas of self-care, mobility and communication due to a disability, long-term health condition (lasting six months or more) or old age (ABS 2016). The local area has a smaller proportion of persons who require assistance (3.1-4.7%) when compared to the regional area (5.7-8.4%) and NSW (5.4%).

Table O: Core activity need for assistance, 2016

	Lime-burners Creek	Allworth	Bulah-delah – Stroud	Port Stephens	Dungog	NSW
Has need for assistance. (%)	4.7	3.1	8.4	6.5	5.7	5.4
Does not need assistance. (%)	91.4	93.8	84.2	85.8	86.7	94.6

## Aboriginal and Torres Strait Islander population

In 2016, 9.8-10.1% of the local population and 4.8-5.4% of the regional area population identified as Aboriginal and/or Torres Strait Islander (ABS 2016). The proportion is greater than the proportion of the population who identify as Aboriginal and/or Torres Strait Islander in NSW (2.9%). **Table P: Aboriginal and / or Torres Strait Islander persons as a percentage of population, 2016** presents the proportion of persons who identify as Aboriginal and/or Torres Strait Islander in the study area.

Table P: Aboriginal and / or Torres Strait Islander persons as a percentage of population, 2016

	Lime-burners Creek	Allworth	Bulah-delah – Stroud	Port Stephens	Dungog	NSW
Indigenous population. (%)	9.8	10.1	5.4	4.8	5.1	2.9



The data for age groupings of the Aboriginal and/or Torres Strait Islander population in the local area has been adjusted in the census reporting to such an extent that it would hold little meaning in at a finer scale. However, the information available indicates that the largest Indigenous demographic in the local area is males aged 45-54, followed by females under 14 years of age. The number males aged 45-54 is inconsistent with the regional and NSW areas, but other trends seem to align with the regional and NSW demographics. There is a smaller proportion of the Indigenous population living beyond 65 years, which aligns with the lower life expectancy among Indigenous Australians nationally (AIHW 2019).

## Community culture and values

The vision statements and documents from the MidCoast Council identify the community values as shown in **Table Q: Community Values** below.

*Table Q: Community Values*

Value	
The unique, diverse and culturally rich communities.	Diverse communities offer active and social opportunities, are safe and are places where we work together with a creative focus acknowledging our rich history and culture.
A connected community	We are socially and physically connected with each other, by ensuring we have activities, facilities, roads, footpaths and technology that are upgraded and well maintained.
The environment	The natural environment is protected and enhanced, while we maintain our growing urban centres and manage our resources wisely.
Thriving and growing economy	We are a place where people want to live, work and play, business is resilient and adaptable to change by utilising knowledge and expertise that supports innovation.
Strong leadership and shared vision	We work in partnerships towards a shared vision, that provides value for money and is community focused

## Community strengths and vulnerabilities

### Voluntary work

Volunteering rates can give an indication of social cohesion, and the community members' willingness to help each other. In the local area, rates of volunteering during the six-month period prior to the census were lower (16.1-17.3%) than the regional area (18.3-25.2%) and NSW (18.1%). **Table R: Community strength indicators** provides a summary of the indicators for community strengths.



Table R: Community strength indicators

	Lime-burners Creek	Allworth	Bulah-delah – Stroud	Port Stephens	Dungog	NSW
Voluntary work through an organisation or group. (%)	16.1	17.3	20.1	18.3	25.2	18.1
Estimated number of people who were able to get support in times of crisis from persons outside the household (ASR per 100)	-	-	93.7	93.8	94.2	93.4
Estimated number of people who provided support to other relatives outside the household (ASR per 100)	-	-	31.9	32.1	30.2	32.5
Estimated number of people who felt very safe walking alone in local area after dark (ASR per 100)	-	-	66.5	56.6	70.4	53.4

Source: ABS 2021 and PHIDU 2020.

Note: The local area is not discretely represented by a PHA, and no data is available for that area.

“ **Creating vibrant communities through  
powerful conversations** ”

**MARA**